North Atlantic

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.

A047

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.

Ted Feigenbaum

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

ENCLOSURE 2 TO NYN-00027

North Atlantic Commitments Contained in NYN-00027

	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

North
Atlantic

Inservice Testing Reference

SITR

Manual Owner
R. I. Parry

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-1

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-2

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-3

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-4

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-5

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-6

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-7

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-8

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

[redacted] D-9

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-10

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-11

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-12

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-13

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-14

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-15

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-16

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-17

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-18

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-19

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-20

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-21

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-23

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-24

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-25

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-26

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-28

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-29

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-30

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-31

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-32

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-33

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-35

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-36

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-37

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-38

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-39

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

D-40

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-41

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-42

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-43

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-44

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-45

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-46.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-47

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-48

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-49

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-50

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-51

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-52

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-53

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-54

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: **Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.**

D-55

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-56

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-57

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-58

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-59

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-60

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-61

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-62

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SF-D20482, Rev.11

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-63

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-64

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-65

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SI-D20446, Rev.10

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-66

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-67

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-68

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-69

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-70

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-71

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-72

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-SW-D20796, Rev.4

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-73

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-VG-D20780, Rev.17

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-74

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

PID-1-WG-D20773, Rev. 9, WASTE GAS SYSTEM DETAIL

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-WG-D20773, Rev.9

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-75

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-WLD-D20218, Rev.11

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-76

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-WLD-D20219, Rev.7

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-77

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: PID-1-WLD-D20221, Rev. 8, WASTE PROCESSING LIQUID DRAINS RHR EQUIPMENT VAULTS #1 & #2

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

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-78

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-WLD-D20222, Rev.13

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-79

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: PID-1-CS-D20724, Rev.11

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.

D-80

SEABROOK STATION
REFERENCE MANUAL

North
Atlantic

Inservice Testing Reference

SITR

Manual Owner
R. I. Parry

INSERVICE TESTING REFERENCE
(SITR)

Table of Contents

INSERVICE TESTING REFERENCE
(SITR)

Table of Contents

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 valve 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.

4. 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 SCOPE

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 PUMPS

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.

TABLE ISTB 4.1-1

Quantity	Preservice Test	Group A Test	Group B Test	Comprehensive Test	Remarks
Speed ,N	X	X	X	X	If variable speed
Differential Pressure, ΔP	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

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.

Table ISTB 4.7.1-1
Required Instrument Accuracy

Quantity	**Group A & B Tests**	**Comprehensive and Preservice Tests**
Pressure	±2%	±1/2%
Flow Rate	±2%	±2%
Speed	±2%	±2%
Vibration	±5%	±5%
Differential Pressure	±2%	±1/2%

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 VALVES

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 Reference Stroke Time (RST) (ISTC 3.3)

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 valves shall be measured to at least the nearest second. (ISTC 4.2.4 (b))

TABLE 1
VALVE STROKE TIME LIMIT TABLE

Reference Stroke Time (RST) Range	Valve Type	Required Action Limit
≤ 10 Seconds	Motor Operated	±25% or ±1sec, whichever is greater
≤ 10 Seconds (Note 1)	Other Power Operated	±50%
> 10 Seconds	Motor Operated	±15%
> 10 Seconds	Other Power Operated	±25%
≤ 2 Seconds (Note 1)	Rapid Acting	>2 seconds

Note 1: As a guideline, power operated valves with reference stroke times ≤ 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 applicable 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 position-indicating 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 valves 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 valves 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 Non-Intrusive Testing

- 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 not 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 valves to be tested are listed in the Valve Test Tables of this program plan. As specified in ISTC 4.4, Category C safety and relief valves 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 valve 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 ±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 10CFR50, Appendix J Type C Leakage Rates

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. Category A - Valves for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their function.

2. Category B - Valves for which seat leakage in the closed position is inconsequential for fulfillment of their function.

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

4. Category D - 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**
A	Active	ISTC 4.3	ISTC 4.2	None	ISTC 4.1
A	Passive	ISTC 4.3	None	None	ISTC 4.1
B	Active	None	ISTC 4.2	None	ISTC 4.1
B	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 valve in the group being tested is skipped, for whatever reason, that valve should be satisfactorily tested prior to returning the plant to power. Valves 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. Analysis of Inservice Test Results - 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 valve 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. Analysis of Pump and Valve Test Results - 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. Pumps

    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. Valves

    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. Pumps - 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. Valves - 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
PUMP GENERAL RELIEF REQUESTS

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 Measurement (Acceptable Instrument Accuracy Table ISTB 4.7.1-1)
Basis for Relief:	Seabrook Station uses flow measuring instrumentation which meets the acceptable instrument accuracies defined in Table ISTB 4.7.1-1. However, the total flow element loop accuracy was calculated from the flow device to the indicator readout device. The loop accuracies do not meet the instrument accuracies of Table ISTB 4.7.1-1, but the instruments are well within the table limits for flow rate.

Flow Measurement Instrument Accuracies
(% of Full Scale)

System	Instrument Accuracy	Loop Accuracy
CC	0.50%	2.20%
RH	2.00%	3.00%

Alternate Testing:	No additional testing is necessary.

Figure F2
Pump Test Table

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

Figure F2
Pump Test Table

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.

Figure F2
Pump Test Table

Pump Table Nomenclature

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

N = Rotative Speed

ΔP = Differential Pressure

Q_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

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_r	V	Remarks
CBS-P9A Containment Spray Pump	1-CBS-D20233	2 (A-12)	B	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	

Figure F2
Pump Test Table

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_f	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)**	**B**	**Fixed**	**X**	**X**	**X**	**X**	
FW-P37B Emergency Feedwater Pump	**1-FW-D20688**	**3 (B-9)**	**B**	**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

Pump Number	P&ID No.	Class and Coord.	Group	Flow Resis.	N	ΔP (2)	Q_f	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)	B	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

Figure F2
Pump Test Table

NOTES

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
PUMP TEST TABLE

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.

Test Requirements:

- Table ISTB 4.7.1-1 requires vibration instrumentation loop accuracy to be ±5%.
- 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.
- ISTB 5.2.1(d) and ISTB 5.2.3(d) states that vibration measurements shall be broad band (unfiltered).

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 instruments meet the specified ±5% accuracy limits over a frequency range of 6-1000 Hz. 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 at 885 RPM (14.75 Hz). Vibration measurements are taken on the upper motor bearing 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 accuracy requirement of +/- 5% for the 1/3 minimum operating frequency will not be 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 ± ½ %.

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)

Transmitter Accuracy	Indicator Accuracy	Loop Accuracy
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.

FIGURE F3
VALVE GENERAL RELIEF REQUESTS

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FIGURE F3
VALVE GENERAL RELIEF REQUESTS

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.

Basis for Relief: 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. De-energizing 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.

FIGURE F3
VALVE GENERAL RELIEF REQUESTS

Relief Request:	VG-2
Valves:	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, ...
Basis For Relief:	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.
Alternate Testing:	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).

FIGURE F3
VALVE GENERAL RELIEF REQUESTS

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.'
Basis for Relief:	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.' 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.
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.

FIGURE F4
VALVE TEST TABLES

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FIGURE F4
VALVE TEST TABLES

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 Valve Test Tables.

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 full opening or required position for intended function with forward flow and 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.

FIGURE F4
VALVE TEST TABLES

VALVE TEST TABLE NOMENCLATURE

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

Valve Type

BFV- Butterfly Valve
BLV- Ball Valve

CHV- Check Valve

DIV - Diaphragm Valve

GLV- Globe Valve
GTV- Gate Valve

REV- Relief Valve

SAV- Saunders Weir Valve
SCV- Stop Check Valve
SEV- Safety Valve

TMV- Three Way Valve

Normal Position

O - Open

C - Closed

LO - Locked Open

LC - Locked Closed

TH - Throttled

DE - Normal position depends on system condition

Actuator Type

APA- Air/Piston
ADA- Air/Diaphragm

DIA - Diaphragm

HOA- Hydraulic

MAA- Manual
MOA- Motor

NPA- Nitrogen/Piston
NDA- Nitrogen/Diaphragm

SEA- Self
SOA- Solenoid

Stroke Direction

O - Closed to Open

C - Open to Closed

FIGURE F4
VALVE TEST TABLES

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

FIGURE F4
VALVE TEST TABLES

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

VALVE LIST

	System	P&ID No.	Page No.
1.	Auxiliary Steam (AS)	1-AS-D20569	1-F4.11
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
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 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-F4.44
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-F4.45
10.	Diesel Generator (DG)	1-DG-D20459 1-DG-D20464	1-F4.60
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.	Page No.
12.	Fire Protection (FP)	1-FP-D20271	1-F4.64
13.	Feedwater (FW)	1-CO-D20426 1-FW-D20686 1-FW-D20687 1-FW-D20688	1-F4.65
14.	Instrument Air (IA)	1-IA-D20640 1-IA-D20643 1-IA-D20644 1-IA-D20645	1-F4.70
15.	Leak Detection (LD)	1-LD-D20864	1-F4.71
16.	Main Steam (MS)	1-MS-D20580 1-MS-D20581 1-MS-D20582 1-MS-D20583 1-MS-D20587	1-F4.72
17.	Nitrogen Gas (NG)	1-NG-D20136	1-F4.82
18.	Reactor Coolant (RC)	1-RC-D20841 1-RC-D20843 1-RC-D20844 1-RC-D20845 1-RC-D20846 1-SS-D20518	1-F4.84
19.	Residual Heat Removal (RH)	1-RH-D20662 1-RH-D20663	1-F4.93
20.	Reactor Makeup Water (RMW)	1-CS-D20725 1-CS-D20729 1-RMW-D20360	1-F4.99
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-F4.103
		1-SF-D20483	
		1-SF-D20484	
24.	Safety Injection (SI)	1-SI-D20446	1-F4.105
		1-SI-D20447	
		1-SI-D20450	
25.	Sample (SS)	1-SS-D20520	1-F4.120
26.	Service Water (SW)	1-SW-D20794	1-F4.121
		1-SW-D20795	
		1-SW-D20796	
27.	Vent Gas (VG)	1-VG-D20780	1-F4.129
28.	Waste Processing Liquid Drains (WLD)	1-WLD-D20218	1-F4.130
		1-WLD-D20219	
		1-WLD-D20221	
		1-WLD-D20222	

SYSTEM: **AS**
PID No.: **D20569**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
AS-V175	3 (D5)	B	12.0 Gate	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
Auxiliary steam HELB isolation valve. This valve is normally open and will close following a HELB in the PAB. References: P&ID D20569, FSAR Section 7.6.10.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
AS-V176	3 (D-5)	B	12.0 Gate	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
Auxiliary steam HELB isolation valve. This valve is normally open and will close following a HELB in the PAB. References: P&ID D20569, FSAR Section 7.6.10.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **CAH**
PID No.: **D20504**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CAH-FV6572 Containment gas & particulate monitor supply line solenoid operated isolation valve.- ORC- CIV for penetration X-52A- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, FSAR Table 6.2-83.	2 (G-7)	A	0.5 Gate	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-FV6573 Containment gas & particulate monitor supply line solenoid operated isolation valve.- IRC- CIV for penetration X-52A- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, FSAR Table 6.2-83.	2 (G-7)	A	0.5 Gate	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-FV6574 Containment gas & particulate monitor return line solenoid operated isolation valve.- ORC- CIV for penetration X-52B- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and receives a "T" isolation closure signal. References: P&ID D20504, FSAR Table 6.2-83.	2 (G-8)	A	0.5 Gate	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
CAH-V12 Containment gas & particulate monitor return line check valve- IRC- CIV for penetration X-52B- subject to Appendix J Type C LLRT. This valve is normally open when the rad. monitor is in service, and closes to perform the containment isolation function for X-52B. References: P&ID D20504, FSAR Table 6.2-83.	2 (F-7)	A/C	0.5 Check	Self	O	C		CAH-CSJ-1	☐	☒	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CAP**
PID No.: **D20504**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CAP-V1	2 (B-8)	B	36.0 Butterfly	Air/Piston	C	C	C	 CAP-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment- refueling purge supply isolation valve. This valve is normally closed in Modes 1-4, and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment. References P&ID D20504, FSAR Section 15.7.4.3.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CAP-V2	2 (C-7)	B	36.0 Butterfly	Air/Piston	C	C	C	 CAP-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment- refueling purge supply isolation valve. This valve is normally closed in Modes 1-4, and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment. References P&ID D20504, FSAR Section 15.7.4.3.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CAP-V3	2 (C-7)	B	36.0 Butterfly	Air/Piston	C	C	C	 CAP-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment- refueling purge exhaust isolation valve. This valve is normally closed in Modes 1-4, and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment. References P&ID D20504, FSAR Section 15.7.4.3.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CAP-V4	2 (E-8)	B	36.0 Butterfly	Air/Piston	C	C	C	 CAP-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment- refueling purge exhaust isolation valve. This valve is normally closed in Modes 1-4, and is open during extended plant shutdowns and refueling outages. It receives an auto closure signal on high radiation inside containment. References P&ID D20504, FSAR Section 15.7.4.3.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CBS-V2 Containment spray pump RWST suction isolation valve. This valve is normally open, remains open during the injection phase of system operation, and is closed during the sump recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (B-11)	B	12.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V3 Containment spray pump RWST suction check valve. This valve opens during the injection phase of system operation, and is closed during the recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (B-11)	C	12.0 Check	Self	C	DE		CBS-CSJ-2	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V5 Containment spray pump RWST suction isolation valve. This valve is normally open, remains open during the injection phase of system operation, and is closed during the sump recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (C-8)	B	12.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V7 Containment spray pump RWST suction check valve. This valve opens during the injection phase of system operation, and is closed during the recirculation phase of system operation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.	2 (B-8)	C	12.0 Check	Self	C	DE		CBS-CSJ-2	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V8 Containment sump suction isolation valve. This valve is normally closed and opens to initiate ECCS/CBS sump recirculation. This containment isolation valve is exempt from Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (C-6)	B	16.0 Gate	Motor	C	DE		CBS-CSJ-1	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V9 Containment spray pump sump suction check valve. This valve is normally closed and opens during the sump recirculation phase of system operation. Closure is required to prevent diversion of CBS pump suction flow to the RHR pump during the injection phase of system operation. References: P&ID D20233, FSAR Section 6.2.2.	2 (B-10)	C	12.0 Check	Self	C	DE		CBS-RJ-2	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CBS-V11 Containment spray discharge X14 ORC isolation valve. This valve is normally closed and opens on a containment spray signal to admit CBS pump discharge to the containment spray headers. Remote manual closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (F-6)	A	8.0 Gate	Motor	C	DE			☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V12 Containment spray discharge X14 IRC isolation check valve. This valve is normally closed and opens to admit CBS pump discharge to the containment spray headers. Closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (F-5)	A/C	8.0 Check	Self	C	DE		CBS- RJ-3	☒	☐	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V14 Containment sump suction isolation valve. This valve is normally closed and opens to initiate ECCS/CBS sump recirculation. This containment isolation valve is exempt from Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (D-6)	B	16.0 Gate	Motor	C	DE		CBS-CSJ-1	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V15 Containment spray pump sump suction check valve. This valve is normally closed and opens during the sump recirculation phase of system operation. Closure is required to prevent diversion of CBS pump suction flow to the RHR pump during the injection phase of system operation. References: P&ID D20233, FSAR Section 6.2.2.	2 (B-7)	C	12.0 Check	Self	C	DE		CBS-RJ-2	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V17 Containment spray discharge X15 ORC isolation valve. This valve is normally closed and opens on a containment spray signal to admit CBS pump discharge to the containment spray headers. Remote manual closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (E-6)	A	8.0 Gate	Motor	C	DE			☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
CBS-V18 Containment spray discharge X15 IRC isolation check valve. This valve is normally closed and opens to admit CBS pump discharge to the containment spray headers. Closure may be required for containment isolation. This CIV is subject to Appendix J Type C LLRT. References: P&ID D20233, FSAR Section 6.2.2, FSAR Table 6.2-83.	2 (E-5)	A/C	8.0 Check	Self	C	DE		CBS- RJ-3	☒	☐	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment								
Remarks	Coord	(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CBS-V25	2 (A-7)	C	16.0 Check	Self	C	DE			☒	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.20,21.								CBS-RJ-2	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V26	2 (A-11)	C	16.0 Check	Self	C	DE			☒	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.20,21.								CBS-RJ-2	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V31	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment spray pump min-flow to RWST isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CBS-V32	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment spray pump min-flow to RWST isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CBS-V33	2 (E-6)	B	4.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
Containment spray pump min-flow to RWST common isolation valve. This valve will close on a containment spray signal, if open, and remains closed for the duration of the accident mitigation period. There is no seat leakage limit on this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Section 6.2.2, Engineering Evaluation 94-031.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment								
Remarks	Coord	(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CBS-V38	2 (G-10)	B	6.0 Gate	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒
Spray Additive Tank outlet isolation. This valve opens on a containment spray signal to allow SAT NaOH solution to flow to the RWST mixing chamber. Reference: P&ID D20233, FSAR Section 6.2.2.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open								
CBS-V43	2 (G-10)	B	6.0 Gate	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒
Spray Additive Tank outlet isolation. This valve opens on a containment spray signal to allow SAT NaOH solution to flow to the RWST mixing chamber. Reference: P&ID D20233, FSAR Section 6.2.2.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open								
CBS-V55	2 (B-12)	C	12.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031. (OPEN ITEM: the 30 gpm leakage limit is inconsistent with the assumptions and conclusions in Engineering Evaluation 94-031)								CBS-RJ-4	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V56	2 (C-7)	C	12.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031. (OPEN ITEM: the 30 gpm leakage limit is inconsistent with the assumptions and conclusions in Engineering Evaluation 94-031)								CBS-RJ-4	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CBS-V94	2 (C-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CBS heat exchanger relief valve. In scope per ISTC-1.1. Reference : P&ID D20233.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CBS-V96	2 (C-12)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CBS heat exchanger relief valve. In scope per ISTC-1.1. Reference : P&ID D20233.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CBS-V145	2 (B-11)	C	12.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031. (OPEN ITEM: the 30 gpm leakage limit is inconsistent with the assumptions and conclusions in Engineering Evaluation 94-031)								CBS-RJ-4	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V146	2 (C-8)	C	12.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
RHR pump RWST suction check valve. This valve opens on SI actuation and remains open during the injection phase of operation, and closes upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. There is no seat leakage requirement during the sump recirculation mode of ECCS operation per Engineering Evaluation 94-031. References: P&ID D20233, DCR 87-311, EX1804.20,21, Engineering Evaluation 94-031. (OPEN ITEM: the 30 gpm leakage limit is inconsistent with the assumptions and conclusions in Engineering Evaluation 94-031)								CBS-RJ-4	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **CBS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CBS-V147	2	C	16.0	Self	C	DE			☒	☐	☐	☐	☐	☐	☐	☐	☐
RHR pump containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.20,21.	(A-11)		Check					CBS-RJ-2	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V148	2	C	16.0	Self	C	DE			☒	☐	☐	☐	☐	☐	☐	☐	☐
RHR pump containment sump suction check valve. This valve is closed during the injection phase of ECCS operation, and opens upon transfer to ECCS sump recirculation. This valve also closes when the RHR system is placed in service during normal plant cooldown. A back seat test is required to be performed each refueling per DCR 87-311. Should the back seat test fail a leakage test must be performed to verify that the leakage is less than 30 GPM. This ensures that the potential leakage while in mode 4 does not exceed the capacity of the relief valve installed to protect the lower pressure RWST suction piping. References: P&ID D20233, DCR 87-311, EX1804.20,21.	(A-6)		Check					CBS-RJ-2	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:								
CBS-V149	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
RHR pump RWST suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTC 1.1. References: P&ID D20233, DCR 87-311.	(B-11)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CBS-V150	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
RHR pump RWST suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTC 1.1. References: P&ID D20233, DCR 87-311.	(C-8)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CBS-V151	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
RHR pump containment sump suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTC 1.1. References: P&ID D20233, DCR 87-311.	(A-10)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **CBS**
PID No.: **D20233**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CBS-V152	2 (A-6)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐

RHR pump containment sump suction relief valve. Protects the low pressure suction piping from check valve back leakage during RHR operation- In scope per ISTC 1.1. References: P&ID D20233, DCR 87-311.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:

SYSTEM: **CBS**
PID No.: **D20446**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CBS-V47 SI pump RWST suction isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and closes during the recirculation phase of ECCS operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, FSAR Section 6.3, Engineering Evaluation 94-031.	2 (G-12)	B	8.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V48 SI pump RWST suction check valve. this valve opens during the injection phase of ECCS operation and closes during the recirculation phase of operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, FSAR Section 6.3, Engineering Evaluation 94-031.	2 (F-12)	C	8.0 Check	Self	C	DE		CBS-RJ-5	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V49 SI pump suction isolation valve. This valve is normally open and remains open during all phases of ECCS operation. Closure may be required to isolate long term ECCS passive failures. References: P&ID D20446, FSAR Section 6.3.	2 (F-11)	B	6.0 Gate	Motor	O	DE		CBS-CSJ-3	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V51 SI pump RWST suction isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and closes during the recirculation phase of ECCS operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, FSAR Section 6.3, Engineering Evaluation 94-031.	2 (A-12)	B	8.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CBS-V52 SI pump RWST suction check valve. This valve opens during the injection phase of ECCS operation and closes during the recirculation phase of operation. There is no seat leakage limit for this valve during ECCS recirculation per Engineering Evaluation 94-031. References: P&ID D20446, FSAR Section 6.3, Engineering Evaluation 94-031.	2 (A-12)	C	8.0 Check	Self	C	DE		CBS-RJ-5	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V53 SI pump suction isolation valve. This valve is normally open and remains open during all phases of ECCS operation. Closure may be required to isolate long term ECCS passive failures. References: P&ID D20446, FSAR Section 6.3.	2 (A-11)	B	6.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

SYSTEM: **CBS**
PID No.: **D20446**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CBS-V62 SI Pump common suction relief valve. In scope per ISTC 1.1. Reference:P&ID D20446.	2 (B-11)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CBS-V58 Charging pump-RWST Suction line check valve. This valve is normally closed, opens during ECCS injection phase,and is closed during ECCS recirculation phase. Leakage in the closed direction is not limited to a specific value. Reference: FSAR Section 6.3, Engineering Evaluation 94-31, 11/7/94.	2 (C-8)	C	8.0 Check	Self	C	DE		CBS-RJ-6	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:
CBS-V60 Charging pump-RWST Suction line check valve. This valve is normally closed, opens during ECCS injection phase,and is closed during ECCS recirculation phase. Leakage in the closed direction is not limited to a specific value. Reference: FSAR Section 6.3, Engineering Evaluation 94-31, 11/7/94.	2 (C-8)	C	8.0 Check	Self	C	DE		CBS RJ-6	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CC**
PID No.: **D20205**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CC-TCV2171-1	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	O	CC-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC heat exchanger outlet flow control valve. This valve operates in conjunction with the associated HX bypass valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails open on loss of air, directing full CC flow through the HX. References: P&ID D20205, DBD-CC-01, revision 1.																		
CC-TCV2171-2	3 (F-10)	B	24.0 Butterfly	Air/Piston	TH	TH	C	CC-CSJ-1	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC heat exchanger bypass flow control valve. This valve operates in conjunction with the associated HX outlet valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve falls closed on loss of air, directing full CC flow through the HX. References: P&ID D20205, DBD-CC-01, revision 1.																		
CC-V1	3 (D-10)	C	24.0 Check	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC pump discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20205																		
CC-V4	3 (D-7)	C	24.0 Check	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CC pump discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20205																		
CC-V30	3 (C-4)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC return header from CS-P2A oil cooler relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.																		
CC-V32	3 (D-6)	B	10.0 Butterfly	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC supply to SF-E15A isolation valve. This valve is normally open and receives a "T" closure signal. Reference: P&ID D20205.																		

SYSTEM: **CC**
PID No.: **D20205**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment								
Remarks	Coord	(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V409	3	C	1.5	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from EAH-AC-2A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	(E-4)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V647	3	C	1.5	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from SF-E-15A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	(C-4)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V944	3	C	1.0	Self	O	C		RR-1	☒	☒	☐	☐	☐	☐	☐	☐	☐
CC radiation monitor return line check valve. This valve is normally open and closes to isolate the connected NNS piping. References: P&ID D20205, DBD-CC-01, revision 1.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW on the basis of the seismic design of the NNS piping- the rad monitor skid seismic design status needs verification)	(A-12)		Check						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V945	3	C	1.0	Self	O	C		RR-1	☒	☒	☐	☐	☐	☐	☐	☐	☐
CC radiation monitor return line check valve. This valve is normally open and closes to isolate the connected NNS piping. References: P&ID D20205, DBD-CC-01, revision 1.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW on the basis of the seismic design of the NNS piping- the rad monitor skid seismic design status needs verification)	(A-12)		Check						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V975	3	B	1.0	Air/Diaphragm	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC radiation monitor inlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge tank level to isolate the connected NNS piping. References: P&ID D20205, DBD-CC-01, revision 1. This valve was added to the IST program in revision 10 of the SITR. The seismic design of the NNS piping- the rad monitor skid seismic design status was verified by Operability Determination.	(H-11)		Globe						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V1277	3	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header cross connect relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	(B-8)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

SYSTEM: **CC**
PID No.: **D20205**

FIGURE F4

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V1278	3 (H-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC supply header cross connect relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V1279	3 (D-8)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC surge tank cross connect relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V1282	3 (B-6)	C	2.0 Check	Self	DE	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
CC supply to CS-P-2A oil cooler check valve. This valve must open to supply CC to the charging / ECCS pump oil cooler. References: P&ID D20205.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **CC**
PID No.: **D20206**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V341	3	B	20.0	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC Train A CS-E4 return line isolation valve. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	(B-9)		Butterfly					CC-CSJ-2	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V342	3	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
Seal Water Heat Exchanger A relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTC 1.1.	(B-10)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V343	3	C	2.0	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
Letdown Heat Exchanger relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTC 1.1.	(C-9)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V426	3	B	20.0	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC Train A SC-3-NNS supply line isolation valve. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	(H-12)		Butterfly					CC-CSJ-2	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V427	3	B	20.0	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC Train A SC-3-NNS return line isolation valve. This valve is normally open and receives a "T" closure signal to isolate non-essential loads under accident conditions. References: P&ID D20206, DBD-CC-01, revision 1.	(B-9)		Butterfly					CC-CSJ-2	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: CC
PID No.: D20207

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve	Size (in.) and Type	Actuator	Positions			Relief Req	IST Program Plan Commitment								
Remarks		(CAT)		Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V26	3 (E-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from SI-P-6A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.									Open Test Freq: 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	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒
CC supply IRC isolation for X20- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20207, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V121	2 (B-6)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒
CC return IRC isolation for X21- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20207, FSAR Table 6.2-83.									Open Test Freq: 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	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒
CC return ORC isolation for X21- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20207, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V135	3 (F-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from CBS-P-9A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V137	3 (G-9)	B	14.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒
CC outlet from containment spray heat exchanger. This valve is normally closed and receives a "P" open signal. References: P&ID D20207									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open								

SYSTEM: **CC**
PID No.: **D20207**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CC-V141 CC return header from RH-P-8A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	3 (E-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V143 CC return header from RH-E9A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	3 (D-9)	C	3.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V145 CC outlet from RHR heat exchanger. This valve is normally closed and receives a "T" open signal. References: P&ID D20207	3 (D-9)	B	16.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC-V168 CC supply ORC isolation for X20- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20207, FSAR Table 6.2-83.	2 (H-10)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V407 CC return header from CBS-E16A relief valve-in scope per ISTC 1.1. Reference: P&ID D20205.	3 (G-9)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V410 Penetration X-21 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTC 1.1. Reference: P&ID D20207.	2 (B-6)	A/C	1.5 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **CC**
PID No.: **D20207**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V845	2 (H-9)	A/C	1.5 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐

Penetration X-20 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTC 1.1. Reference: P&ID D20207.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:

SYSTEM: **CC**
PID No.: **D20209**

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	
CC-MM-762 RCP thermal barrier loop head pipe rupture disc. This device provides overpressure protection for the cooling loop following a thermal barrier coil rupture. The IST safety function is OPP for the SC-2 closed loop containment penetration piping for X-48 and X49 following a thermal barrier coil rupture. References: P&ID D20209, DBD-CC-01.	3 (C-5)	D	10.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
CC-MM-763 RCP thermal barrier loop head pipe rupture disc. This device provides overpressure protection for the cooling loop following a thermal barrier coil rupture. The IST safety function is OPP for the SC-2 closed loop containment penetration piping for X-48 and X49 following a thermal barrier coil rupture. References: P&ID D20209, DBD-CC-01.	3 (C-6)	D	10.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
CC-V1092 CC to thermal barrier HX containment isolation valve (X-48)- 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 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.	2 (A-11)	B	6.0 Butterfly	Motor	O	C		CC-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1095 CC to thermal barrier HX containment isolation valve (X-48)- 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 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.	2 (C-11)	B	6.0 Butterfly	Motor	O	C		CC-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1101 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 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.	2 (F-11)	B	6.0 Butterfly	Motor	O	C		CC-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V1105 CC containment penetration (X-49), 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.	2 (G-10)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **CC**
PID No.: **D20209**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V1109	2 (G-11)	B	6.0 Butterfly	Motor	O	C		CC-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒
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 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.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V1112	2 (C-10)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
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.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

SYSTEM: **CC**
PID No.: **D20211**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-TCV2271-1	3	B	24.0	Air/Piston	TH	TH	O		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC heat exchanger outlet flow control valve. This valve operates in conjunction with the associated HX bypass valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails open on loss of air, directing full CC flow through the HX. References: P&ID D20211, DBD-CC-01, revision 1.	(F-10)		Butterfly					CC-CSJ-1	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open								
CC-TCV2271-2	3	B	24.0	Air/Piston	TH	TH	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC heat exchanger bypass flow control valve. This valve operates in conjunction with the associated HX outlet valve to maintain CC HX outlet temperature at a preset value. Backup air bottles are provided for operation post LOP. This valve fails closed on loss of air, directing full CC flow through the HX. References: P&ID D20211, DBD-CC-01, revision 1.	(F-10)		Butterfly					CC-CSJ-1	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V295	3	C	24.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
CC pump discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20211	(D-10)		Check						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V298	3	C	24.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
CC pump discharge check valve. This valve opens when the CC pump is operating, and closes when the pump is secured to prevent bypass flow from the alternate pump in the same train. References: P&ID D20211	(D-7)		Check						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V320	3	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
Charging Pump CS-P-128 (PDP) oil cooler relief valve. Although PDP is not in safety related scope, this line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTC 1.1.	(D-4)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V321	3	C	1.5	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from CS-P2B oil cooler relief valve-in scope per ISTC 1.1. Reference: P&ID D20211.	(C-4)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

SYSTEM: **CC**
PID No.: **D20211**

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
CC-V442	3 (E-4)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
CC return header from EAH-AC-2B relief valve-in scope per ISTC 1.1. Reference: P&ID D20211.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
CC-V946	3 (B-12)	C	1.0 Check	Self	O	C		RR-1	☒	☒	☐	☐	☐	☐	☐	☐	☐
CC radiation monitor return line check valve. This valve is normally open and closes to isolate the connected NNS piping. References: P&ID D20211, DBD-CC-01, revision 1.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW on the basis of the seismic design of the NNS piping- the rad monitor skid seismic design status needs verification)									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V947	3 (B-12)	C	1.0 Check	Self	O	C		RR-1	☒	☒	☐	☐	☐	☐	☐	☐	☐
CC radiation monitor return line check valve. This valve is normally open and closes to isolate the connected NNS piping. References: P&ID D20211, DBD-CC-01, revision 1.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEWon the basis of the seismic design of the NNS piping- the rad monitor skid seismic design status needs verification)									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CC-V986	3 (H-11)	B	1.0 Globe	Air/Diaphragm	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
CC radiation monitor inlet isolation valve. This valve is normally open and receives an auto closure signal on low CC surge tank level to isolate the connected NNS piping. References: P&ID D20211, DBD-CC-01, revision 1.This valve was added to the IST program in revision 10 of the SITR. The seismic design of the NNS piping- the rad monitor skid seismic design status was verified by Operability Determination.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CC-V1283	3 (B-6)	C	2.0 Check	Self	DE	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
CC supply to CS-P-2B oil cooler check valve. This valve must open to supply CC to the charging / ECCS pump oil cooler. References: P&ID D20211.									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **CC**
PID No.: **D20212**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	IST Program Plan Commitment	Remarks
CC-V171	3 (B-10)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:	CC return header from SF-E-15B relief valve-in scope per ISTC 1.1. Reference: P&ID D20212.
CC-V445	3 (B-12)	B	10.0 Butterfly	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed	CC supply to SF-E15B isolation valve. This valve is normally open and receives a "T" close signal. Reference: P&ID D20212.
CC-V447	3 (H-12)	B	20.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-2	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed	CC supply SC-3 / NNS isolation valve. This valve is normally open and receives a "T" close signal to isolate NNS loads under accident conditions. Reference: P&ID D20212.
CC-V448	3 (A-9))	B	20.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-2	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed	CC return SC-3 / NNS isolation valve. This valve is normally open and receives a "T" close signal to isolate NNS loads under accident conditions. Reference: P&ID D20212.
CC-V1168	3 (D-10)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:	Seal Water Heat Exchanger B relief valve. This line is within safety related boundary of CC piping following isolation of non-safety loads. Therefore, OPP is an issue and this valve is in scope per ISTC 1.1.

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: CC
PID No.: D20213

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CC-V175 CC supply ORC isolation for X23- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20213, FSAR Table 6.2-83.	2 (H-6)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V176 CC supply IRC isolation for X23- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20213, FSAR Table 6.2-83.	2 (H-5)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V256 CC return IRC isolation for X22- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20213, FSAR Table 6.2-83.	2 (B-5)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V257 CC return ORC isolation for X22- subject to Appendix J Type C LLRT. This valve is normally open and receives a "P" isolation signal. Reference: P&ID D20213, FSAR Table 6.2-83.	2 (B-6)	A	12.0 Butterfly	Air/Piston	O	C	C	CC-CSJ-3	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CC-V262 CC return header from CBS-P-9B relief valve-in scope per ISTC 1.1. Reference: P&ID D20213.	3 (F-5)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V264 CC return header from CBS-E16B relief valve-in scope per ISTC 1.1. Reference: P&ID D20213.	3 (G-4)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **CC**
PID No.: **D20213**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CC-V266 CC outlet from containment spray heat exchanger. This valve is normally closed and receives a "P" open signal. References: P&ID D20213	3 (G-4)	B	14.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC-V269 CC return header from RH-P-8B relief valve-in scope per ISTC 1.1. Reference: P&ID D20213.	3 (F-5)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V271 CC return header from RH-E9B relief valve-in scope per ISTC 1.1. Reference: P&ID D20213.	3 (D-5)	C	3.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V272 CC outlet from RHR heat exchanger. This valve is normally closed and receives a "T" open signal. References: P&ID D20213	3 (D-4)	B	16.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CC-V322 CC return header from SI-P-6B relief valve-in scope per ISTC 1.1. Reference: P&ID D20213.	3 (E-5)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CC-V474 Penetration X-22 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTC 1.1. Reference: P&ID D20213.	2 (B-5)	A/C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☒	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **CC**
PID No.: **D20213**

FIGURE F4

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CC-V840	2 (H-5)	A/C	1.5 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐

Penetration X-23 thermal RV, subject to Appendix J Type C LLRT-in scope per ISTC 1.1. Reference: P&ID D20213.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:

SYSTEM: **CGC**
PID No.: **B20612**

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.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V3	2 (C-9)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐
CGC-V4	2 (C-10)	B	1.0 Check	Self	C	O		CGC-CSJ-1	☐	☒	☐	☒	☐	☐	☐	☐	☐
CGC-V10	2 (E-9)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐
CGC-V12	2 (E-8)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐

CGC-V3

"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 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.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

CGC-V4

"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 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.

Open Test Freq: CSD
Close Test Freq:
RV Test Freq:
CV Test Dir:
ST Test Dir:

CGC-V10

"A" train hydrogen analyzer inlet 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 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.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

CGC-V12

"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.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

SYSTEM: **CGC**
PID No.: **B20612**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CGC-V13 "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. References: P&ID B20612, FSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1.	2 (F-5)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CGC-V14 Containment Purge IRC-CIV for penetration X72 / X75. This valve is normally closed and receives a "T" closure signal. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72.	2 (G-9)	A	2.0 Globe	Motor	C	C			☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
CGC-V15 Containment Purge ORC-CIV for penetration X72 / X75. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72.	2 (G-9)	A	2.0 Globe	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
CGC-V24 "B" train hydrogen analyzer return CIV for penetration X71 / X74- 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 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.	2 (C-9)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CGC**
PID No.: **B20612**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V25	2 (C-10)	B	1.0 Check	Self	C	O		CGC-CSJ-1	☐	☒	☐	☒	☐	☐	☐	☐	☐

"B" train hydrogen analyzer return IRC- CIV for penetration X71 / X74- 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 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.

Open Test Freq:
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V28	2 (D-9)	A	2.0 Globe	Motor	C	C			☐	☒	☐	☒	☐	☐	☒	☐	☒

Containment Purge IRC-CIV for penetration X71 / X74. This valve is normally closed and receives a "T" closure signal. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V32	2 (D-9)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐

"B" train hydrogen analyzer inlet CIV for penetration X71 / X74- 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 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.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V34	2 (D-8)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐

"B" 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.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

SYSTEM: **CGC**
PID No.: **B20612**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V35 "B" 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. References: P&ID B20612, FSAR Section 6.2.5, EOP-E-1, OS1023.71, TS 3.3.3.6, 3.6.4.1. Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:	2 (C-5)	B	1.0 Globe	Manual	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
CGC-V36 Containment Purge ORC-CIV for penetration X71 / X74. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72. Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:	2 (D-9)	A	2.0 Globe	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
CGC-V43 Containment Purge supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72. Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:	2 (B-8)	A	2.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
CGC-V44 Containment Purge supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72. Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:	2 (B-8)	A	2.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
CGC-V45 Containment alternate Purge supply ORC-CIV for penetration X76 / X38. This manual valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72. Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:	2 (B-8)	A	10.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐

SYSTEM: **CGC**
PID No.: **B20612**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CGC-V46	(B-10)	A/C	10.0 Check	Self	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐

Containment Purge supply IRC-CIV for penetration X76 / X38. This check valve is normally closed and has no active safety function. The containment purge function is a defense in depth backup to the redundant- safety related hydrogen recombiners, and would be placed into service only if both recombiners failed or if the post LOCA hydrogen generation rate was significantly greater than the design basis generation rate. The purge subsystem relies on non-safety related systems such as service air, and is not required to function for SSD or design basis accident mitigation. This valve is subject to Appendix J Type C LLRT. References: P&ID B20612, FSAR Section 6.2.5, Table 6.2-83, OS1023.72. (OPEN ITEM: Remove from FSAR Active Valve Table)

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
CV Test Dir:
ST Test Dir:

SYSTEM: **CO**
PID No.: **D20426**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CO-V421 Condensate transfer pump discharge to CST check valve (SC-3-NNS interface). This valve has no safety related open function, and if open, must close to isolate the CST protected water supply. References: P&ID D20426.	3 (G-10)	C	2.0 Check	Self	DE	C		CO-CSJ-2	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CO-V422 Condensate transfer pump discharge to CST check valve (SC-3-NNS interface). This valve has no safety related open function, and if open, must close to isolate the CST protected water supply. References: P&ID D20426.	3 (G-10)	C	2.0 Check	Self	DE	C		CO-CSJ-2	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CO-V434 Startup aux feedwater pump recirc. to CST check valve- SC3/NNS interface valve. This valve is normally closed, opens when the SUFP is operating , and is required to close to isolate the CST protected water supply. References: P&ID D20426, TS 3.7.1.2.	3 (G-10)	C	4.0 Check	Self	C	C		CO-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CO-V435 Startup aux feedwater pump recirc. to CST check valve- SC3/NNS interface valve. This valve is normally closed, opens when the SUFP is operating , and is required to close to isolate the CST protected water supply. References: P&ID D20426, TS 3.7.1.2.	3 (G-10)	C	4.0 Check	Self	C	C		CO-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **COP**

PID No.: **D20504**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
COP-V1 Containment online purge supply isolation valve- ORC for penetration X-18- subject to Appendix J Type C LLRT. This valve may be open during power operation and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, FSAR Table 6.2-83.	2 (D-8)	A	8.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V2 Containment online purge supply isolation valve- IRC for penetration X-18- subject to Appendix J Type C LLRT. This valve may be open during power operation and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, FSAR Table 6.2-83.	2 (D-8)	A	8.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V3 Containment online purge exhaust isolation valve- IRC for penetration X-16- subject to Appendix J Type C LLRT. This valve may be open during power operation and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, FSAR Table 6.2-83.	2 (E-8)	A	8.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
COP-V4 Containment online purge exhaust isolation valve- ORC for penetration X-16- subject to Appendix J Type C LLRT. This valve may be open during power operation and receives a Containment Ventilation Isolation Signal (CVIS) to close. References: P&ID D20504, FSAR Table 6.2-83.	2 (E-8)	A	8.0 Butterfly	Air/Piston	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

SYSTEM: **CS**
PID No.: **D20233**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-LCV112D	2 (G-8)	B	8.0 Gate	Motor	C	DE		CS-CSJ-1	☐	☒	☐	☐	☐	☐	☒	☐	☒
RWST to CCP suction isolation valve. This valve is normally closed, opens to align the CCP suction to the RWST for ECCS injection and for SSD, and is closed during ECCS sump recirculation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Sections 7.4, 6.3.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
CS-LCV112E	2 (G-8)	B	8.0 Gate	Motor	C	DE		CS-CSJ-1	☐	☒	☐	☐	☐	☐	☒	☐	☒
RWST to CCP suction isolation valve. This valve is normally closed, opens to align the CCP suction to the RWST for ECCS injection and for SSD, and is closed during ECCS sump recirculation. There are no specific seat leakage limits for this valve per Engineering Evaluation 94-031. References: P&ID D20233, FSAR Sections 7.4, 6.3, Engineering Evaluation 94-031.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								

SYSTEM: **CS**
PID No.: **D20722**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V142 CVCS normal charging header isolation valve. Open during normal plant operation and closes on SI signal. References: P&ID 1-CS-D20722, FSAR Section 6.3.	2 (C-7)	B	3.0 Gate	Motor	O	C		CS-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V143 CVCS normal charging header isolation valve. Open during normal plant operation and closes on SI signal. This is also a containment isolation valve exempt from Type C LLRT. References: P&ID 1-CS-D20722, FSAR Section 6.3, FSAR Table 6.2-83.	2 (C-8)	B	3.0 Gate	Motor	O	C		CS-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V144 Normal charging IRC check valve, exempt from Type C LLRT. The normal charging line is not required for safe shutdown. This valve is credited to open to protect penetration X-33 from overpressurization due to fluid thermal expansion under accident conditions. References: P&ID D20722, FSAR Table 6.2-83, FSAR Sections 5.4.7, 9.3.4, 7.4, Engineering Evaluation SS-EV-960023, Rev-0.	2	C	3.0 Check	Self	O	O		CS-CSJ-XX	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V148 Letdown line relief valve designed to provide flow-related over pressure protection for containment isolation valve CS-V149 in the event of containment isolation with upstream control valves CS-HCV189 and 190 open or leaking by. In scope per ISTC 1.1 References: EWR 97-095	2 (G-9)	C	2.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
CS-V149 Normal letdown IRC isolation. Closes on containment isolation signal. Normal letdown is not required for safe shutdown. References: P&ID D20722, FSAR Table 6.2-83, FSAR Sections 5.4.7, 7.4, 9.4.3.	2 (F-9)	A	3.0 Gate	Motor	O	C		CS-CSJ-2	☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
CS-V150 Normal letdown ORC isolation. Closes on containment isolation signal. Normal letdown is not required for safe shutdown. References: P&ID D20722, FSAR Table 6.2-83, FSAR Sections 5.4.7, 7.4, 9.4.3.	2 (F-8)	A	3.0 Gate	Air/Diaphragm	O	C	C	CS-CSJ-2	☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed

SYSTEM: **CS**
PID No.: **D20722**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V177 Normal charging to loop 4 isolation valve. Normally either V177 or V180 is open. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. References: P&ID D20722, FSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0.	2 (E-12)	B	3.0 Globe	Air/Diaphragm	DE	O	O	CSJ-11	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CS-V178 Loop 4 charging line check valve. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 1 to preclude two loops feeding one pipe rupture. References; P&ID D20722, FSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (E-12)	C	3.0 Check	Self	DE	DE		CS-CSJ-12	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V179 Loop 4 charging line check valve. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 1 to preclude two loops feeding one pipe rupture. References; P&ID D20722, FSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (E-12)	C	3.0 Check	Self	DE	DE		CS-CSJ-12	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V180 Normal charging to loop 1 isolation valve. Normally either V177 or V180 is open. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. References: P&ID D20722, FSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0.	2 (E-12)	B	3.0 Globe	Air/Diaphragm	DE	O	O	CSJ-11	☐	☒	☒	☐	☐	☐	☒	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
CS-V181 Loop 1 charging line check valve. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 4 to preclude two loops feeding one pipe rupture. References; P&ID D20722, FSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (D-12)	C	3.0 Check	Self	DE	DE		CS-CSJ-12	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V182 Loop 1 charging line check valve. This valve is relied upon to open to preclude overpressurization of X-33 due to thermal expansion of trapped fluid under accident conditions. This valve must also close to prevent reverse flow following a LOCA in loop 4 to preclude two loops feeding one pipe rupture. References; P&ID D20722, FSAR Section 3.6(N).2.3, SS-EV-960023, Rev. 0.	1 (D-12)	C	3.0 Check	Self	DE	DE		CS-CSJ-12	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

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	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-LCV112B	2	B	4.0	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
	(E-6)		Gate					CS-CSJ-4	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
VCT outlet isolation valve. This valve is normally open and is automatically closed during ECCS actuation, and manually closed during rapid boration from the RWST. References: P&ID D20725, FSAR Section 6.3, procedure OS1202.04.																	
CS-LCV112C	2	B	4.0	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
	(E-6)		Gate					CS-CSJ-4	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
VCT outlet isolation valve. This valve is normally open and is automatically closed during ECCS actuation, and manually closed during rapid boration from the RWST. References: P&ID D20725, FSAR Section 6.3, procedure OS1202.04.																	
CS-V192	2	C	4.0	Self	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
			Check					CS-CSJ-3	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
VCT outlet check valve. This valve is normally open when the charging pumps are drawing suction from the VCT, and must remain open when the VCT is isolated to return charging pump recirculation flow to the pump suction when required. Reverse closure is required to preclude discharge of post LOCA recirculated sump fluid via the seal water HX relief valve under certain small break scenarios where the RHR pump discharge pressure could exceed the relief valve setpoint. Leakage in the closed direction is not limited to a specific value, provided V-193 is closed. Reference: FSAR Section 6.3, Engineering Evaluation 94-31, 11/7/94.																	
CS-V196	2	B	2.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
	(C-11)		Globe						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CCP min-flow isolation MOVs. These valves are normally open, receive an "S" closure signal, but will open automatically should pump flow drop below 80 gpm. References: P&ID D20725, FSAR Sections 6.3, 9.3.4.																	
CS-V197	2	B	2.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
	(D-10)		Globe						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CCP min-flow isolation MOVs. These valves are normally open, receive an "S" closure signal, but will open automatically should pump flow drop below 80 gpm. References: P&ID D20725, FSAR Sections 6.3, 9.3.4.																	

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			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-V199	2	C	2.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
	(D-10)		Check						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
Centrifugal charging pump min-flow check valve. This valve is required to open to allow min-flow for pump protection, and is required to close to prevent CCP recirc flow diversion through the idle charging pump (bypass seal water HX). References: P&ID D20725.																	
CS-V200	2	C	4.0	Self	DE	DE		RR-1	☐	☒	☐	☐	☐	☒	☐	☐	☐
	(C-12)		Check						Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								
CCP discharge check valve. This valve must open to allow flow for ECCS and SSD, and must close to prevent flow diversion through an idle CCP. References; P&ID D20725. [Partial Exercise Test will not be required per ISTC - to be revised; Relief Request RR-1 Will also not be required]								CS-RJ-1									
CS-V209	2	C	4.0	Self	DE	DE			☐	☒	☐	☐	☐	☒	☐	☐	☐
	(B-11)		Check						Open Test Freq: Refueling Close Test Freq: Refueling RV Test Freq: CV Test Dir: ST Test Dir:								
CCP discharge check valve. This valve must open to allow flow for ECCS and SSD, and must close to prevent flow diversion through an idle CCP. References; P&ID D20725. [Partial Exercise Test will not be required per ISTC - to be revised; Relief Request RR-1 Will also not be required]								CS-RJ1									
CS-V210	2	B	4.0	Manual	O	C			☐	☒	☐	☐	☐	☐	☐	☐	☐
	(B-12)		Gate						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CCP manual discharge valve. This valve is normally open and is closed to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, FSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.																	
CS-V211	2	C	2.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
	(B-11)		Check						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
Centrifugal charging pump min-flow check valve. This valve is required to open to allow min-flow for pump protection, and is required to close to prevent CCP recirc flow diversion through the idle charging pump (bypass seal water HX). References: P&ID D20725.																	

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-V213	2 (E-9)	C	3.0 Check	Self	DE	C			☐	☒	☐	☐	☐	☐	☐	☐	☐

Charging PDP (P-128) discharge check valve. This valve must close to prevent diversion of CCP discharge flow. P-128 operation is not required for SSD or accident mitigation, therefore the check valve has no open safety function. References: P&ID D20725, FSAR Sections 5.4.7, 7.4,9.3.4, 6.3.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

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-V219	2 (C-11)	B	3.0 Globe	Manual	C	TH		CS-CSJ-13	☐	☒	☐	☐	☐	☐	☐	☐	☐

CCP manual discharge cross connect valve. This valve is normally closed and is opened to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, FSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir:

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-V220	2 (C-12)	B	4.0 Gate	Manual	O	C			☐	☒	☐	☐	☐	☐	☐	☐	☐

CCP manual discharge valve. This valve is normally open and is closed to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, FSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:

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-V221	2 (C-11)	B	3.0 Globe	Manual	C	TH		CS-CSJ-13	☐	☒	☐	☐	☐	☐	☐	☐	☐

CCP manual discharge cross connect valve. This valve is normally closed and is opened to align the CCP discharge to the alternate boration flow path via the RCP seal water injection header. References P&ID D20725, D20726, FSAR Table 7.4-1, Procedures OS1200.01, OS1200.02, OS1202.04. This valve was added to the IST program in Rev 10 to the SITR. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.

Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir:

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-V227	2 (A-8)	C	0.75 Relief/Safety	Self	C	DE			☐	☐	☐	☐	☐	☐	☐	☒	☐

Charging pump suction relief valve. In scope per ISTC 1.1. Reference P&ID D20725.

Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:

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			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-V460	2 (A-6)	B	6.0 Gate	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SI-CS pump suction cross-connect valve- This valve is normally closed and is open during the sump recirculation phase of ECCS operation, and may be closed in the long term to isolate an ECCS limited passive failure. Reference: FSAR Section 6.3.									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
CS-V461	2 (A-6)	B	6.0 Gate	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SI-CS pump suction cross-connect valve- This valve is normally closed and is open during the sump recirculation phase of ECCS operation, and may be closed in the long term to isolate an ECCS limited passive failure. Reference: FSAR Section 6.3.									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
CS-V475	2 (A-6)	B	6.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SI-CS pump suction cross-connect isolation valve. This valve is normally open and will remain open unless closed to isolate a passive failure in the ECCS system during the long term recirculation phase of ECCS operation. Reference: FSAR Section 6.3.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **CS**
PID No.: **D20726**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-V2	1	C	2.0	Self	O	DE			☒	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	(A-10)		Check					CS-CSJ-14	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V4	2	C	2.0	Self	O	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83.	(A-9)		Check					CS-CSJ-11	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V18	1	C	2.0	Self	O	DE			☒	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	(B-10)		Check					CS-CSJ-14	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V20	2	C	2.0	Self	O	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83.	(B-9)		Check					CS-CSJ-11	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V34	1	C	2.0	Self	O	DE			☒	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	(C-10)		Check					CS-CSJ-14	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V36	2	C	2.0	Self	O	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
RCP seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation. This CIV is excluded from Appendix J Type C LRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83.	(C-9)		Check					CS-CSJ-11	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **CS**
PID No.: **D20726**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V50 RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4.This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	1 (D-10)	C	2.0 Check	Self	O	DE		CS-CSJ-14	☒	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V52 RCP seal water injection IRC isolation check valve. This valve is normally open and remains open for both SSD and accident mitigation. This CIV is excluded from Appendix J Type C LRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83.	2 (D-9)	C	2.0 Check	Self	O	O		CS-CSJ-11	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V154 RCP seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC 4.1. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83, EWR 97-095.	2 (D-8)	B	2.0 Globe	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V158 RCP seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC 4.1. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83, EWR 97-095.	2 (C-8)	B	2.0 Globe	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V162 RCP seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC 4.1. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83, EWR 97-095.	2 (B-8)	B	2.0 Globe	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V166 RCP seal water injection ORC isolation valve. This valve is normally open and remains open for both SSD and accident mitigation. Its open position is therefore an important passive function and will be tested by position indication per ISTC 4.1. This CIV is excluded from Appendix J Type C LLRT. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4, FSAR Table 6.2-83, EWR 97-095.	2 (A-8)	B	2.0 Globe	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: 2 Years Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CS**
PID No.: **D20726**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V167	2 (G-11)	A	2.0 Globe	Motor	O	C		CS-CSJ-6	☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
RCP seal water return IRC isolation valve. This valve is normally open and receives a "T" closure signal. This valve is subject to Type C LLRT per FSAR Table 6.2-83. This valve has no safety function in the open direction as seal water return is not required for SSD or accident mitigation. References: P&ID D20726, FSAR Table 6.2-83.																		
CS-V168	2 (G-12)	A	2.0 Globe	Motor	O	C		CS-CSJ-6	☐	☒	☐	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed
RCP seal water return IRC isolation valve. This valve is normally open and receives a "T" closure signal. This valve is subject to Type C LLRT per FSAR Table 6.2-83. his valve has no safety function in the open direction as seal water return is not required for SSD or accident mitigation. References: P&ID D20726, FSAR Table 6.2-83.																		
CS-V173	2 (F-12)	C	2.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
Seal water return header relief valve. This valve provides over pressure protection for the X-37B adjacent piping caused by thermal expansion of trapped fluid under accident conditions. -In scope per ISTC 1.1. References: P&ID D20726, Engineering Evaluation SS-EV-960023, Rev.0.																		
CS-V250	2 (G-7)	C	2.0 Relief/Safety	Self	C	DE			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RCP seal water return relief valve. This valve is located in the section of return piping which includes the CCP recirc flow. The min-flow recirc function is required for CCP protection, and therefore the RV is within the IST scope per ISTC 1.1. References: P&ID D20726, FSAR Section 9.3.4.																		
CS-V471	1 (A-10)	C	2.0 Check	Self	O	DE		CS-CSJ-14	☒	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.																		
CS-V472	1 (B-10)	C	2.0 Check	Self	O	DE		CS-CSJ-14	☒	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.																		

SYSTEM: **CS**
PID No.: **D20726**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V473 RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	1 (C-10)	C	2.0 Check	Self	O	DE		CS-CSJ-14	☒	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V474 RCP seal water injection RCPB check valve. This valve is normally open and remains open during SSD and accident mitigation. References: P&ID D20726, FSAR Sections 5.4.7, 7.4, 9.3.4. This valve was updated in Rev 10 of the SITR for its closure function to isolate the RCS following a HELB in the injection line outside containment per FSAR Section 3.6 and Appendix 3A.	1 (D-10)	C	2.0 Check	Self	O	DE		CS-CSJ-11	☒	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V794 RCP seal water return containment penetration X37B thermal relief valve. This containment isolation valve provides over pressure protection for X37B caused by thermal expansion of trapped fluid under accident conditions. This valve is also subject to Appendix J Type C LLRT. References: P&ID D20726, FSAR Table 6.2-83, Engineering Evaluation SS-EV-960023, Rev.o.	2 (G-12)	A/C	0.75 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **CS**
PID No.: **D20729**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
CS-V410 Boric acid tank outlet isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (E-11)	B	4.0 Gate	Manual	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V416 Boric acid tank outlet isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (E-8)	B	4.0 Gate	Manual	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V423 Boric acid pump discharge isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (D-7)	B	2.0 Saunders Weir	Manual	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V424 P-3A discharge header isolation valve. This valve is normally open and remains open except when operated during BAT weekly recirc or for BAT Pump quarterly surveillance test. This valve is not listed in FSAR Table 7.4-1 or operated in OS1200.01 but should remain in the IST Program and the UFSAR active valve table.	3 (C-11)	B	2.0 Saunders Weir	Manual	O	O			☐	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V426 Emergency boration to CCP suction isolation MOV. This valve is normally closed and opened to direct the discharge from the BA transfer pumps to the CCP suction. References; P&ID D20729, FSAR Sections 5.4.7, 7.4, 9.3.4.	2 (D-5)	B	2.0 Globe	Motor	C	DE		CS-CSJ-7	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open

SYSTEM: **CS**
PID No.: **D20729**

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-V427 Emergency boration to CCP suction check valve. This valve is normally closed and opens to direct the discharge from the BA transfer pumps to the CCP suction. This valve does not have a safety related closure function. References: P&ID D20729, FSAR Sections 5.4.7, 7.4, 9.3.4.	2 (E-5)	C	2.0 Check	Self	C	O		CS-CSJ-7	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
CS-V430 P-3B discharge header isolation valve. This valve is normally open and remains open except when operated during BAT weekly recirc or for BAT Pump quarterly surveillance test. This valve is not listed in FSAR Table 7.4-1 or operated in OS1200.01 but should remain in the IST Program and the FSAR active valve table.	3 (C-7)	B	2.0 Saunders Weir	Manual	O	O			☐	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
CS-V431 Boric acid pump discharge isolation valve. This valve is normally open and remains open or is closed for SSD in OS1200.01 depending on the required tank alignment. References: P&ID D20729, OS1200.01. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (D-11)	B	2.0 Saunders Weir	Manual	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V437 Boric acid tank outlet cross-connect. This valve is normally closed ,and opened to align TK-4A to gravity boration or TK-4A to the suction of P-3B. Reference: P&ID D20729 Procedure OS1200.01. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (D-10)	B	4.0 Saunders Weir	Manual	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
CS-V439 Gravity boration common line isolation valve. This valve is normally closed and opened to align the boric acid tank directly to the CCP suction. References: P&ID D20729, FSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.	3 (D-9)	B	4.0 Gate	Manual	C	O		CS-CSJ-10	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **CS**
PID No.: **D20729**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-V440	3 (D-8)	C	4.0 Check	Self	C	O		CS-CSJ-8	☐	☒	☐	☐	☐	☐	☐	☐	☐
Gravity boration common line check valve. This valve is normally closed and opens to direct flow from the boric acid tanks to the CCP suction. References: P&ID D20729, FSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.									Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V442	3 (D-9)	B	4.0 Gate	Manual	C	O		CS-CSJ-10	☐	☒	☐	☐	☐	☐	☐	☐	☐
Gravity boration common line isolation valve. This valve is normally closed and opened to align the boric acid tank directly to the CCP suction. References: P&ID D20729, FSAR Sections 5.4., 7.4, 9.3.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.									Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V449	3 (C-11)	C	Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Boric acid pump discharge check valve. This valve opens to direct boric acid to the CCP suction and closes to prevent flow diversion when the transfer pump is not operating. References: P&ID D20729, FSAR Sections 5.4.7, 7.4 9.3.4.									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V453	3 (B-7)	C	Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Boric acid pump discharge check valve. This valve opens to direct boric acid to the CCP suction and closes to prevent flow diversion when the transfer pump is not operating. References: P&ID D20729, FSAR Sections 5.4.7, 7.4 9.3.4.									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								
CS-V1207	3 (D-10)	B	4.0 Saunders Weir	Manual	O	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Boric acid tank outlet cross-connect. This valve is normally open and closed to align TK-4A to gravity boration. Reference: P&ID D20729 Procedure OS1200.01. (Open Item: existing non-fire procedures do not address the BAT gravity boration flow path in Mode 3 as described in FSAR Sections 5.4.7 and 7.4. Redundant flow paths from the BATs are provided for boration with RWST used for subsequent RCS inventory control. Because the SB SGCS design does not include letdown capability, boration from the RWST will not meet the SGCS design requirements due to large volume of water required.)									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **CS**
PID No.: **D20843**

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
CS-V175	1 (A-11)	B	1.0 Globe	Air/Diaphragm	C	C	C	CS-CSJ-9	☐	☒	☒	☐	☐	☐	☒	☐	☒
Excess letdown RCS RCPB isolation valve. This valve is normally closed, but may be opened during normal plant operation should normal letdown be unavailable. This valve has no open safety function, but must close to isolate the RCPB. References: P&ID D20843, FSAR Sections 3.6, 5.2, 9.3.4.m									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
CS-V176	1 (A-11)	B	1.0 Globe	Air/Diaphragm	C	C	C	CS-CSJ-9	☐	☒	☒	☐	☐	☐	☒	☐	☒
Excess letdown RCS RCPB isolation valve. This valve is normally closed, but may be opened during normal plant operation should normal letdown be unavailable. This valve has no open safety function, but must close to isolate the RCPB. References: P&ID D20843, FSAR Sections 3.6, 5.2, 9.3.4.m									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **DG**
PID No.: **D20459**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment													
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	Open Test Freq:	Close Test Freq:	RV Test Freq:	CV Test Dir:	ST Test Dir:
DG-V115	3 (B-10)	C	1.0 Check	Self	C	O			☐	☒	☐	☐	☐	☐	☐	☐	☐	Quarterly				
Fuel oil transfer pump discharge check valve has a safety related open function only which is verified quarterly by OX1426.10. Closure to prevent reverse flow is not required since the transfer line enters the top of the day tank. References: P&ID D20459, DBD-DG-01, OX1426.10																						
DG-V118	3 (C-9)	C	Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐			10 Years		
Fuel oil transfer pump discharge relief valve- In IST scope per ISTC 1.1. References: P&ID D20459, DBD-DG-01.																						
DG-V62A	3 (F-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐			10 Years		
Starting air receiver relief valve- in scope per ISTC 1.1. References: P&ID D20460, DBD-DG-01.																						
DG-V66A	3 (G-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☐	☐			10 Years		
Starting air receiver relief valve- in scope per ISTC 1.1. References: P&ID D20460, DBD-DG-01.																						
DG-V69A	3 (G-9)	C	0.75 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Quarterly	Quarterly			
EDG starting air receiver inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20460, DBD-DG-01, OX1426.14.																						
DG-V70A	3 (F-9)	C	0.75 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Quarterly	Quarterly			
EDG starting air receiver inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. The open function is adequately demonstrated during normal surveillance testing . Both the open and closed functions are verified in OX1426.14. References: P&ID D20460, DBD-DG-01, OX1426.14.																						

SYSTEM: **DG**
PID No.: **D20461**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
DG-V211A	3 (A-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
EDG CC heat exchanger relief valve- in IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
DG-V121	3 (B-10)	C	1.0 Check	Self	C	O			☐	☒	☐	☐	☐	☐	☐	☐	☐
Fuel oil transfer pump discharge check valve has a safety related open function only which is verified quarterly by OX1426.10. Closure to prevent reverse flow is not required since the transfer line enters the top of the day tank. References: P&ID D20463, DBD-DG-01, OX1426.10									Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								
DG-V124	3 (C-9)	C	Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
Fuel oil transfer pump discharge relief valve- In IST scope per ISTC 1.1. References: P&ID D20464, DBD-DG-01.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **DG**
PID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST	
DG-V62B Starting air receiver relief valve- in scope per ISTC 1.1. References: P&ID D20465, DBD-DG-01.	3 (F-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V66B Starting air receiver relief valve- in scope per ISTC 1.1. References: P&ID D20465, DBD-DG-01.	3 (G-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
DG-V69B EDG starting air receiver inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. Both the open and closed functions are verified in OX1426.14. References: P&ID D20465, DBD-DG-01, OX1426.14.	3 (G-9)	C	0.75 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
DG-V70B EDG starting air receiver inlet check valve. SR open function to charge receivers, and SR close function to maintain receiver pressure. The open function is adequately demonstrated during normal surveillance testing . Both the open and closed functions are verified in OX1426.14. References: P&ID D20465, DBD-DG-01, OX1426.14.	3 (F-9)	C	0.75 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
DG-V211B EDG CC heat exchanger relief valve- in IST scope as defiend in ISTC 1.1. References: P&ID D20466, DBD-DG-01.	3 (A-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **DM**
PID No.: **D20349**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	Open Test Freq:	Close Test Freq:	RV Test Freq:	CV Test Dir:	ST Test Dir:	Remarks
DM-V611	3 (A-8)	C	6.0 Check	Self	DE	C		DM-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐		CSD				Demineralized water supply to the CST- SC/3-NNS boundary isolation check valve. This valve is open to fill the CST (NSR function) , and must close to provide safety / non-safety isolation. References: P&ID D20349.
DM-V612	3 (A-8)	C	6.0 Check	Self	DE	C		DM-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐		CSD				Demineralized water supply to the CST- SC/3-NNS boundary isolation check valve. This valve is open to fill the CST (NSR function) , and must close to provide safety / non-safety isolation. References: P&ID D20349.
DM-V4	2 (D-11)	A	1.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐						Demineralized water supply to containment-ORC-CIV for penetration X-36, subject to Appendix J Type C LLRT. This valve is locked closed and has no active safety function. References: P&ID D20352, FSAR Table 6.2-83.
DM-V5	2 (D-10)	A	1.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐						Demineralized water supply to containment-IRC-CIV for penetration X-36, subject to Appendix J Type C LLRT. This valve is locked closed and has no active safety function. References: P&ID D20352, FSAR Table 6.2-83.
DM-V18	2 (D-10)	A/C	1.5 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐		Per Appendix J	10 Years			Containment penetration X-36 (DM) relief valve, subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20352, Engineering Evaluation SS-EV-960023, revision 0.

SYSTEM: **FP**
PID No.: **D20271**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
FP-V588	2 (G-5)	A/C	4.0 Check	Self	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐

Fire Protection water IRC-CIV for penetration X-38 / 76- subject to Appendix J Type C LLRT. This valve is normally closed in Modes 1-4, and has no active safety function. References: P&ID D20271, FSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	NRM	SAF	FAL	Relief Req C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
FP-V592	2 (G-4)	A	4.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐

Fire Protection water ORC-CIV for penetration X-38 / 76- subject to Appendix J Type C LLRT. This valve is normally locked closed in Modes 1-4, and has no active safety function. References: P&ID D20271, FSAR Table 6.2-83.

Open Test Freq:
Close Test Freq: Per Appendix J
RV Test Freq:
CV Test Dir:
ST Test Dir:

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

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
FW-V30	2 (F-8)	B	18.0 Gate	Air/Piston	O	C		FW-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG# 1 main feedwater header containment isolation valve (X-5)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal. References: P&ID D20686, TS 4.7.1.2.2.b, FSAR TAble 6.2-83.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-V39	2 (D-8)	B	18.0 Gate	Air/Piston	O	C		FW-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG# 2 main feedwater header containment isolation valve (X-6)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal. References: P&ID D20686, TS 4.7.1.2.2.b, FSAR TAble 6.2-83.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-V48	2 (C-8)	B	18.0 Gate	Air/Piston	O	C		FW-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG# 3 main feedwater header containment isolation valve (X-7)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal. References: P&ID D20686, TS 4.7.1.2.2.b, FSAR TAble 6.2-83.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-V57	2 (H-8)	B	18.0 Gate	Air/Piston	O	C		FW-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG# 4 main feedwater header containment isolation valve (X-8)-exempt from Appendix J Type C LLRT. This valve is normally open, closes on a FW isolation signal. References: P&ID D20686, TS 4.7.1.2.2.b, FSAR TAble 6.2-83.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-V76	2 (E-8)	C	4.0 Stop check	Manual	C	DE		FW-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 1 EFW header containment isolation stop check valve (X-5)- exempt from Appendix J Type C LLRT. This valve is normally closed,is required to close to prevent reverse flow from the main feedwater header, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, FSAR Table 6.2-83, DBD-EFW-01, Revision 1, FSAR Table 3.6(B)-2									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V82	2 (C-8)	C	4.0 Stop check	Manual	C	DE		FW-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 2 EFW header containment isolation stop check valve (X-6)- exempt from Appendix J Type C LLRT. This valve is normally closed,is required to close to prevent reverse flow from the main feedwater header, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, FSAR Table 6.2-83, DBD-EFW-01, Revision 1, FSAR Table 3.6(B)-2									Open Test Freq: CSD 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 Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
FW-V88	2 (B-8)	C	4.0 Stop check	Manual	C	DE		FW-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 3 EFW header containment isolation stop check valve (X-7)- exempt from Appendix J Type C LLRT. This valve is normally closed,is required to close to prevent reverse flow from the main feedwater header, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, FSAR Table 6.2-83, DBD-EFW-01, Revision 1, FSAR Table 3.6(B)-2									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V94	2 (G-8)	C	4.0 Stop check	Manual	C	DE		FW-CSJ-3	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 4 EFW header containment isolation stop check valve (X-8)- exempt from Appendix J Type C LLRT. This valve is normally closed,is required to close to prevent reverse flow from the main feedwater header, and opens to deliver EFW flow to the SG. This is also a HELB boundary valve. References: P&ID D20686, FSAR Table 6.2-83, DBD-EFW-01, Revision 1, FSAR Table 3.6(B)-2									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V330	2 (F-7)	C	18.0 Check	Self	O	C		FW-CSJ-4	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 1 main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V331	2 (D-7)	C	18.0 Check	Self	O	C		FW-CSJ-4	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 2 main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V332	2 (C-7)	C	18.0 Check	Self	O	C		FW-CSJ-4	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 3 main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V333	2 (H-7)	C	18.0 Check	Self	O	C		FW-CSJ-4	☐	☒	☐	☐	☐	☐	☐	☐	☐
SG# 4 main feedwater header check valve. This valve is normally open during power operation, closes upon initiation of EFW to prevent reverse flow. References: P&ID D20686, TS 4.7.1.2.2.b, DBD-EFW-01 Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **FW**
PID No.: **D20688**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
FW-FV4214A	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 1 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-5)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4214B	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 1 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-5)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4224A	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 2 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-7)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4224B	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 2 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-7)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4234A	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 3 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-9)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4234B	3	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 3 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.	(G-9)		Gate					FW-CSJ-8	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								

SYSTEM: **FW**
PID No.: **D20688**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
FW-FV4244A	3 (G-11)	B	4.0 Gate	Motor	O	DE		FW-CSJ-8	☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 4 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-FV4244B	3 (G-11)	B	4.0 Gate	Motor	O	DE		FW-CSJ-8	☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW discharge to SG # 4 isolation valve. This valve is normally open, may be throttled to control feed rate, and is automatically closed on high EFW header flow. References; P&ID D20688, DBD-EFW-01, Revision 1.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
FW-V64	3 (D-5)	C	6.0 Check	Self	C	DE		FW-CSJ-5	☐	☒	☐	☐	☐	☐	☐	☐	☐
EFW pump discharge check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V70	3 (C-11)	C	6.0 Check	Self	C	DE		FW-CSJ-5	☐	☒	☐	☐	☐	☐	☐	☐	☐
EFW pump discharge check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V216	3 (E-4)	C	6.0 Stop check	Self	C	C		FW-CSJ-6	☐	☒	☐	☐	☐	☐	☐	☐	☐
Startup feedwater pump discharge to EFW check valve. This valve is normally closed for SC-3/NNS boundary isolation. References: P&ID D20688, TS 4.7.1.2.2.b.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
FW-V346	3 (D-7)	B	4.0 Globe	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
EFW pump recirculation isolation valve. The valve is normally closed and is opened when EFW to the SG is throttled. This valve may be opened and closed in response to system flow requirements to ensure adequate flow is delivered to the SG and minimum pump flow requirements are also met. References: P&ID D20688, DBD-EFW-01, Revision 1.									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **FW**
PID No.: **D20688**

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	
FW-V347 EFW pump recirculation isolation valve. The valve is normally closed and is opened when EFW to the SG is throttled. This valve may be opened and closed in response to system flow requirements to ensure adequate flow is delivered to the SG and minimum pump flow requirements are also met. References: P&ID D20688, DBD-EFW-01, Revision 1.	3 (D-9)	B	4.0 Globe	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
FW-V349 EFW pump recirculation common line check valve. This valve opens when the EFW pumps are operating. There is no reverse closure function for this valve. References P&ID D20688.	3 (A-11)	C	4.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
FW-V350 EFW pump recirculation check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.	3 (D-7)	C	3.0 Check	Self	C	DE		FW-CSJ-5	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V351 Turbine driven EFW pump cooler outlet check valve. This valve opens when the pump is operating, to discharge water from the turbine bearing oil cooler to the EFW common recirculation line to the CST. This valve does not have a safety related close function. Reference: P&ID D20688.	3 (B-7)	C	1.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
FW-V353 EFW pump recirculation check valve. This valve opens when the EFW pump is operating, and must close to prevent back flow through an idle pump. References P&ID D20688.	3 (D-9)	C	3.0 Check	Self	C	DE		FW-CSJ-5	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
FW-V357 Startup feedwater pump discharge to EFW check valve. This valve is normally closed for SC-3/NNS boundary isolation. References: P&ID D20688, TS 4.7.1.2.2.b.	3 (E-4)	C	6.0 Check	Self	C	C		FW-CSJ-6	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **IA**
PID No.: **D20643**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
IA-V531	2 (F-9)	A/C	2.0 Check	Self	DE	C		IA-CSJ-1	☐	☒	☐	☒	☐	☐	☐	☐	☐
IA IRC containment isolation valve (X-68)- subject to Appendix J Type C LLRT. References: P&ID D20643, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								
IA-V530	2 (E-6)	A	2.0 Globe	Air/Diaphragm	DE	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒
IA ORC containment isolation valve (X-68)- subject to Appendix J Type C LLRT. References: P&ID D20645, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **LD**
PID No.: **D20864**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
LD-V1	2 (B-8)	A	0.75 Globe	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
Locked closed-IRC -CIV for penetration X-74- subject to Appendix J Type C LLRT. References: P&ID D20864, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								
LD-V2	2 (B-7)	A	0.75 Globe	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
Locked closed-ORC -CIV for penetration X-74- subject to Appendix J Type C LLRT. References: P&ID D20864, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:								

FIGURE F4

SYSTEM: **MS**
PID No.: **D20580**

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
MS-PV3001 SG #1 atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Sections 5.4.7 & 7.4, Table 6.2-83.	2 (D-10)	B	10.0 Globe	Air/Piston	C	DE	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-PV3004 SG #4 atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Sections 5.4.7 & 7.4, Table 6.2-83.	2 (H-10)	B	10.0 Globe	Air/Piston	C	DE	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-V6 SG #1 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	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 provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V8 SG #1 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-7)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V9 SG #1 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:

SYSTEM: **MS**
PID No.: **D20580**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
MS-V10 SG #1 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (C-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V50 SG #4 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V51 SG #4 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V52 SG #4 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-7)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V53 SG #4 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
MS-V54 SG #4 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20580, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.	2 (G-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:

SYSTEM: **MS**
PID No.: **D20581**

FIGURE F4
IST VALVE TEST TABLE

<table>
<tr><th>Valve Number</th><th>Class</th><th rowspan="3">Valve
(CAT)</th><th>Size (in.)</th><th rowspan="3">Actuator
Type</th><th colspan="3">Positions</th><th rowspan="3">Relief Req
C.S. Just.</th><th colspan="9">IST Program Plan Commitment</th></tr>
<tr><th></th><th>and</th><th>and</th><th rowspan="2">NRM</th><th rowspan="2">SAF</th><th rowspan="2">FAL</th><th rowspan="2">DI</th><th rowspan="2">FE</th><th rowspan="2">FS</th><th rowspan="2">LJ</th><th rowspan="2">LK</th><th rowspan="2">PE</th><th rowspan="2">PI</th><th rowspan="2">RT</th><th rowspan="2">ST</th></tr>
<tr><th>Remarks</th><th>Coord</th><th>Type</th></tr>
<tr><td>MS-PV3002</td><td>2</td><td>B</td><td>10.0</td><td>Air/Piston</td><td>C</td><td>DE</td><td>C</td><td></td><td>☐</td><td>☒</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td></tr>
<tr><td></td><td>(G-10)</td><td></td><td>Globe</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed</td></tr>
<tr><td colspan="9">SG #2 atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Sections 5.4.7 & 7.4, Table 6.2-83.</td></tr>
<tr><td>MS-PV3003</td><td>2</td><td>B</td><td>10.0</td><td>Air/Piston</td><td>C</td><td>DE</td><td>C</td><td></td><td>☐</td><td>☒</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td></tr>
<tr><td></td><td>(D-10)</td><td></td><td>Globe</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed</td></tr>
<tr><td colspan="9">SG #3 atmospheric relief valve. This valve is normally closed and is cycled open and closed to remove decay heat when the condenser and associated secondary systems are unavailable. This valve is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Sections 5.4.7 & 7.4, Table 6.2-83.</td></tr>
<tr><td>MS-V22</td><td>2</td><td>C</td><td>6.0</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td></td><td>(G-8)</td><td></td><td>Relief/Safety</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td colspan="9">SG #2 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.</td></tr>
<tr><td>MS-V23</td><td>2</td><td>C</td><td>6.0</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td></td><td>(G-7)</td><td></td><td>Relief/Safety</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td colspan="9">SG #2 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.</td></tr>
<tr><td>MS-V24</td><td>2</td><td>C</td><td>6.0</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td></td><td>(G-7)</td><td></td><td>Relief/Safety</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td colspan="9">SG #2 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.</td></tr>
<tr><td>MS-V25</td><td>2</td><td>C</td><td>6.0</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td></td><td>(G-6)</td><td></td><td>Relief/Safety</td><td></td><td></td><td></td><td></td><td></td><td colspan="9" rowspan="2">Open Test Freq:
Close Test Freq:
RV Test Freq: 5 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td colspan="9">SG #2 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.</td></tr>
</table>

SYSTEM: **MS**
PID No.: **D20581**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
MS-V26	2 (G-5)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #2 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								
MS-V36	2 (C-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #3 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								
MS-V37	2 (C-8)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #3 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								
MS-V38	2 (C-7)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #3 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								
MS-V39	2 (C-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #3 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								
MS-V40	2 (C-6)	C	6.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SG #3 safety valve. This valve provides over pressure protection for the steam generator / MS system, provides for reactor decay heat removal, and is a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20581, FSAR Section 5.4.7, 7.4, 10.3, Table 6.2-83.									Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:								

SYSTEM: **MS**
PID No.: **D20582**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
MS-V94 Main steam supply to FW-TD-2 from SG#1 check valve. This valve is normally closed, opens when steam is admitted to the EFW turbine and must close to prevent reverse flow to a faulted steam generator. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (E-9)	C	6.0 Check	Self	C	DE		MS-CSJ-1	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
MS-V96 Main steam supply to FW-TD-2 from SG#2 check valve. This valve is normally closed, opens when steam is admitted to the EFW turbine and must close to prevent reverse flow to a faulted steam generator. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (E-9)	C	6.0 Check	Self	C	DE		MS-CSJ-1	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
MS-V127 Normally Locked Open valve supplying steam to Turbine Driven EFW Pump FW-P-37A main steam supply header. Passive function only. Remote position indication testing per ISTC 4.1 only.	2 (H-12)	B	4.0 Gate	Manual	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
MS-V128 Normally Locked Open valve supplying steam to Turbine Driven EFW Pump FW-P-37A main steam supply header. Passive function only. Remote position indication testing per ISTC 4.1 only.	2 (B-12)	B	4.0 Gate	Manual	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
MS-V393 Turbine driven steam supply isolation valve from SG#1. This valve is normally closed and receives an EFW actuation signal to open. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20582, FSAR Section 6.8, Table 6.2-83.	2 (H-10)	B	4.0 Globe	Air/Diaphragm	C	DE	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
MS-V394 Turbine driven steam supply isolation valve from SG#2. This valve is normally closed and receives an EFW actuation signal to open. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20582, FSAR Section 6.8, Table 6.2-83.	2 (B-10)	B	4.0 Globe	Air/Diaphragm	C	DE	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

SYSTEM: **MS**
PID No.: **D20582**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
MS-V395 Turbine driven common steam supply isolation valve. This valve is normally closed and receives an EFW actuation signal to open. References: P&ID D20582, FSAR Section 6.8.	3 (E-8))	B	6.0 Globe	Air/Diaphragm	C	O	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
MS-V400 Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (F-11)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
MS-V401 Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (F-11)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
MS-V404 Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (C-7)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
MS-V405 Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (C-7)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:
MS-V417 Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.	3 (D-11)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Per Disassembly S Close Test Freq: Per Disassembly S RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **MS**

PID No.: **D20582**

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
MS-V418	3 (D-11)	C	0.75 Check	Self	O	DE		MS-RJ-1	☒	☐	☐	☐	☐	☐	☐	☐	☐

Main steam to FW-TD-2 drain line check valve. This valve is normally open to drain condensate from the steam supply line, and closes when the steam line isolation valves open. References: P&ID D20582, DBD-EFW-01, revision 1.

Open Test Freq: Per Disassembly S
Close Test Freq: Per Disassembly S
RV Test Freq:
CV Test Dir:
ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **MS**
PID No.: **D20583**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
MS-V86	2 (F-11)	B	30.0 Gate	Hydraulic/NDA	O	C		MS-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG #1 main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3 Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V88	2 (D-11)	B	30.0 Gate	Hydraulic/NDA	O	C		MS-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG #2 main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3 Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V90	2 (C-11)	B	30.0 Gate	Hydraulic/NDA	O	C		MS-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG #3 main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3 Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V92	2 (G-11)	B	30.0 Gate	Hydraulic/NDA	O	C		MS-CSJ-2	☐	☒	☐	☐	☐	☒	☒	☐	☒
SG #4 main steam isolation valve. This valve is normally open and receives a main steam isolation (closure) signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3 Table 6.2-83.									Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V204	2 (E-11)	B	4.0 Globe	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
SG#1, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V205	2 (D-11)	B	4.0 Globe	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
SG#2, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **MS**
PID No.: **D20583**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
MS-V206	2 (B-11)	B	4.0 Globe	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
SG#3, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
MS-V207	2 (G-11)	B	4.0 Globe	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒
SG#4, main steam bypass valve. This valve is open to warm up the main steam system and equalize pressure across the main steam isolation valves. It is closed during power operation and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **MSD**
PID No.: **D20587**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
MSD-V44 SG#1, main steam drain line isolation valve. This valve is normally open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-1- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.	2 (D-11)	B	1.0 Globe	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V45 SG#2, main steam drain line isolation valve. This valve is normally open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-2- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.	2 (G-11)	B	1.0 Globe	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V46 SG#3, main steam drain line isolation valve. This valve is open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-3- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.	2 (F-11)	B	1.0 Globe	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
MSD-V47 SG#4, main steam drain line isolation valve. This valve is open to remove condensate from the main steam system and receives a main steam isolation closure signal. This is also a containment isolation valve for penetration X-4- exempt from Appendix J Type C LLRT. References: P&ID D20583, FSAR Section 10.3, Table 6.2-5.	2 (C-11)	B	1.0 Globe	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

SYSTEM: NG
PID No.: D20136

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
NG-FV4609	2 (C-10)	A	1.0 Globe	Solenoid	C	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
Low pressure nitrogen supply to cotainment components ORC-CIV for penetration X40- subject to Appendix J Type C LLRT. This valve is open to supply nitrogen to various components inside containment, and receives a "T" closure signal. References: P&ID D20136, FSAR Table 6.2-83.																		
NG-FV4610	2 (C-9)	A	1.0 Globe	Solenoid	C	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
Low pressure nitrogen supply to cotainment components IRC-CIV for penetration X40- subject to Appendix J Type C LLRT. This valve is open to supply nitrogen to various components inside containment, and receives a "T" closure signal. References: P&ID D20136, FSAR Table 6.2-83.																		
NG-V13	2 (F-10)	A	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
High pressure nitrogen supply to the ECCS accumulators- ORC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is open to charge the ECCS accumulators, and receives a "T" closure signal. References: P&ID D20136, FSAR Table 6.2-83.																		
NG-V14	2 (F-9)	A	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
High pressure nitrogen supply to the ECCS accumulators- IRC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is open to charge the ECCS accumulators, and receives a "T" closure signal. References: P&ID D20136, FSAR Table 6.2-83.																		
NG-V17	2 (F-7)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
ECS accumulator nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, FSAR Section 6.3.																		
NG-V19	2 (G-7)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
ECS accumulator nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, FSAR Section 6.3.																		

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **NG**
PID No.: **D20136**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
NG-V21	2 (G-7)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
ECS accumulator nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, FSAR Section 6.3.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
NG-V23	2 (F-7)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
ECS accumulator nitrogen supply isolation valve. This valve is normally closed (SC-2/NNS boundary), and may be periodically opened to pressurize the accumulator. Considered a passive valve per EWR 97-095 due to their limited service in the open direction. References: P&ID D20136, FSAR Section 6.3.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **RC**
PID No.: **D20518**

FIGURE F4
IST VALVE TEST TABLE

Valve Number	Class and Coord	Valve	Size (in.) and	Actuator	Positions			Relief Req	IST Program Plan Commitment								
Remarks		(CAT)	Type	Type	NRM	SAF	FAL	C.S. Just.	DI	FE	FS	LJ	LK	PE	PI	RT	ST
RC-FV2830	2 (H-11)	A	0.5 Globe	Solenoid	DE	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
Pressurizer steam space sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2831	2 (G-11)	A	0.5 Globe	Solenoid	C	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
Pressurizer liquid space sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2832	2 (E-11)	A	0.5 Globe	Solenoid	C	DE	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
RC Loop 1 sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, FSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
RC-FV2833	2 (D-11)	A	0.5 Globe	Solenoid	C	DE	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
RC Loop 3 sample valve- IRC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, FSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
RC-FV2836	2 (C-11)	A	0.5 Globe	Solenoid	C	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
PRT gas space sample valve- IRC-CIV for penetration X-40, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **RC**
PID No.: **D20518**

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
RC-FV2837 PRT gas space sample valve- ORC-CIV for penetration X-40, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.	2 (C-9)	A	0.5 Globe	Solenoid	DE	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2840 Pressurizer sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.	2 (H-9)	A	0.5 Globe	Solenoid	DE	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2874 RCS Loop 1 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.	2 (E-9)	A	0.5 Globe	Solenoid	DE	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2876 RCS Loop 3 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.	2 (D-9)	A	0.5 Globe	Solenoid	DE	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
									Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RC-FV2894 RC Loop 1 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, FSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.	2 (E-9)	A	0.5 Globe	Solenoid	C	DE	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								

SYSTEM: **RC**
PID No.: **D20518**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
RC-FV2896	2	A	0.5	Solenoid	C	DE	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
RC Loop 3 sample valve- ORC-CIV for penetration X-35, subject to Appendix J Type C LLRT. This valve is opened to obtain a sample and receives a "T" closure signal. This valve is utilized to obtain an RCS sample for boron concentration analysis to verify SDM during cold shutdown. If obtaining a sample is not possible, the operators verify adequate SDM by monitoring the volume of boric acid injected into the RCS. References: P&ID D20518, FSAR Sections 5.4.7, 7.4, Table 6.2-83, procedure OS1200.01.	(D-9)		Globe						Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
RC-V312	2	A	0.75	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
Pressurizer sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, FSAR Table 6.2-83.	(H-11)		Relief/Safety						Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
RC-V314	2	A	0.75	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
RCS Loop 1 sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, FSAR Table 6.2-83.	(F-10)		Relief/Safety						Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
RC-V337	2	A	0.75	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
RCS Loop 3 sample line containment penetration thermal relief valve- IRC-CIV for penetration X-35. This valve is normally closed and opens to provide overpressure protection caused by thermal expansion of trapped fluid under accident conditions. References: P&ID D20518, FSAR Table 6.2-83.	(E-11)		Relief/Safety						Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

SYSTEM: **RC**

PID No.: **D20841**

FIGURE F4

IST VALVE TEST TABLE

<table>
<tr><th rowspan="2">Valve Number
Remarks</th><th rowspan="2">Class and Coord</th><th rowspan="2">Valve (CAT)</th><th rowspan="2">Size (in.) and Type</th><th rowspan="2">Actuator Type</th><th colspan="3">Positions</th><th rowspan="2">Relief Req C.S. Just.</th><th colspan="9">IST Program Plan Commitment</th></tr>
<tr><th>NRM</th><th>SAF</th><th>FAL</th><th>DI</th><th>FE</th><th>FS</th><th>LJ</th><th>LK</th><th>PE</th><th>PI</th><th>RT</th><th>ST</th></tr>
<tr><td>RC-V22</td><td>1
(A-9)</td><td>A</td><td>12.0
Gate</td><td>Motor</td><td>C</td><td>DE</td><td></td><td>RC-CSJ-1</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td></tr>
<tr><td colspan="9">RHR -RCS loop 1 suction isolation valve (PIV). This valve is closed during plant power operation and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20841, FSAR Section 5.4.7, ECA 1.2, TRM Section 2.18.</td><td colspan="9">Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed</td></tr>
<tr><td>RC-V23</td><td>1
(A-11)</td><td>A</td><td>12.0
Gate</td><td>Motor</td><td>C</td><td>DE</td><td></td><td>RC-CSJ-1</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td><td>☒</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td></tr>
<tr><td colspan="9">RHR -RCS loop 1 suction isolation valve (PIV/CIV). This valve is closed during plant power operation and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is an IRC CIV for penetration X-9, subject to Appendix J Type C LLRT, and is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20841, FSAR Section 5.4.7, ECA 1.2, TRM Section 2.18.</td><td colspan="9">Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed</td></tr>
<tr><td>RC-V24</td><td>2
(A-12)</td><td>C</td><td>3.0
Relief/Safety</td><td>Self</td><td>C</td><td>DE</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td colspan="9">RHR Suction line relief valve. This RV protects the low pressure portion of the RHR system from overpressure, and also provides LTOP for the RCS in conjunction with the pressurizer PORVs. This RV is also a containment isolation valve for penetration X-9- subject to Appendix J Type C LLRT. References: P&ID D20841, TS 3.4.9.3, FSAR Section 5.4.7.2, Table 6.2-83.</td><td colspan="9">Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td>RC-V360</td><td>2
(A-11)</td><td>C</td><td>0.75
Relief/Safety</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td colspan="9">RHR suction line thermal relief valve-- In scope per ISTC 1.1. Reference: P&ID D20841.</td><td colspan="9">Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td>RC-V475</td><td>2
(A-10)</td><td>A/C</td><td>0.5
Check</td><td>Self</td><td>C</td><td>DE</td><td></td><td>RC-CSJ-5</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="9">RC-V22 bypass line check valve. This valve opens to equalize pressure across RC-V22 to preclude differential pressure locking, and closes to prevent bypass flow around RC-V22. This valve is designated as an RCS pressure isolation valve in TRM Section 2.18. References P&ID D20841, TRM Section 2.18, DCR 95-023.</td><td colspan="9">Open Test Freq: CSD
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir:</td></tr>
</table>

FIGURE F4

SYSTEM: **RC**
PID No.: **D20843**

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
RC-LCV459	1 (A-6)	B	3.0 Globe	Air/Diaphragm	O	C	C	RC-CSJ-2	☐	☒	☒	☐	☐	☐	☒	☐	☒
RC-LCV460	1 (A-8)	B	3.0 Globe	Air/Diaphragm	O	C	C	RC-CSJ-2	☐	☒	☒	☐	☐	☐	☒	☐	☒

RC-LCV459

RCS Loop 3 normal letdown isolation valves-(RCPB). These valves are normally open and close (fail closed) to isolate letdown on low pressurizer level. They have no open safety function since letdown is not required to achieve safe shutdown. These valves form the reactor coolant pressure boundary CL 1/2 boundary to meet the requirements of 10CFR 50.55.a (c).2.ii. References: P&ID D20843, FSAR Section 5.2

Open Test Freq:
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

RC-LCV460

RCS Loop 3 normal letdown isolation valves-(RCPB). These valves are normally open and close (fail closed) to isolate letdown on low pressurizer level. They have no open safety function since letdown is not required to achieve safe shutdown. These valves form the reactor coolant pressure boundary CL 1/2 boundary to meet the requirements of 10CFR 50.55.a (c).2.ii. References: P&ID D20843, FSAR Section 5.2

Open Test Freq:
Close Test Freq: CSD
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

SYSTEM: **RC**
PID No.: **D20844**

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
RC-V87	1	A	12.0	Motor	C	DE			☐	☒	☐	☐	☒	☐	☒	☐	☒
RHR -RCS loop 4 suction isolation valve (PIV). This valve is closed during plant power operation and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20844, FSAR Section 5.4.7, ECA 1.2, TRM Section 2.18.	(G-7)		Gate					RC-CSJ-1	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
RC-V88	1	A	12.0	Motor	C	DE			☐	☒	☐	☒	☒	☐	☒	☐	☒
RHR -RCS loop 4 suction isolation valve (PIV). This valve is closed during plant power operation and is opened to place the RHR system into operation to cool the RCS below 350F. This valve is an IRC CIV for penetration X-10, subject to Appendix J Type C LLRT, and is identified in TRM Section 2.18 as an RCS pressure isolation valve not subject to TS 4.4.6.2.2d testing. This valve may also be closed to isolate a leak in the RHR system. References: P&ID D20844, FSAR Section 5.4.7, ECA 1.2, TRM Section 2.18.	(H-8)		Gate					RC-CSJ-1	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
RC-V89	2	C	3.0	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
RHR Suction line relief valve. This RV protects the low pressure portion of the RHR system from overpressure, and also provides LTOP for the RCS in conjunction with the pressurizer PORVs. This RV is also a containment isolation valve for penetration X-10- subject to Appendix J Type C LLRT. References: P&ID D20844, TS 3.4.9.3, FSAR Section 5.4.7.2, Table 6.2-83.	(H-8)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
RC-V361	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
RHR suction line thermal relief valve-- In scope per ISTC 1.1. Reference: P&ID D20844.	(H-7)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
RC-V479	2	A/C	0.5	Self	C	DE			☐	☒	☐	☐	☒	☐	☐	☐	☐
RC-V87 bypass line check valve. This valve opens to equalize pressure across RC-V87 to preclude differential pressure locking, and closes to prevent bypass flow around RC-V87. This valve is designated as an RCS pressure isolation valve in TRM Section 2.18. References P&ID D20841, TRM Section 2.18, DCR 95-023.	(G-7)		Check					RC-CSJ-5	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **RC**
PID No.: **D20845**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RC-FV2881 Reactor head vent isolation valve. This valve opens to vent noncondensibles from the reactor head and closes to isolate the RCPB. References: P&ID D20845, FSAR Section 5.2.6, TS 3.4.11.	2 (G-7)	B	0.75 Globe	Solenoid	C	DE	C	VG-2	☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RC-V323 Reactor head vent isolation valve. This valve opens to vent noncondensibles from the reactor head and closes to isolate the RCPB. References: P&ID D20845, FSAR Section 5.2.6, TS 3.4.11.	2 (G-7)	B	0.75 Globe	Motor	C	DE		RC-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **RC**
PID No.: **D20846**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RC-PCV456A Pressurizer PORV. This valve is normally closed and opens to limit RCS pressure transients to preclude safety valve actuation (non-safety function). The safety related functions include LTOP with RCS at reduced pressure and temperature, RCS noncondensibles venting, and RCS depressurization for Safe Shutdown. References: P&ID D20846, FSAR Sectins 5.2.2.11, 5.4.7, 7.4, TS 3.4.9.3, TS 3.4.11.	1 (G-7)	B	3.0 Globe	Solenoid	C	DE	C	RC-CSJ-3	☐	☒	☒	☐	☐	☐	☒	☒	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open/Closed
RC-PCV456B Pressurizer PORV. This valve is normally closed and opens to limit RCS pressure transients to preclude safety valve actuation (non-safety function). The safety related functions include LTOP with RCS at reduced pressure and temperature, RCS noncondensibles venting, and RCS depressurization for Safe Shutdown. References: P&ID D20846, FSAR Sectins 5.2.2.11, 5.4.7, 7.4, TS 3.4.9.3, TS 3.4.11.	1 (F-7)	B	3.0 Globe	Solenoid	C	DE	C	RC-CSJ-3	☐	☒	☒	☐	☐	☐	☒	☒	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: 5 Years CV Test Dir: ST Test Dir: Open/Closed
RC-V115 RCS-Pressurizer safety valve- provides overpressure protection for the RCS-In scope per ISTC 1.1. References: P&ID D20846, FSAR Section 5.2.2, TS 3.4.2.2.	1 (G-6)	C	6.0 Relief/Safety	Self	C	DE			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V116 RCS-Pressurizer safety valve- provides overpressure protection for the RCS-In scope per ISTC 1.1. References: P&ID D20846, FSAR Section 5.2.2, TS 3.4.2.2.	1 (H-6)	C	6.0 Relief/Safety	Self	C	DE			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V117 RCS-Pressurizer safety valve- provides overpressure protection for the RCS-In scope per ISTC 1.1. References: P&ID D20846, FSAR Section 5.2.2, TS 3.4.2.2.	1 (G-6)	C	6.0 Relief/Safety	Self	C	DE			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 5 Years CV Test Dir: ST Test Dir:
RC-V122 Pressurizer PORV Isolation valve. This valve is normally open and may be closed with or without power removed depending on the operational status of the associated PORV. This valve may be subsequently opened to allow PORV actuation. References : P&ID D20846, TS 3.4.4, FSAR Section 5.2.	1 (G-7)	B	3.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **RC**
PID No.: **D20846**

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
RC-V124	1 (F-7)	B	3.0 Gate	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒

Pressurizer PORV isolation valve. This valve is normally open and may be closed with or without power removed depending on the operational status of the associated PORV. This valve may be subsequently opened to allow PORV actuation. References : P&ID D20846, TS 3.4.4, FSAR Section 5.2.

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **RH**
PID No.: **D20662**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RH-FCV610 RHR pump min-flow control valve. This valve automatically opens when the RHR pump discharge flow drops to 750 gpm and closes when the flow exceeds 1400 gpm to provide min-flow protection for the RHR pump during ECCS and RHR operation. References: P&ID 20662, FSAR Sections 5.4.7, 7.4,6.3.	2 (A-12)	B	3.0 Globe	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-FCV618 RHR heat exchanger bypass valve. This valve is normally fully closed during ECCS standby mode. During plant cooldown, the valve is automatically positioned to maintain total flow in response to the operator repositioning of the outlet valve HCV-606 to establish and maintain plant cooldown. This valve is designed to fail closed on loss of NNS air, and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilites. References: P&ID D20662, FSAR Sections 5.4.7, 7.4.	2 (D-8)	B	8.0 Gate	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-HCV606 RHR heat exchanger outlet flow control valve. This valve is normally fully open in the ECCS standby mode. During plant cool down, it is positioned by the operator to establish and maintain RCS cooldown. The valve is designed to fail open upon loss of NNS air and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilites. References: P&ID D20662, FSAR Sections 5.4.7, 7.4.	2 (E-9)	B	8.0 Butterfly	Air/Diaphragm	O	O	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
RH-V4 RHR pump discharge check valve. This valve opens when the RHR pump is operating for SSD and ECCS. Reverse closure is not required during ECCS operation due to closure of the RWST and Containment sump suction check valves should an RHR pump be idle. During Mode 4 RHR operation, one RHR train is used for cool down and the other train remains aligned for ECCS per TS 3.5.3.1, and a cross connect valve V21 (V22) is maintained closed. This will preclude reverse flow through an idle RHR pump. References: P&ID D20662, FSAR Sections 5.4.7 & 6.3, OS1013.03 &. 04.	2 (B-11)	C	8.0 Check	Self	C	O		RH-CSJ-1	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
RH-V13 RHR discharge header 600# relief valve. This valve is in scope per ISTC 1.1. References: P&ID D20662.	2 (F-7)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **RH**
PID No.: **D20662**

Valve Number	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		Remarks
RH-V14	2 (E-6)	B	8.0 Gate	Motor	O	DE		RH-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed	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 to mitigate certain long term ECCS limited passive failures. This valve is exempt from Appendix J Type C LLRT. References: P&ID D20662, FSAR Sections 5.4.7, 6.3 Table 6.2-83, procedures ES-1.3, ES-1.4.
RH-V15	2 (D-5)	A/C	6.0 Check	Self	C	DE		RH-CSJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:	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 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.
RH-V16	2 (D-12)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed	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 Sections 5.4.7, 7.4.
RH-V28	2 (G-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed	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.
RH-V31	2 (E-5)	A/C	6.0 Check	Self	C	DE		RH-CSJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:	RHR/LPSI discharge inside containment CIV/PIV (X-11). This valve opens to direct RHR/LPSI flow to the RCS loop 2 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 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.
RH-V35	2 (G-8)	B	8.0 Gate	Motor	C	DE		RH-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed	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

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **RH**
PID No.: **D20663**

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-FCV611 RHR pump min-flow control valve. This valve automatically opens when the RHR pump discharge flow drops to 750 gpm and closes when the flow exceeds 1400 gpm to provide min-flow protection for the RHR pump during ECCS and RHR operation. References: P&ID 20663, FSAR Sections 5.4.7, 7.4,6.3.	2 (A-12)	B	3.0 Globe	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-FCV619 RHR heat exchanger bypass valve. This valve is normally fully closed during ECCS standby mode. During plant cooldown, the valve is automatically positioned to maintain total flow in response to the operator repositioning of the outlet valve HCV-607 to establish and maintain plant cooldown. This valve is designed to fail closed on loss of NNS air, and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilites. References: P&ID D20663, FSAR Sections 5.4.7, 7.4.	2 (D-8)	B	8.0 Gate	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-HCV607 RHR heat exchanger outlet flow control valve. This valve is normally fully open in the ECCS standby mode. During plant cool down, it is positioned by the operator to establish and maintain RCS cooldown. The valve is designed to fail open upon loss of NNS air and direct full flow through the heat exchanger. This transient is within the system/ plant design capabilites. References: P&ID D20663, FSAR Sections 5.4.7, 7.4.	2 (E-9)	B	8.0 Butterfly	Air/Diaphragm	O	O	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
RH-V17 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 20663, FSAR Sections 5.4.7, 7.4.	2 (E-12)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V21 RHR/LPSI discharge cross connect isolation valve. This valve is normally open and remains open during all phases of ECCS operation. It may be closed during normal RHR operation in Mode 4, or to isolate a Mode 4 LOCA, and may also be closed to isolate long term ECCS limited passive failures. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, ECA-1.2, OS1013.03, .04.	2 (F-8)	B	8.0 Gate	Motor	O	DE		RH-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V22 RHR/LPSI discharge cross connect isolation valve. This valve is normally open and remains open during all phases of ECCS operation. It may be closed during normal RHR operation in Mode 4, or to isolate a Mode 4 LOCA, and may also be closed to isolate long term ECCS limited passive failures. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, ECA-1.2, OS1013.03, .04.	2 (H-8)	B	8.0 Gate	Motor	O	DE		RH-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

SYSTEM: **RH**
PID No.: **D20663**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RH-V25 RHR discharge header 600# relief valve. This valve is in scope per ISTC 1.1. References: P&ID D20663.	2 (E-7)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
RH-V26 RHR/LPSI discharge CIV (X-12). 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 to mitigate certain long term ECCS limited passive failures. This valve is exempt from Appendix J Type C LLRT. References: P&ID D20663, FSAR Sections 5.4.7, 6.3 Table 6.2-83, procedures ES-1.3, ES-1.4.	2 (E-6)	B	8.0 Gate	Motor	O	DE		RH-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V27 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-12,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20663, FSAR Table 6.2-83.	2 (E-6)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V29 RHR/LPSI discharge inside containment CIV/PIV (X-12). This valve opens to direct RHR/LPSI flow to the RCS loop 3 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 D20663, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	2 (D-5)	A/C	6.0 Check	Self	C	DE		RH-CSJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V30 RHR/LPSI discharge inside containment CIV/PIV (X-12). This valve opens to direct RHR/LPSI flow to the RCS loop 4 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 D20663, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	2 (C-6)	A/C	6.0 Check	Self	C	DE		RH-CSJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V32 RHR hot leg recirculation isolation valve. This valve is normally closed and opens to initiate hot leg recirculation. Valve closure is not required since long term ECCS limited passive failures can be isolated by closing V21&V22. This is also a containment isolation valve for penetration X-13 and exempt from Appendix J Type C LLRT. References: P&ID D20663, ES-1.4, FSAR Sections 5.4.7, 6.3, Table 6.2-83.	2 (F-7)	B	8.0 Gate	Motor	C	DE		RH-CSJ-6	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open

SYSTEM: **RH**
PID No.: **D20663**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RH-V36 RHR Train B discharge to SI suction. This valve is normally closed and is opened to align the B RHR pump discharge to the Safety injection 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 D20663, FSAR Section 6.3	2 (F-12)	B	8.0 Gate	Motor	C	DE		RH-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
RH-V40 RHR pump discharge check valve. This valve opens when the RHR pump is operating for SSD and ECCS. Reverse closure is not required during ECCS operation due to closure of the RWST and Containment sump suction check valves should an RHR pump be idle. During Mode 4 RHR operation, one RHR train is used for cool down and the other train remains aligned for ECCS per TS 3.5.3.1, and a cross connect valve V21 (V22) is maintained closed. This will preclude reverse flow through an idle RHR pump. References: P&ID D20663 FSAR Sections 5.4.7 & 6.3, OS1013.03 &. 04.	2 (B-11)	C	8.0 Check	Self	C	O		RH-CSJ-1	☐	☒	☐	☐	☐	☒	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
RH-V49 RHR/SI hot leg PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and receives an SI closure signal. This valve is also an IRC CIV for penetration X-13,-- exempt from Appendix J Type C LLRT. Reference: P&ID D20663, FSAR Table 6.2-83.	2 (H-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RH-V50 RCS loop 4 HL check valve-CIV. This is an IRC CIV for X-13- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	2 (G-6)	A/C	8.0 Check	Self	C	DE		RH-RJ-1	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RH-V51 RCS loop 1 HL check valve-CIV. This is an IRC CIV for X-13- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	2 (F-6)	A/C	8.0 Check	Self	C	DE		RH-RJ-1	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **RH**
PID No.: **D20663**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
RH-V52	2	A/C	6.0	Self	C	DE			☐	☒	☐	☐	☒	☐	☐	☐	☐
RCS loop 1 HL check valve. This was previously considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	(F-5)		Check					RH-RJ-1	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:								
RH-V53	2	A/C	6.0	Self	C	DE			☐	☒	☐	☐	☒	☐	☐	☐	☐
RCS loop 4 HL check valve. This was previously considered an RCS/LPSI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20663, FSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	(H-5)		Check					RH-RJ-1	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:								
RH-V54	2	B	0.75	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
RHR/SI hot leg PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20663	(F-6)		Globe						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RH-V55	2	B	0.75	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
RHR/SI hot leg PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection headerand is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20663	(H-5)		Globe						Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
RH-V57	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
ECCS hot leg injection piping relief valve- in scope per ISTC 1.1. References; P&ID D20663.	(G-7)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
RH-V70	2	B	8.0	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
RHR hot leg recirculation isolation valve. This valve is normally closed and opens to initiate hot leg recirculation. Valve closure is not required since long term ECCS limited passive failures can be isolated by closing V21&V22. This is also a containment isolation valve for penetration X-13 and exempt from Appendix J Type C LLRT. References: P&ID D20663, ES-1.4, FSAR Sections 5.4.7, 6.3, Table 6.2-83.	(H-7)		Gate					RH-CSJ-6	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open								

SYSTEM: **RMW**
PID No.: **D20360**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
RMW-V29 RMW supply to containment-IRC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident conditions and closes for containment isolation. References: P&ID D20360, FSAR Table 6.2-83, Engineering Evaluation SS-EV-960023, revision 0.	2 (H-5)	A/C	3.0 Check	Self	DE	DE		RMW-CSJ-2	☐	☒	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V30 RMW supply to containment-ORC-CIV for penetration X36- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20360, FSAR Table 6.2-83.	2 (H-6)	A	3.0 Globe	Air/Diaphragm	DE	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
RMW-V119 Boric Acid pump discharge to charging pump suction check valve. This valve is normally closed and will open during rapid boration when CS-V426 is opened. Reverse closure is not required during ECCS sump recirculation since the line will be isolated by normally closed valves CS-V426,V452, V229 and RMW-V31 and V34. References: P&ID D20725, D20729.	2 (D-6)	C	3.0 Check	Self	C	O		RMW-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V31 Reactor makeup water supply to the CVCS blender. This valve is normally open and is closed to isolate potential dilution water during emergency boration. References: P&ID D20729, FSAR Section 7.4, OS1200.01.	3 (D-5)	B	2.0 Saunders Weir	Manual	O	C			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
RMW-V34 Reactor makeup water supply to the CVCS blender. This valve is normally open and is closed to isolate potential dilution water during emergency boration. References: P&ID D20729, FSAR Section 7.4, OS1200.01.	3 (D-5)	B	2.0 Saunders Weir	Manual	O	C			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **SA**
PID No.: **D20652**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SA-V229 Locked closed Service Air ORC-CIV for penetration X-67-subject to Appendix J Type C LLRT. References: P&ID D20652, FSAR Table 6.2-83.	2 (E-7)	A	2.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:
SA-V1042 Locked closed Service Air IRC-CIV for penetration X-67-subject to Appendix J Type C LLRT. References: P&ID D20652, FSAR Table 6.2-83.	2 (E-7)	A	2.0 Globe	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:

SYSTEM: **SB**
PID No.: **D20626**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SB-V1	2 (H-12)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #1 blowdown isolation valve. This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure. References: P&ID D20626, FSAR Section 10.4.8.6.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SB-V3	2 (H-12)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #2 blowdown isolation valve. This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure. References: P&ID D20626, FSAR Section 10.4.8.6.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SB-V5	2 (G-12)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #3 blowdown isolation valve. This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure. References: P&ID D20626, FSAR Section 10.4.8.6.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SB-V7	2 (F-12)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #4 blowdown isolation valve. This valve is normally open and closes on a HELB isolation signal, high flash tank level and high flash tank pressure. References: P&ID D20626, FSAR Section 10.4.8.6.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SB-V9	2 (H-11)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #1 blowdown isolation valve -ORC-CIV for penetration X-63- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, FSAR Section 10.4.8.6, Table 6.2-83.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SB-V10	2 (H-11)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SG #2 blowdown isolation valve -ORC-CIV for penetration X-64- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, EFW pump running signal and receives a "T" closure signal. References: P&ID D20626, FSAR Section 10.4.8.6, Table 6.2-83.									Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **SB**
PID No.: **D20626**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SB-V11	2 (G-11)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒

SG #3 blowdown isolation valve -ORC-CIV for penetration X-65- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, EFW pump running signal and receives a "T" closure signal.
References: P&ID D20626, FSAR Section 10.4.8.6, Table 6.2-83.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SB-V12	2 (F-11)	B	3.0 Gate	Air/Piston	O	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒

SG #4 blowdown isolation valve -ORC-CIV for penetration X-66- exempt from Appendix J Type C LLRT. This valve is normally open and closes on a HELB isolation signal, EFW pump running signal and receives a "T" closure signal.
References: P&ID D20626, FSAR Section 10.4.8.6, Table 6.2-83.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

FIGURE F4
IST VALVE TEST TABLE

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

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
SF-V3	3	C	6.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Spent fuel pool cooling pump P-10B discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. References: P&ID D20482.	(D-4)		Check								Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:						
SF-V7	3	C	6.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Spent fuel pool cooling pump P-10A discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. References: P&ID D20482.	(D-7)		Check								Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:						
SF-V45	3	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SF-E-15B thermal relief valve- in scope per ISTC 1.1. Reference: P&ID D20482.	(G-11)		Relief/Safety								Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:						
SF-V74	3	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SF-E-15A thermal relief valve- in scope per ISTC 1.1. Reference: P&ID D20482.	(G-9)		Relief/Safety								Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:						
SF-V197	3	C	8.0	Self	DE	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐
Spent fuel pool cooling pump P-10C discharge check valve. This valve opens when the SFPC pump is running and closes when the pump is secured to prevent reverse bypass flow from the redundant parallel pumps. References: P&ID D20482.	(B-5)		Check								Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:						

SYSTEM: **SF**
PID No.: **D20484**

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
SF-V86	2 (F-7)	A	2.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
Refueling canal skimmer pump discharge ORC-CIV for penetration X-39-subject to Appendix J Type C LLRT. This is a passive, locked closed manual valve. References: P&ID D20484, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:								
SF-V87	2 (F-6)	A	2.0 Gate	Manual	C	C			☐	☐	☐	☒	☐	☐	☐	☐	☐
Refueling canal skimmer pump discharge IRC-CIV for penetration X-39-subject to Appendix J Type C LLRT. This is a passive, locked closed manual valve. References: P&ID D20484, FSAR Table 6.2-83.									Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: CV Test Dir: ST Test Dir:								
SF-V101	2 (G-6)	A/C	0.75 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
Containment penetration X-39 thermal relief valve- subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident conditions. Reference: P&ID D20484.									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)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
Alternate SFP heat exchanger relief valve- in scope per ISTC 1.1. References: P&ID D20796.									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

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

FIGURE F4

IST VALVE TEST TABLE

<table>
<tr><th rowspan="2">Valve Number
Remarks</th><th rowspan="2">Class and Coord</th><th rowspan="2">Valve (CAT)</th><th rowspan="2">Size (in.) and Type</th><th rowspan="2">Actuator Type</th><th colspan="3">Positions</th><th rowspan="2">Relief Req C.S. Just.</th><th colspan="9">IST Program Plan Commitment</th></tr>
<tr><th>NRM</th><th>SAF</th><th>FAL</th><th>DI</th><th>FE</th><th>FS</th><th>LJ</th><th>LK</th><th>PE</th><th>PI</th><th>RT</th><th>ST</th></tr>
<tr><td>SI-V71</td><td>2
(B-9)</td><td>C</td><td>4.0
Check</td><td>Self</td><td>C</td><td>DE</td><td></td><td>SI-RJ-1</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="9">SI pump discharge check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446.</td><td colspan="9">Open Test Freq: Refueling
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td>SI-V76</td><td>2
(C-7)</td><td>C</td><td>0.75
Relief/Safety</td><td>Self</td><td>C</td><td>O</td><td></td><td></td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr>
<tr><td colspan="9">SI hot leg injection header relief valve. In scope per ISTC 1.1. References: P&ID D20446.</td><td colspan="9">Open Test Freq:
Close Test Freq:
RV Test Freq: 10 Years
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td>SI-V77</td><td>2
(B-7)</td><td>B</td><td>4.0
Gate</td><td>Motor</td><td>C</td><td>DE</td><td></td><td>SI-CSJ-1</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☒</td></tr>
<tr><td colspan="9">SI hot leg injection containment isolation valve. This valve is normally closed with power removed, and is opened to initiate ECCS hot leg recirculation. This valve is also the ORC CIV for penetration X-26 -exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 6.3, Table 6.2-83, TS 3/4.5.2.</td><td colspan="9">Open Test Freq: CSD
Close Test Freq:
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed</td></tr>
<tr><td>SI-V81</td><td>1
(B-5)</td><td>A/C</td><td>2.0
Check</td><td>Self</td><td>C</td><td>DE</td><td></td><td>SI-RJ-2</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="9">RCS loop 3 HL check valve-CIV. This is an IRC CIV for X-26- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.</td><td colspan="9">Open Test Freq: Refueling
Close Test Freq: PIVs per TS
RV Test Freq:
CV Test Dir:
ST Test Dir:</td></tr>
<tr><td>SI-V82</td><td>1
(B-4)</td><td>A/C</td><td>6.0
Check</td><td>Self</td><td>C</td><td>DE</td><td></td><td>SI-RJ-2</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td colspan="9">RCS loop 3 HL check valve. This was previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.</td><td colspan="9">Open Test Freq: Refueling
Close Test Freq: PIVs per TS
RV Test Freq:
CV Test Dir:
ST Test Dir:</td></tr>
</table>

FIGURE F4

IST VALVE TEST TABLE

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V86	1 (B-5)	A/C	2.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RCS loop 2 HL check valve-CIV. This is an IRC CIV for X-26- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.																		
SI-V87	1 (B-4)	A/C	6.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RCS loop 2 HL check valve. This was previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, TS 3/4.4.6.2, TRM Section 2.18.																		
SI-V88	2 (C-9)	C	1.5 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SI pump min-flow recirc check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446.																		
SI-V89	2 (C-9)	B	1.5 Globe	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI pump recirculation isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. References: P&ID D20446, FSAR Section 6.3																		
SI-V90	2 (F-9)	B	1.5 Globe	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI pump recirculation isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. References: P&ID D20446, FSAR Section 6.3.																		
SI-V91	2 (F-9)	C	1.5 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SI pump min-flow recirc check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446.																		

FIGURE F4
IST VALVE TEST TABLE

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

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V93	2 (E-9)	B	2.0 Globe	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI pump common recirculation isolation valve. This valve is normally open, remains open during the injection phase of ECCS operation, and is closed during the recirculation phase of ECCS operation. References: P&ID D20446, FSAR Section 6.3.																		
SI-V96	2 (G-8)	C	4.0 Check	Self	C	DE		SI-RJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SI pump discharge check valve. This valve opens when the SI pump is operating and must close to prevent suction piping overpressurization if the pump is idle when the redundant pump is operating. References: P&ID D20446.																		
SI-V101	2 (G-7)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SI hot leg injection header relief valve. In scope per ISTC 1.1. References: P&ID D20446.																		
SI-V102	2 (G-7)	B	4.0 Gate	Motor	C	DE		SI-CSJ-1	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI hot leg injection containment isolation valve. This valve is normally closed with power removed, and is opened to initiate ECCS hot leg recirculation. This valve is also the ORC CIV for penetration X-25 -exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 6.3, Table 6.2-83, TS 3/4.5.2.																		
SI-V106	1 (G-5)	A/C	2.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
RCS loop 4 HL check valve-CIV. This is an IRC CIV for X-25- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.																		

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

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-V110	1	A/C	2.0	Self	C	DE			☐	☒	☐	☐	☒	☐	☐	☐	☐
RCS loop 1 HL check valve-CIV. This is an IRC CIV for X-25- exempt from Appendix J Type C LLRT. This was also previously considered an RCS/SI pressure isolation valve, subject to seat leakage testing per TS 3/4.4.6.2. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. This valve is normally closed and opens during the ECCS hot leg recirculation phase of operation. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	(H-5)		Check					SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:								
SI-V111	2	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SI discharge cross connect valve. This valve is normally open, remains open during the injection and cold leg recirculation phase of ECCS operation and is closed during the hot leg recirculation phase of ECCS operation. References: P&ID D20446, FSAR Section 6.3.	(C-8)		Gate						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
SI-V112	2	B	4.0	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SI discharge cross connect valve. This valve is normally open, remains open during the injection and cold leg recirculation phase of ECCS operation and is closed during the hot leg recirculation phase of ECCS operation. References: P&ID D20446, FSAR Section 6.3.	(F-8)		Gate						Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed								
SI-V113	2	C	0.75	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
SI cold leg injection header relief valve. In scope per ISTC 1.1. References: P&ID D20446.	(D-7)		Relief/Safety						Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
SI-V114	2	B	4.0	Motor	O	DE		SI-CSJ-3	☐	☒	☐	☐	☐	☐	☒	☐	☒
SI cold leg header CIV. This valve is normally open (with power removed), remains open during the injection and cold leg recirculation phases of ECCS operation, and is closed during the hot leg recirculation phase of ECCS operation. This valve is also the ORC CIV for penetration X-27-- exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Section 6.3, Table 6.2-83, TS 3/4.5.2.	(D-7)		Gate						Open Test Freq: Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Closed								
SI-V118	1	A/C	2.0	Self	C	DE			☐	☒	☐	☐	☒	☐	☐	☐	☐
SI loop 1 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.	(C-4)		Check					SI-RJ-2	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:								

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

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
SI-V122	1 (D-4)	A/C	2.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐
SI-V126	1 (D-4)	A/C	2.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐
SI-V130	1 (E-4)	A/C	2.0 Check	Self	C	DE		SI-RJ-2	☐	☒	☐	☐	☒	☐	☐	☐	☐
SI-V131	2 (E-6)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SI-V132	2 (A-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒
SI-V133	2 (C-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒

SI-V122

SI loop 2 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq: Refueling
Close Test Freq: PIVs per TS
RV Test Freq:
CV Test Dir:
ST Test Dir:

SI-V126

SI loop 3 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq: Refueling
Close Test Freq: PIVs per TS
RV Test Freq:
CV Test Dir:
ST Test Dir:

SI-V130

SI loop 4 cold leg injection check valve. This valve is normally closed and opens when the SI pump is operating and the RCS pressure is below the pump shutoff head. This valve is an RCS/SI pressure isolation valve which is seat leakage tested per TS 3/4.4.6.2, and it is an IRC isolation for penetration X-27- exempt from Appendix J Type C LLRT. References: P&ID D20446, FSAR Sections 5.4.7, 6.3, Table 6.2-83, TS 3/4.4.6.2, TRM Section 2.18.

Open Test Freq: Refueling
Close Test Freq: PIVs per TS
RV Test Freq:
CV Test Dir:
ST Test Dir:

SI-V131

SI cold leg injection check valve test line isolation valve and IRC CIV for containment penetration X-27- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the SI cold leg PIVs. References : P&ID D20446, FSAR Section 5.4.7, 6.3, Table 6.2-83, Engineering Evaluation SS-EV-980010, Revision 0.

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

SI-V132

SI hot leg PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20446

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

SI-V133

SI hot leg PIV test line isolation. This valve aligns the hot leg injection header to the seat leakage detection header and is required to be closed during normal plant operation. Passive closed function only (per EWR 97-095). Reference: P&ID D20446

Open Test Freq:
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Closed

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

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V134 Loops 2 & 3 HL check valve test line isolation valve and IRC CIV for containment penetration X-26- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the loops 2 & 3 HL PIVs. References : P&ID D20446, FSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (C-6)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V157 SI accumulator fill isolation valve. This valve is normally closed, fails closed and receives a containment isolation "T" signal to close. SI-V157 may be periodically opened to adjust SI accumulator level. This is also a containment isolation valve for penetration X35A which is subject to Type C leak rate testing per 10CFR50 Appendix J. References: P&ID D20446, FSAR Section 6.3, Table 6.2-83.	2 (H-7)	A	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V160 Loops 1 & 4 HL check valve test line isolation valve and IRC CIV for containment penetraion X-25- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the loops 1 & 4 HL PIVs. References : P&ID D20446, FSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (H-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V248 SI pump common recirculation line relief valve- in scope per ISTC 1.1. Reference: P&ID D20446.	2 (D-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **SI**
PID No.: **D20447**

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	
SI-V138 CCP-SI cold leg isolation valve and ORC containment isolation valve for penetration X-24- exempt from Appendix J Type C LLRT. This valve is normally closed, receives an open SI injection signal, and remains open for cold leg recirculation. This valve is also in the alternate boration injection flow path and may be cycled during safe shutdown. References: P&ID D20447, FSAR Sections 5.4-7, 7.4, 6.3, Table 6.2-83.	2 (H-6)	B	4.0 Gate	Motor	C	DE		SI-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V139 CCP-SI cold leg isolation valve and ORC containment isolation valve for penetration X-24- exempt from Appendix J Type C LLRT. This valve is normally closed, receives an open SI injection signal, and remains open for cold leg recirculation. This valve is also in the alternate boration injection flow path and may be cycled during safe shutdown. References: P&ID D20447, FSAR Sections 5.4-7, 7.4, 6.3, Table 6.2-83.	2 (H-6)	B	4.0 Gate	Motor	C	DE		SI-CSJ-4	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V140 CCP SI injection common line check valve and IRC isolation valve for X-24, exempt from Appendix J Type C LLRT. This valve is normally closed and opens upon initiation of SI flow to the RCS cold legs. This valve was also previously designated a pressure isolation valve in TRM Section 2.18. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. References: P&ID D20447, FSAR Sections 5.4.7, 7.4, 6.3, Table 6.2.83, TS 3/4.4.6.2, TRM Section 2.18.	1 (G-5)	A/C	3.0 Check	Self	C	DE		SI-RJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V144 CCP SI injection loop 1 cold leg check valve. This valve is normally closed and opens upon initiation of SI flow to the RCS cold legs. This valve was also previously designated a pressure isolation valve in TRM Section 2.18. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. References: P&ID D20447, FSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-4)	A/C	1.5 Check	Self	C	DE		SI-RJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V148 CCP SI injection loop 2 cold leg check valve. This valve is normally closed and opens upon initiation of SI flow to the RCS cold legs. This valve was also previously designated a pressure isolation valve in TRM Section 2.18. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. References: P&ID D20447, FSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (E-4)	A/C	1.5 Check	Self	C	DE		SI-RJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V152 CCP SI injection loop 3 cold leg check valve. This valve is normally closed and opens upon initiation of SI flow to the RCS cold legs. This valve was also previously designated a pressure isolation valve in TRM Section 2.18. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. References: P&ID D20447, FSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (F-4)	A/C	1.5 Check	Self	C	DE		SI-RJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **SI**
PID No.: **D20447**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V156 CCP SI injection loop 4 cold leg check valve. This valve is normally closed and opens upon initiation of SI flow to the RCS cold legs. This valve was also previously designated a pressure isolation valve in TRM Section 2.18. However, since this valve is backed up by a normally closed MOV, per UFSAR Section 5.4.7, this valve is not a PIV. References: P&ID D20447, FSAR Sections 5.4.7, 7.4, 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (D-4)	A/C	1.5 Check	Self	C	DE		SI-RJ-3	☐	☒	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V158 SI cold leg injection check valve test line isolation valve and IRC CIV for containment penetration X-24- Exempt from Appendix J Type C LLRT. This valve is normally closed and receives a containment isolation "T" signal. This valve may be periodically opened to measure the seat leakage past the SI cold leg PIVs. References : P&ID D20447, FSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (G-4)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V159 SI cold leg injection check valve test line isolation valve. This valve is normally closed and may be periodically opened to measure the seat leakage past the SI cold leg PIVs. Passive closed function only (per EWR 97-095). References : P&ID D20447, FSAR Section 5.4.7, 6.3, Table 6.2-83.	2 (F-4)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **SI**
PID No.: **D20450**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-FV2475	2 (F-11)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐

SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.

Open Test Freq: 2 Years
Close Test Freq: 2 Years
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-FV2476	2 (F-11)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐

SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.

Open Test Freq: 2 Years
Close Test Freq: 2 Years
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-FV2477	2 (F-6)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐

SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.

Open Test Freq: 2 Years
Close Test Freq: 2 Years
RV Test Freq:
CV Test Dir:
ST Test Dir:

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Relief Req C.S. Just.	IST Program Plan Commitment DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-FV2482	2 (F-9)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐

SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.

Open Test Freq: 2 Years
Close Test Freq: 2 Years
RV Test Freq:
CV Test Dir:
ST Test Dir:

SYSTEM: **SI**
PID No.: **D20450**

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
SI-FV2483 SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3.THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.	2 (F-8)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐
									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:								
SI-FV2486 SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent omponent Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.	2 (F-6)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐
									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:								
SI-FV2495 SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.	2 (F-4)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐
									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir:								
SI-FV2496 SI accumulator nitrogen vent isolation valve. This valve is normally closed and is opened to depressurize the SI accumulator for safe shutdown should the accumulator outlet MOV fail to close. References: P&ID D20450, FSAR Sections 5.4.7, 7.4, 6.3. THIS VALVE WAS ADDED TO THE IST PROGRAM AS A RESULT OF THE SECOND TEN YEAR INTERVAL REVIEW. Subsequent Component Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. However, this valve would still have a passive safety function to be closed and would be tested per ISTC 4.1. Design Engineering has included this valve in the UFSAR active valve table because it is considered active for the Cold Shutdown condition.	2 (F-3)	B	1.0 Globe	Solenoid	C	C	C		☐	☐	☐	☐	☐	☐	☒	☐	☐
									Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:								

SYSTEM: **SI**
PID No.: **D20450**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V3 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.	1 (D-12)	B	10.0 Gate	Motor	O	DE		SI-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V4 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.	2 (E-12)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V5 Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. References: P&ID D20450, FSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☒	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V6 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.	1 (D-12)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V10 SI accumulator nitrogen relief valve. This valve is in scope per ISTC 1.1. Reference:P&ID D20450	2 (F-11)	C	1.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SI-V15 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.	2 (E-10)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

FIGURE F4

SYSTEM: **SI**

PID No.: **D20450**

IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V17 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.	1 (D-10)	B	10.0 Gate	Motor	O	DE		SI-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V18 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.	2 (E-10)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V20 Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. References: P&ID D20450, FSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☒	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V21 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.	1 (D-9)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V23 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.	2 (E-8)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V30 SI accumulator nitrogen relief valve. This valve is in scope per ISTC 1.1. Reference:P&ID D20450	2 (F-9)	C	1.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **SI**
PID No.: **D20450**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SI-V32 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.	1 (D-7)	B	10.0 Gate	Motor	O	DE		SI-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V33 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.	2 (E-8)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	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 check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. References: P&ID D20450, FSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (A-7)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☒	☐	☐	☐	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 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.	1 (D-7)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☐	☐	☐	☐	Open 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. 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.	2 (E-6)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V45 SI accumulator nitrogen relief valve. This valve is in scope per ISTC 1.1. Reference:P&ID D20450	2 (F-7)	C	1.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **SI**
PID No.: **D20450**

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	
SI-V47 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.	1 (D-5)	B	10.0 Gate	Motor	O	DE		SI-CSJ-5	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SI-V48 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.	2 (E-5)	B	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V50 Common SI accumulator, LPSI, SI check valve and PIV. This valve is normally closed during plant operation and opens during safety injection when the RCS pressure drops below the SI pump discharge pressure. This is also a Pressure Isolation Valve. References: P&ID D20450, FSAR Section 6.3, TS 3/4.4.6.2, TRM Section 2.18.	1 (B-4)	A/C	1.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☒	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V51 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.	1 (D-4)	A/C	10.0 Check	Self	C	DE		SI-RJ-4	☒	☐	☐	☐	☒	☐	☐	☐	☐	Open Test Freq: Refueling Close Test Freq: PIVs per TS RV Test Freq: CV Test Dir: ST Test Dir:
SI-V53 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.	2 (E-3)	B	1.0 Globe	Air/Diaphragm	C	C	C		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SI-V60 SI accumulator nitrogen relief valve. This valve is in scope per ISTC 1.1. Reference:P&ID D2040	2 (F-4)	C	1.0 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

SYSTEM: **SI**
PID No.: **D20450**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SI-V62	2 (H-8)	A	0.75 Globe	Air/Diaphragm	C	C	C		☐	☒	☐	☒	☐	☐	☒	☐	☒
PIV test line, acccumulator fill/ drain header ORC penetration X-35 isolation. This CIV is normally closed, may be periodically open for check valve testing or to adjust accumulator level, and receives a containment isolation signal to close. This valve is subject to Appendix J, Type C LLRT. References: P&ID D20450, FSAR Table 6.2-83.									Open Test Freq: 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	C	C	C		☐	☒	☐	☒	☐	☐	☒	☐	☒
PIV test line, acccumulator fil l/ drain header IRC penetration X-35 isolation. This CIV is normally closed, may be periodically open for check valve testing or to adjust accumulator level, and receives a containment isolation signal to close. This valve is subject to Appendix J, Type C LLRT. References: P&ID D20450, FSAR Table 6.2-83.									Open Test Freq: 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	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐
Containment penetration X-35 relief valve-- subject to Appendix J, Type C LLRT. This valve provides overpressure protection for X-35 due to thermal expansion of trapped fluid under accident conditions. References: P&ID D20450, FSAR Table 6.2-83, Engineering Evaluation SS-EV-960023 Revision 0.									Open Test Freq: 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 and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
Remarks					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SS-FV2857	2 (G-5)	A	0.5 Globe	Solenoid	C	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
PASS sample return isolation valve- ORC-CIV for penetration X-19, subject to Appendix J Type C LLRT. This valve is opened to return PASS sample/flush fluid to the containment and receives a "T" closure signal. References: P&ID D20518, FSAR Table 6.2-83.									Open Test Freq: 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	C	DE		SS-CSJ-1	☐	☒	☐	☒	☐	☐	☐	☐	☐
PASS sample return line check valve- IRC-CIV for penetration X-19, subject to Appendix J Type C LLRT. This valve is opened to return PASS sample/flush fluid to the containment and closes for containment isolation. This valve is also relied upon to open to relieve overpressure caused by thermal expansion of trapped fluid under accident conditions References: P&ID D20518, FSAR Table 6.2-83 Engineering Evaluation SS-EV-960023, revision 0.									Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:								

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V1 Service water pump P-41A discharge check valve. This valve must open when the service water pump is operating and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (H-7)	C	24.0 Check	Self	DE	DE		SW-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V2 Service water pump P-41A discharge isolation valve. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (H-7)	B	24.0 Butterfly	Motor	DE	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V3 Service water pump P-41C discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (G-7)	C	24.0 Check	Self	DE	DE		SW-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V22 Service water pump P-41C discharge isolation valve. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (G-7)	B	24.0 Butterfly	Motor	DE	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V24 Service water cooling tower pump P-110B discharge check valve. This valve is normally closed, and opens when the cooling tower pump is operating. This valve does not have a reverse closure function since the discharge MOV is closed when the pump is not operating, thus preventing bypass from the ocean pumps to the cooling tower basin. References: P&ID D20794.	3 (B-7)	C	24.0 Check	Self	C	O			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V25 SW cooling tower pump (P-110B) discharge isolation valve. This valve opens when the pump is started and closes when the pump is stopped. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-7)	B	24.0 Butterfly	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V26 Service water Cooling Tower pump discharge isolation to the alternate spent fuel pool heat exchanger. This valve is normally locked closed with power removed. Passive valve function only. To be tested in accordance with ISTC 4.1. References: P&ID D20794, DBD-SW-01, revision 1.	3 (B-7)	B	24.0 Butterfly	Motor	C	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V27 SW cooling tower pump (P-110B) discharge header bypass valve. This valve opens to 70% when the pump is secured and closes when the pump starts. This function is to vent the pump column and pipe. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-7)	B	24.0 Butterfly	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V28 Service water pump P-41B discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (G-7)	C	24.0 Check	Self	DE	DE		SW-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V29 Service water pump P-41B discharge isolation valve. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (G-7)	B	24.0 Butterfly	Motor	DE	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V30 Service water pump P-41D discharge check valve. This valve must open when the service water pump is operating, and close to prevent bypass flow from the standby pump as the discharge MOV is closing. References: P&ID D20794, DBD-SW-01 revision 1.	3 (F-7)	C	24.0 Check	Self	DE	DE		SW-CSJ-1	☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: CSD Close Test Freq: CSD RV Test Freq: CV Test Dir: ST Test Dir:
SW-V31 Service water pump P-41D discharge isolation valve. This valve closes when the pump is secured, and opens when the pump is started. References: P&ID D20794, DBD-SW-01, Revision 1.	3 (F-7)	B	24.0 Butterfly	Motor	DE	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V44 Service water pump suction isolation from the intake transition structure. This valve is normally locked open with power removed. Passive valve function only. To be tested in accordance with ISTC 4.1. References: P&ID D20794, DBD-SW-01, revision 1.	3 (H-4)	B	42.0 Butterfly	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V46 Service water pump suction isolation from the discharge transition structure. This valve is normally locked closed with power removed. Passive valve function only. To be tested in accordance with ISTC 4.1. References: P&ID D20794, DBD-SW-01, revision 1.	3 (F-4)	B	38.0 Butterfly	Motor	O	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V53 Service water cooling tower pump P-110A discharge check valve. This valve is normally closed, and opens when the cooling tower pump is operating. This valve does not have a reverse closure function since the discharge MOV is closed when the pump is not operating, thus preventing bypass from the ocean pumps to the cooling tower basin. References: P&ID D20794.	3 (B-8)	C	24.0 Check	Self	C	O			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V54 SW cooling tower pump (P-110A) discharge isolation valve. This valve opens when the pump is started and closes when the pump is stopped. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-9)	B	24.0 Butterfly	Motor	C	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed
SW-V55 Service water Cooling Tower pump discharge isolation to the alternate spent fuel pool heat exchanger. This valve is normally locked closed with power removed. Passive valve function only. To be tested in accordance with ISTC 4.1. References: P&ID D20794, DBD-SW-01, revision 1.	3 (B-9)	B	24.0 Butterfly	Motor	C	O			☐	☐	☐	☐	☐	☐	☒	☐	☐	Open Test Freq: Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir:
SW-V56 SW cooling tower pump (P-110A) discharge header bypass valve. This valve opens to 70% when the pump is secured and closes when the pump starts. This function is to vent the pump column and pipe. References: P&ID D20794, DBD-SW-01, revision 1.	3 (C-8)	B	24.0 Butterfly	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open/Closed

SYSTEM: **SW**
PID No.: **D20794**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SW-V139 SW cooling tower spray header bypass valve. This valve is normally open when the cooling tower is placed into operation, and is cycled closed and open by the operator to maintain basin water temperature. References: P&ID D20794, DBD-SW-01, revision 1, OS1016.05.	3 (C-10)	B	24.0 Butterfly	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒
SW-V140 SW cooling tower spray header bypass valve. This valve is normally open when the cooling tower is placed into operation, and is cycled closed and open by the operator to maintain basin water temperature. References: P&ID D20794, DBD-SW-01, revision 1, OS1016.05.	3 (C-11)	B	24.0 Butterfly	Motor	O	DE			☐	☒	☐	☐	☐	☐	☒	☐	☒

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed

Open Test Freq: Quarterly
Close Test Freq: Quarterly
RV Test Freq:
CV Test Dir:
ST Test Dir: Open/Closed

FIGURE F4
IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V4 Service water to SCC isolation valve. This valve is normally open and closes on a safety injection signal to isolate the SW NNS loads. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-11)	B	12.0 Butterfly	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V5 Service water to SCC isolation valve. This valve is normally open and closes on a safety injection signal to isolate the SW NNS loads. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-11)	B	12.0 Butterfly	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V15 SW outlet from the CC heat exchanger (CC-E17A). This valve is normally open, may be throttled for flow balancing, and receives an open Tower Actuation (TA) signal. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03,04.	3 (E-8)	B	24.0 Butterfly	Motor	O	O		SW-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V16 EDG jacket water heat exchanger outlet isolation valve. This valve is normally closed and opens when the EDG is started. References: P&ID D20795, DBD-SW-01, revision 1.	3 (B-8)	B	16.0 Butterfly	Air/Piston	C	O	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V17 SW outlet from the CC heat exchanger (CC-E17B). This valve is normally open, may be throttled for flow balancing, and receives an open Tower Actuation (TA) signal. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03,04.	3 (D-8)	B	24.0 Butterfly	Motor	O	O		SW-CSJ-2	☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: CSD Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V18 EDG jacket water heat exchanger outlet isolation valve. This valve is normally closed and opens when the EDG is started. References: P&ID D20795, DBD-SW-01, revision 1.	3 (C-8)	B	16.0 Butterfly	Air/Piston	C	O	O		☐	☒	☒	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open

SYSTEM: **SW**
PID No.: **D20795**

FIGURE F4
IST VALVE TEST TABLE

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (In.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V19 Service water discharge to the discharge transition structure. This valve is normally open, and closes on a Tower Actuation (TA) Signal to divert SW flow to the CT basin. References: P&ID D20795, DBD-SW-01, revision 1.	3 (D-7)	B	24.0 Butterfly	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V20 Service water discharge to the discharge transition structure. This valve is normally open, and closes on a Tower Actuation (TA) Signal to divert SW flow to the CT basin. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-7)	B	24.0 Butterfly	Motor	O	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V23 Service water return to the cooling tower basin. This valve is normally closed and opens on a Tower Actuation (TA) Signal. References: P&ID D20795, DBD-SW-01, revision 1.	3 (D-7)	B	24.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V32 Service water -CC heat exchanger outlet relief valve- in scope per ISTC 1.1. References: P&ID D20795.	3 (E-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
SW-V34 Service water return to the cooling tower basin. This valve is normally closed and opens on a Tower Actuation (TA) Signal. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-7)	B	24.0 Butterfly	Motor	C	O			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Quarterly Close Test Freq: RV Test Freq: CV Test Dir: ST Test Dir: Open
SW-V73 Service water -CC heat exchanger outlet relief valve- in scope per ISTC 1.1. References: P&ID D20795.	3 (D-9)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment									
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST	
SW-V74 Service water- SCC return header isolation valve. This valve is normally open and closes on a safety injection signal to isolate the NNS SW return lines. References: P&ID D20795, DBD-SW-01, revision 1.	3 (F-11)	B	24.0 Butterfly	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V76 Service water- SCC return header isolation valve. This valve is normally open and closes on a safety injection signal to isolate the NNS SW return lines. References: P&ID D20795, DBD-SW-01, revision 1.	3 (F-11)	B	24.0 Butterfly	Motor	C	C			☐	☒	☐	☐	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
SW-V174 Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions.DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (C-11)	C	1.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SW-V175 Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (C-9)	C	1.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SW-V176 Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (B-9)	C	1.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:
SW-V177 Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. DCR 98-34 replaced the previous ANS Class 3 valves with ASME Class 3 valves. References: P&ID D20795, DBD-SW-01, revision 1.	3 (E-9)	C	1.0 Check	Self	C	DE			☐	☒	☐	☐	☐	☐	☐	☐	☐	Open Test Freq: Quarterly Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir:

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **SW**
PID No.: **D20795**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
SW-V514A EDG water jacket heat exchanger service water relief valve. This valve is in scope per ISTC 1.1.	3 (B-10)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
SW-V514B EDG water jacket heat exchanger service water relief valve. This valve is in scope per ISTC 1.1.	3 (C-10)	C	0.75 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								
SW-V214 SW- Alternate SFP heat exchanger relief valve- in scope per ISTC 1.1. References: P&ID D20796.	3 (D-6)	C	1.5 Relief/Safety	Self	C	O			☐	☐	☐	☐	☐	☐	☐	☒	☐
									Open Test Freq: Close Test Freq: RV Test Freq: 10 Years CV Test Dir: ST Test Dir:								

FIGURE F4

IST VALVE TEST TABLE

SYSTEM: **VG**
PID No.: **D20780**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Relief Req C.S. Just.	IST Program Plan Commitment								
					NRM	SAF	FAL		DI	FE	FS	LJ	LK	PE	PI	RT	ST
VG-FV1661	2 (C-8)	A	2.0 Diaphragm	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
Hydrogenated vent header IRC-CIV for penetration X-17- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20780, FSAR Table 6.2-83.									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								
VG-FV1712	2 (C-7)	A	2.0 Diaphragm	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒
Hydrogenated vent header ORC-CIV for penetration X-17- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20780, FSAR Table 6.2-83.									Open Test Freq: 2 Years Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed								

SYSTEM: **WLD**
PID No.: **D20218**

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	
WLD-V81 Reactor Coolant Drain Tank discharge- IRC-CIV for penetration X-32- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20218.	2 (F-11)	A	3.0 Globe	Air/Piston	O	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed
WLD-V213 Containment penetration X-32 relief valve, subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20219, Engineering Evaluation SS-EV-960023, revision 0.	2 (F-12)	A/C	1.5 Relief/Safety	Self	C	DE			☐	☒	☐	☒	☐	☐	☐	☐	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
WLD-FV8331 ICI sump discharge IRC-CIV for penetration X-34- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20219	2 (E-11)	A	2.0 Globe	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
WLD-V209 Containment penetration X-34 relief valve, subject to Appendix J Type C LLRT. This valve opens to relieve pressure caused by thermal expansion of trapped fluid under accident condition. References; P&ID D20219, Engineering Evaluation SS-EV-960023, revision 0.	2 (E-11)	A/C	0.75 Relief/Safety	Self	C	DE			☐	☐	☐	☒	☐	☐	☐	☒	☐	Open Test Freq: Close Test Freq: Per Appendix J RV Test Freq: 10 Years CV Test Dir: ST Test Dir:
WLD-FV8330 ICI sump discharge ORC-CIV for penetration X-34- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20219	2 (F-6)	A	2.0 Globe	Solenoid	O	C	C	VG-2	☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: 2 Years RV Test Freq: CV Test Dir: ST Test Dir: Closed
WLD-V82 Reactor Coolant Drain Tank discharge- ORC-CIV for penetration X-32- subject to Appendix J Type C LLRT. This valve is normally open and receives a "T" closure signal. References: P&ID D20218.	2 (G-6)	A	3.0 Globe	Air/Piston	O	C	C		☐	☒	☒	☒	☐	☐	☒	☐	☒	Open Test Freq: Close Test Freq: Quarterly RV Test Freq: CV Test Dir: ST Test Dir: Closed

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: CAP-CSJ-1

Valves: CAP-V1, CAP-V2, CAP-V3, CAP-V4

Category: B

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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

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

Cold Shutdown Justification: CBS - CSJ-2

Valves: CBS-V49

Category: B

Code Class: 2

Function: (Active) Provides a suction source to the safety injection pump from the RWST, and from the residual heat removal pump to the centrifugal charging pump 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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

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 (Forward Flow), RWST Isolation Check Valves during Recirculation Switchover (Reverse Flow)
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Refueling 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 examination program in lieu of the IST exercising requirements. Since Revision 1, these valves have been monitored with non-intrusive testing (e.g., acoustic) during certain IST performances. Analysis of the results indicates that a full stroke open exercise is obtained during the pump start and that light tapping of the disc against the backstop occurs periodically throughout the test run. On a pump trip the disc essentially floats closed due to a very low differential pressure across the disc. Because CBS is a standby ECCS system that is run only for IST surveillances or for RWST recirculation, quarterly non-intrusive testing is not practical. These components are not subjected to harsh service conditions that would cause rapid degradation.
Alternate Testing:	Either both valves will be monitored with a non-intrusive test each cycle in order to determine both full open and close exercise, or one of these valves shall be partially disassembled, examined and manually exercised on a staggered sampling basis each refueling outage. 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 the disassembled valve's full stroke capability is in question, both valves in this group shall be disassembled. **This is consistent with NUREG 1482.**

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 Containment Sump (Forward Flow) Prevent Backflow to the Containment Recirculation Sumps (Reverse Flow)

Test Requirements: ISTC 4.5.1 Exercise (3 Months)

Basis for Refueling Outage Testing: These valves cannot be full open exercised by system flow without substantial amounts of water in the containment sumps being drawn by the containment spray and residual heat removal pumps. Additionally, these valves cannot be full closed exercised since a system intrusion would be required which would make the system inoperable. Quarterly testing of these valves would be impractical.

Alternate Testing: These valves shall be partially disassembled, examined and manually exercised on a staggered sampling basis (one valve in each group) each refueling outage. One group includes CBS-V9 and CBS-V15. The other group includes CBS-V25, CBS-V26, CBS-V147 and CBS-V148. All valves shall be disassembled and examined at least once every eight years. 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 valve's full stroke capability is in question, the remaining valves in the respective group shall be disassembled, examined and manually exercised as required by ISTC 4.5.4(c).

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: CBS - RJ-3

Valves: CBS-V12, CBS-V18

Category: AC

Code Class: 2

Function: (Active) Spray Ring Supply (Forward Flow), Containment Isolation (Reverse Flow)

Test Requirements: ISTC 4.5.1 Exercise (3 Months)

Basis for Refueling 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 on a staggered sampling basis each refueling outage. All valves shall be disassembled and examined at least once every 8 years. 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 valve's full stroke capability is in question, the other valve in this group shall be disassembled as required by ISTC 4.5.4(c).

FIGURE F4
Cold Shutdown and Refueling Justifications

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 Outage Testing:	It is impractical to full open exercise these valves on a quarterly basis because these valves are not in the pump test flow path. These valves cannot be full stroked open exercised during cold shutdowns because testing during cold shutdowns would require flow to be established into the RCS where there is no additional volume to add the additional inventory. Additionally, these valves cannot be full closed exercised on a quarterly basis or cold shutdown frequency because the RHR System would need to be inoperable and a system intrusion in a high radiation area would be required to test these valves which is not possible.
Alternate Testing:	These valves will be open and closed exercised during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CBS - RJ-6
Valves:	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 Outage Testing:	It is impractical to full open exercise these valves quarterly. In order to full open exercise these valves, it is necessary to inject flow through the charging pumps to the High Head Safety Injection flow path. If the charging flow was directed to the RCS in this manner, it could cause a loss of charging flow control during plant operation resulting in pressurizer level changes and possibly a plant trip. Additionally, charging flow through these valves during plant operation would also result in the injection of relatively cold water into the RCS, possibly resulting in the cold shocking of system components. Further, it would inject highly borated water into the RCS, affecting reactivity and plant stability. During cold shutdowns, the injection of charging flow could result in low temperature overpressurization of the RCS. In order to full close exercise these valves, it is necessary to align an RHR pump from the RCS to the charging pumps suction which is not possible during plant operation.
Alternate Testing:	These valves shall be full open and closed exercised during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: CC- RJ-1

Valves: CC-TV2171-1, CC-TV2171-2, CC-TV2271-1, CC-TV2271-2

Category: B

Code Class: 3

Function: (Active) Primary Component Cooling Water Temperature Control Valves

Test Requirements: ISTC 4.2.1 Exercise (3 Months)

Basis for Refueling Outage Testing: Full stroke exercising these valves during power operations may result in an undesirable thermal transient on one train of primary component cooling. Full stroke exercising these valves during cold shutdowns (when the reactor coolant pumps are still normally in operation) may result in loss of cooling water to the reactor coolant pumps and their motors during their operation.

Alternate Testing: These valves shall be full stroke exercised at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CC- RJ-2
Valves:	CC-V341, CC-V426, CC-V427, CC-V447, CC-V448
Category:	B
Code Class:	3
Function:	(Active) Primary Component Cooling Water Isolation Valves
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Refueling 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-essential cooling loads can be isolated.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: CC - RJ-3

Valves: CC-V57, CC-V121, CC-V122, CC-V168, CC-V175, CC-V176, CC-V256, CC-V257

Category: A

Code Class: 2

Function: (Active) Containment Isolation

Test Requirements: ISTC 4.2.1 Exercise (3 Months)

Basis for Refueling Outage Testing: 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 reactor coolant pump bearing oil coolers and motor air coolers, possibly damaging the reactor coolant pumps.

Alternate Testing: These valves shall be full stroke exercised at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CC - RJ-4
Valves:	CC-V1092, CC-V1095, CC-V1101, CC-V1109
Category:	B
Code Class:	2
Function:	(Passive) PCCW Thermal Barrier Containment Isolation
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Refueling 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CGC - CSJ-1
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 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 valves shall be full stroke exercised in the forward and reverse direction during cold shutdowns.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 Shutdown Testing: 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.

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.

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.

Alternate Testing: These valves will be tested individually using non-intrusive techniques at cold shutdowns and at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	CO - CSJ-2
<u>Valves</u>:	CO-V434, CO-V435
<u>Category</u>:	C
<u>Code Class</u>:	3
<u>Function</u>:	(Active) Condensate Storage Tank (CST) Boundary Isolation
<u>Test Requirements</u>:	ISTC 4.5.1 Exercise (3 Months)

Basis for Cold <u>Shutdown Testing</u>:

CO-V434 and CO-V435 are CST Isolation Valves on the Startup Feed Pump Recirculation Line and on the Hotwell Spill Line. These valves are generally closed except during pump surveillance testing or as determined by the Hotwell Level Control System/Chemistry Limits. 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 valves are 4 inch swing check valves. These valves are ASME Class 1 valves used in a ASME Class 3 application. All internal parts are stainless steel and the water quality is suitable for steam generator secondary side water 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 head to prevent rapid opening (e.g., slam) of the disc. Similarly, after the SUFP is tripped, the discharge pressure decays slowly thereby prevent rapid closure.

<u>Alternate Testing</u>:

These valves will be tested individually using non-intrusive test techniques at cold shutdowns and at refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CS - CSJ-1
Valves:	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) ISTC 4.2.6 Fail Safe Exercise (3 Months)
Basis for Cold Shutdown Testing:	Exercising these normally closed valves to the open position during power operation could cause a sudden increase in the reactor coolant system boron inventory. These valves supply highly concentrated borated water to the suctions of the charging pumps. A rapid addition of this highly concentrated borated water would add large amounts of negative reactivity to the reactor 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CS - CSJ-2
Valves:	CS-V175, CS-V176
Category:	B
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 Shutdown Testing:	These valves are normally closed, fail-closed isolation valves. Their open function is not a safety function, and they are infrequently used after plant startup. These valves are not considered active valves 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	CS - CSJ-3
Valves:	CS-V178, CS-V179, CS-V181, CS-V182
Category:	C
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 Shutdown Testing:	These check valves are Reactor Coolant Pressure Boundary Isolation valves in the parallel branch lines (RCS Loop 1 and RCS Loop 4) off the charging header 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-1
Valves:	CS-LCV112D, CS-LCV112E
Category:	B
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 Outage Testing:	Exercising these valves during power operations would require the charging pump suctions to be aligned with the RWST (Refueling Water Storage Tank). This would cause a sudden increase in reactor coolant system boron inventory resulting in the addition of large amounts of negative reactivity to the RCS 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-2
Valves:	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 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. 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:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

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

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling <u>Justification</u>:	CS - RJ-4
<u>Valves</u>:	CS-LCV112B, CS-LCV112C
<u>Category</u>:	B
<u>Code Class</u>:	2
<u>Function</u>:	(Active) Volume Control Tank Suction Isolation Valves
<u>Test Requirements</u>:	ISTC 4.2.1 Exercise (3 Months)

Basis for Refueling <u>Outage Testing</u>:

Full stroke exercising these valves quarterly during power operation could result in a loss of charging pump suction. This could result in a loss of pressurizer level control possibly resulting in a plant trip, or loss of cooling flow to the Reactor Coolant Pump Seals resulting in equipment damage.

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.

<u>Alternate Testing</u>:

These valves shall be full stroke exercised and stroke timed in the close direction at refueling outage intervals.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-5
Valves:	CS-V219, CS-V221
Category:	B
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 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. 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:	Full stroke exercising shall be performed during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

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

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-7
Valves:	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 Outage Testing:	Exercising this normally closed valve to the open position 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 would add large amounts of 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:	This valve shall be forward flow tested and closure verified during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	CS - RJ-8
Valves:	CS-V439, CS-V442
Category:	B
Code Class:	3
Function:	(Active) Gravity Feed - Boration Flow Path
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)

Basis for Refueling 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: CS - RJ-9

Valves: CS-V2, CS-V18, CS-V34, CS-V50, CS-V471, CS-V472, CS-V473 and CS-V474

Category: C

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 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.

Alternate Testing: These valves will be tested in the forward flow direction and individually using non-intrusive techniques for the reverse closure direction during refueling outages.

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 Outage Testing:	These valves can only be partially stroked during power operations. There is insufficient flow during charging operations to achieve the full stroke exercise of these valves (High Head Safety Injection Safety Function). During the quarterly charging pump test, flow is directed through the seal water heat exchanger to the suction of the pumps (e.g., this hydraulic test circuit is just upstream of the discharge check valve). These valves cannot be exercised during cold shutdowns since injection flow from the charging pumps could result in low temperature overpressurization of the RCS.
Alternate Testing:	These valves shall be full-stroked exercised during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	DM - CSJ-1
Valves:	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 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 valves are 6 inch swing check valves. The hanger arm and disc assembly are connected to the hanger ring via a hinge pin. The internals of the valve are stainless steel and the quality of the water is suitable for steam generator secondary side water chemistry. These check valves (considered as part of the Condensate System for failure rate) do not have a significantly high failure rate.
Alternate Testing:	These valves will be tested in the forward flow direction and individually using non-intrusive techniques for the reverse closure direction during cold shutdowns and at refueling outages.

FIGURE F4

Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: FW - CSJ-1

Valves: FW-V30, FW-V39, FW-V48, FW-V57

Category: B

Code Class: 2

Function: (Active) Feedwater Isolation

Test Requirements: ISTC 4.2.1 Exercise (3 Months)

Basis for Cold Shutdown Testing: Full closure of these valves to satisfy the requirements of ISTC 4.2.1 would require plant shutdown. Part-stroke testing during power operation introduces the risk of plant shutdown if the valve were to close fully during part-stroke operation or if the valve 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-3
Valves:	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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 Shutdown Testing:	Full flow through these normally closed check valves on a quarterly basis would require establishing emergency feedwater flow to the steam generators. This would introduce cold water into the steam generators causing a thermal shock to the feedwater nozzles. This testing could also cause feedwater control 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-5
Valves:	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 Shutdown Testing:	Full flow through these normally closed check valves on a quarterly basis would require establishing emergency feedwater flow to the steam generators. This would introduce cold water into the steam generators causing a thermal shock to the feedwater nozzles. This testing could also cause feedwater control problems during plant operation which could lead to a reactor trip. Quarterly 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	FW - CSJ-6
<u>Valves</u>:	FW-V349, FW-V351
<u>Category</u>:	C
<u>Code Class</u>:	3
<u>Function</u>:	(Active) Emergency Feedwater Pump Turbine Oil Cooler Outlet Check Valve (FW-V351), Emergency Feedwater Common Recirc Line Check Valve (FW-V349)
<u>Test Requirements</u>:	ISTC 4.5.1 Exercise (3 Months)
Basis for Cold <u>Shutdown Testing</u>:	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.
<u>Alternate Testing</u>:	These valves shall be exercised in the reverse direction during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	FW - CSJ-7
Valves:	FW-FV4214A/B, FW-FV4224A/B, FW-FV4234A/B and FW-FV4244A/B
Category:	B
Code Class:	3
Function:	(Active) Steam Generator EFW Isolation Valves
Test Requirements:	ISTC 4.2.1 Exercise (3 months)
Basis for Cold 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	MS - CSJ-1
<u>Valves</u>:	MS-V94, MS-V96
<u>Category</u>:	C
<u>Code Class</u>:	3
<u>Function</u>:	(Active) Full stroke open to allow steam supply to the Emergency Feedwater Pump Turbine
<u>Test Requirements</u>:	ISTC 4.5.1 Exercise (3 Months)
Basis for Cold <u>Shutdown Testing</u>:	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.
<u>Alternate Testing</u>:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	MS - CSJ-2
<u>Valves</u>:	MS-V86, MS-V88, MS-V90, MS-V92
<u>Category</u>:	B
<u>Code Class</u>:	2
<u>Function</u>:	(Active) Main Steam Isolation
<u>Test Requirements</u>:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold <u>Shutdown Testing</u>:	Full closure of these valves for the purpose of exercising per ISTC 4.2.1 would require plant shutdown. Part-stroke testing during power operation introduces the risk of plant shutdown if the valve were to close fully during part-stroke operation or if the valve did not return to the full open position following testing.
<u>Alternate Testing</u>:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: MS - RJ-1

Valves: MS-V400, MS-V401, MS-V404, MS-V405, MS-V417, MS-V418

Category: C

Code Class: 3

Function: (Active) The valves 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 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 in-series 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 on a staggered sampling basis each refueling outage. All valves shall be disassembled and examined at least every 8 years. One group includes the upstream valves, the other group includes the downstream valves. 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 valve's full stroke capability is in question, the remaining valves in the respective group shall be disassembled, examined and manually exercised per ISTC 4.5.4.c.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-1
Valves:	RC-V22, RC-V23, RC-V87, RC-V88
Category:	A
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 Shutdown Testing:	It is impractical to open these valves during operation when RCS pressure is above 365 psig. These valves have system interlocks which prevent them from opening with the RCS pressure above 365 psig to prevent overpressurization of the RHR system piping.
Alternate Testing:	These valves shall be full stroke exercised and timed during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-2
Valves:	RC-PCV456A, RC-PCV456B
Category:	B
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 Shutdown Testing:	Full stroke exercising of these valves is impractical during power operation. These valves demonstrate a high probability of sticking open and are not needed for overpressure protection during power operation. The safety function of these valves is to protect the reactor vessel and the reactor coolant system from low temperature overpressurization conditions, and shall be exercised prior to initiation of system conditions for which vessel protection is 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.

Cold Shutdown Justification:	RC - CSJ-3
Valves:	RC-V323
Category:	B
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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RC - CSJ-4
Valves:	RC-V475, RC-V479
Category:	AC
Code Class:	2
Function:	(Active) Pressure Locking Vent Path
Test Requirements:	ISTC 4.5.1 Exercise (3 Months)
Basis for Cold 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 valves will be full stroke exercised as part of the pressure isolation valve leakage testing, which is performed at cold shutdown intervals defined by Seabrook Technical Specifications 4.4.6.2.2.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: RC - RJ-1

Valves: RC-LCV459, RC-LCV460

Category: B

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 Outage Testing:

The letdown subsystem of the Chemical and Volume Control System provides pressurizer level control of the reactor coolant system. Full stroke exercising these valves during power operation on a quarterly basis could cause a loss of pressurizer level control and possibly a plant trip.

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, timed, and fail safe tested during refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RH - CSJ-2
Valves:	RH-V14, RH-V26
Category:	B
Code Class:	2
Function:	(Active) RHR Cold Leg Isolation
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	These valves 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown 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 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.

Cold Shutdown Justification:	RH - CSJ-4
Valves:	RH-V35, RH-V36
Category:	B
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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	RH - CSJ-5
Valves:	RH-V21, RH-V22
Category:	B
Code Class:	2
Function:	(Active) Residual Heat Removal System Crossover Valves
Test Requirements:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold Shutdown Testing:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown <u>Justification</u>:	RH - CSJ-6
<u>Valves</u>:	RH-V32, RH-V70
<u>Category</u>:	B
<u>Code Class</u>:	2
<u>Function</u>:	(Active) RHR Hot Leg Isolation
<u>Test Requirements</u>:	ISTC 4.2.1 Exercise (3 Months)
Basis for Cold <u>Shutdown Testing</u>:	These valves 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.
<u>Alternate Testing</u>:	These valves shall be full stroke exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	RH - RJ-1
Valves:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: RMW - CSJ-1

Valves: 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 valve is located inside containment at elevation -12 ft. (over CBS Sump). The valve 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: SI - CSJ-1

Valves: SI-V77, SI-V102

Category: B

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 valves 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-2
Valves:	SI-V93
Category:	B
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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SI - CSJ-3
Valves:	SI-V114
Category:	B
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 valve 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 valve shall be full stroke exercised and timed during cold shutdowns as permitted by Technical Specification 3.5.3.2 and refueling outages.

FIGURE F4

Cold Shutdown and Refueling Justifications

Cold Shutdown Justification: SI - CSJ-4

Valves: SI-V3, SI-V17, SI-V32, SI-V47

Category: B

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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	SI - RJ-1
Valves:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification: SI - RJ-2

Valves: SI-V118, SI-V122, SI-V126, SI-V130

Category: AC

Code Class: 2

Function: (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.

FIGURE F4

Cold Shutdown and Refueling Justifications

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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	SI - RJ-4
Valves:	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)

Alternate Testing: 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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	SI - RJ-5
Valves:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Refueling Justification:	SI - RJ-6
Valves:	SI-V138 and SI-V139
Category:	B
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.

FIGURE F4
Cold Shutdown and Refueling Justifications

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 Shutdown Testing:	To full stroke exercise this normally closed check valve 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 valve.
Alternate Testing:	This valve shall be full stroke exercised during cold shutdowns and refueling outages.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SW - CSJ-1
Valves:	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.

FIGURE F4
Cold Shutdown and Refueling Justifications

Cold Shutdown Justification:	SW - CSJ-2
Valves:	SW-V15, SW-V17
Category:	B
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
IST PROGRAM (ADMINISTRATIVE)
GENERAL RELIEF REQUESTS

SEABROOK STATION

PUMP AND VALVE INSERVICE TESTING PROGRAM PLAN

FIGURE F5
IST PROGRAM (ADMINISTRATIVE)
GENERAL RELIEF REQUESTS

Relief Request:	AG-1
Function:	General requirements for the duties, qualifications and access for the authorized inspection agencies and inspectors
Test Requirements:	ISTA – 1.5 and 2.1, Authorized Nuclear Inservice Inspector (ANII) requirements 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." ISTA 2.1 states the specific requirements for access for the Inspector, qualification of the Authorized Inspection Agencies, Inspectors and Supervisors and the duties of the Inspector.
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. P&IDs

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

2. Active Valves

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. Control Valves

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. Power Operated Valves

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 REFERENCES

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 SCOPE

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 PUMPS

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 VALVES

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

BFV - Butterfly Valve
BLV - Ball Valve

CHV - Check Valve

DIV - Diaphragm Valve

GLV - Globe Valve
GTV - Gate Valve

PGV - Plug Valve

REV - Relief Valve

SAV - Saunders Weir Valve
SCV - Stop Check Valve
SEV - Safety Valve

TMV - Three Way Valve

Actuator Type

ADA - Air/Diaphragm
APA - Air/Piston

HOA - Hydraulic

MAA - Manual
MOA - Motor

SEA - Self
SOA - Solenoid

Positions

O - Open

C - Closed

LO - Locked Open

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	P&ID No.	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

7.0 COMPONENT EXCLUSION JUSTIFICATION TABLE FORMAT (Continued)

	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.	Page No.
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-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-SI-D20446 1-SI-D20447 1-SI-D20450	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

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	Positions NRM	Positions SAF	Positions FAL
CBS-V35	2 (G-8)		4.0 Gate	Manual	C	C	
RWST to SF pool makeup isolation valve. Normally closed valve. This valve has no active safety function as described in ISTC 1.1. Although opened for SF pool makeup during abnormal operating procedures, this is a short evolution in terms of time. Per NUREG 1482, 2.4.2 guidance, a valve operated in this manner need not be considered active solely due to that operation. References: OS1215.07							
CBS-V61	3 (B-4)		4.0 Diaphragm	Manual			
RWST to SF pool makeup isolation valve. Normally closed valve. This valve has no active safety function as described in ISTC 1.1. Although opened for SF pool makeup during abnormal operating procedures, this is a short evolution in terms of time. Per NUREG 1482, 2.4.2 guidance, a valve operated in this manner need not be considered active solely due to that operation. References: OS1215.07							

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	Positions		
					NRM	SAF	FAL
CC-V1267 PCCW return header cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (A-8)		16.0 Butterfly	Manual	C		
CC-V1268 PCCW CC-E-17A heat exchanger outlet manual isol. Administratively controlled normally open valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (F-11)		24.0 Butterfly	Manual	O		
CC-V1272 PCCW head tank cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45	3 (D-8)		4.0 Butterfly	Manual	C		
CC-V486 CC containment return header relief valve. This valve is credited to provide adjacent piping OPP for penetrations X-20 & X-21. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20207, Engineering Evaluation SS-EV-960023, revision 0.	NNS (B-6)	C	3.0 Relief/Safety	Self	C	O	
CC-Various1 There are no SSD or accident mitigating components on this P&ID.							

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	Positions		
					NRM	SAF	FAL
CC-V1266	3 (A-9)		16.0 Butterfly	Manual			
PCCW return header cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V1269	3 (F-11)		24.0 Butterfly	Manual	O		
PCCW CC-E-17B heat exchanger outlet manual isol. Administratively controlled normally open valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V1273	3 (D-9)		4.0 Butterfly	Manual	C		
PCCW head tank cross-connect manual isol. Administratively controlled locked closed valve. Passive valve with only safety function being to maintain CC pressure boundary. Excluded from IST program since there is no remote position indication for this passive valve. References: DCR 94-45							
CC-V120	NNS (A-10)	C	3.0 Relief/Safety	Self	C	O	
CC containment return header relief valve. This valve is credited to provide adjacent piping OPP for penetrations X-22 & X-23.However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20214, Engineering Evaluation SS-EV-960023, revision 0.							
CC-Various2							
There are no SSD or accident mitigating components on this drawing.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CGC**
PID No.: **B20612**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
CGC-V56	NNS (D-5)		Globe	Manual			
Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V57	NNS (D-5)		Globe	Manual			
Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V58	2 (E-6)		0.75 Globe	Manual	C	C	
Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. Serves passive function of isolating NNS piping. No position indication, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							
CGC-V59	2* (E-5)		0.75 Globe	Manual	C	C	
Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. Serves passive function of isolating NNS piping. No position indication and is ANSI Class 2, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CGC**
PID No.: **B20612**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
CGC-V60	NNS (D-5)		Globe	Manual				Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V61	NNS (D-5)		Globe	Manual				Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V62	2 (C-6)		0.75 Globe	Manual	C	C		Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. Serves passive function of isolating NNS piping. No position indication, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.
CGC-V63	2* (C-5)		0.75 Globe	Manual	C	C		Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function.This function will be tested periodically using Chem. Procedure CS0925.07. Serves passive function of isolating NNS piping. No position indication and ANSI Class 2, therefore excluded from IST. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.

SYSTEM: **CGC**
PID No.: **B20612**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CGC-V64 Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.	NNS (E-5)		Globe	Manual			
CGC-V65 Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.	NNS (E-6)		Globe	Manual			
CGC-V66 Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.	NNS (C-5)		Globe	Manual			
CGC-V67 Containment air sample vessel isolation valve. This valve is normally closed and remains closed when the hydrogen analyzer is in service. Note that the analyzer operating procedure (OS1023.71) addresses a flow path through the sample vessel, however collection of the post accident containment air sample is not a safety related function. This function will be tested periodically using Chem. Procedure CS0925.07. References: P&ID B20612, OS1023.71, FSAR Section 6.2.5.	NNS (C-5)		Globe	Manual			

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	Positions NRM	SAF	FAL
CO-V142	3 (F-9)	B	24.0 Gate	Manual	C	DE	
CST to startup aux feedwater pump suction isolation valve. This valve is normally locked closed (SC-3 to NNS interface isolation), and is opened to align the CST protected water volume to the startup feedwater pump suction. Operation of this valve required by TS 3.7.1.2 This valve was included in the IST program scope via SITR Rev 10. Subsequent Engineering review determined this valve to be not active, as its use would be for operation beyond the plant's licensing basis of shutdown to hot standby conditions. References: P&ID D20426, TS 3.7.1.2.							
CO-V340	NNS (D-6)	C	8.0 Check	Self	C	O	
Startup aux feedwater pump suction check valve. This valve 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.							
CO-V430	NNS (A-6)	C	0.75 Relief/Safety	Self	C	O	
Startup feed pump cooling water relief valve. In scope per ISTC 1.1. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426.							

SYSTEM: **COP**
PID No.: **D20504**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
COP-V7	NNS (F-10)		4.0 Butterfly	Motor			
COP Exhaust throttle valve used for fine control. NNS valve with no safety function as described in ISTC 1.1.							
COP-V8	NNS (F-10)		8.0 Butterfly	Motor			
COP Exhaust throttle valve used for coarse control. NNS valve with no safety function as described in ISTC 1.1.							
COP-V11	NNS (F-10)		8.0 Gate	Manual			
COP Exhaust valve PAH-F-16 bypass. NNS valve with no safety function as described in ISTC 1.1.							
COP-V12	NNS (F-10)		8.0 Gate	Manual			
COP Exhaust valve PAH-F-16 inlet. NNS valve with no safety function as described 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 NRM	Positions SAF	Positions FAL
CS-V496 CVCS purification return to RHR discharge check valve. This is a SC-3/NNS interface check valve which is open during RHR operation and must close following a failure of the NNS CS piping. References: P&ID RH-D20662. This valve was added to the IST program in Rev 10 to the SITR. However, upon further Engineering review conducted for EWR 97-095, this valve was determined to be not active, and should be removed from the IST Program. This Eng. Evaluation determined that the manual valve CS-V828 upstream of CS-V496 was indeed the active valve in the line and should be added to the IST Program.	2 (B-7)	C	3.0 Check	Self	O	C	
CS-V828 RHR Train A to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train A RHR slipstream flow. It is required to be closed in the event of a NNS piping break upstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTC 1.1 for this station. Will be tested under other App. B program commensurate with its importance to safety per NUREG 1482 guidance.	2 (C-7)		3.0 Gate	Manual	C	C	
CS-V497 CVCS purification return to RHR discharge check valve. This is a SC-3/NNS interface check vavle which is open during RHR operation and must close following a failure of the NNS CS piping. References: P&ID RH-D20662. This valve was added to the IST program in Rev 10 to the SITR. However, upon further Engineering review conducted for EWR 97-095, this valve was determined to be not active, and should be removed from the IST Program. This Eng. Evaluation determined that the manual valve CS-V829 upstream of CS-V497 was indeed the active valve in the line and should be added to the IST Program.	2 (B-7)	C	3.0 Check	Self	O	C	
CS-V829 RHR Train B to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train B RHR slipstream flow. It is required to be closed in the event of a NNS piping break upstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTC 1.1 for this station. Will be tested under other App. B program commensurate with its importance to safety per NUREG 1482 guidance.	2 (B-7)		3.0 Gate	Manual	C	C	

SYSTEM: **CS**
PID No.: **D20722**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
CS-Various1							
Valves which perform an accident mitigating or safe shutdown function on this drawing are : V148, 149, 150, 142,143, 144, 177, 180, 178,179, 181 & 182. There are no other valves on this P&ID which are included within the IST scope as defined in ISTC 1.1.							
CS-HCV123	2 (C-11)		1.0 Globe	Air/Diaphragm	C	C	
Excess letdown HX flow control valve serves no safety function as described in ISTC 1.1 as RCS boundary isolation is provided by upstream Class 1 valves CS-V175 and V176. References: UFSAR 7.4, Table 7.4-1.							
CS-HCV182	2 (C-6)		3.0 Globe	Air/Diaphragm			
RCP seal flow control valve. Normal charging line is isolated by CS-V142 and V143, so the control function provided by this valve is not needed during DBA mitigation. During safe shutdown, seal flow may be adjusted using the needle valves outside containment. This valve serves no safety function as described in ISTC 1.1							
CS-HCV189	2 (F-9)		2.0 Globe	Motor			
Letdown flow control valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTC 1.1							
CS-HCV190	2 (F-9)		2.0 Globe	Motor			
Letdown flow control valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTC 1.1							
CS-V145	2 (F-10)		3.0 Globe	Air/Diaphragm			
Letdown Regen HX isolation valve. Letdown is not used during DBA or safe shutdown conditions. Letdown is isolated by upstream valves RC-LCV 459 and 460. This valve serves no safety function as described in ISTC 1.1							

SYSTEM: **CS**
PID No.: **D20722**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CS-V170	2 (C-9)		1.0 Three way	Air/Diaphragm			
Excess letdown HX outlet 3-way divert valve serves no safety function as described in ISTC 1.1 as RCS boundary isolation is provided by upstream Class 1 valves CS-V175 and V176. References: UFSAR 7.4, Table 7.4-1.							
CS-V184	2 (D-12)		0.75 Check	Self			
Normal charging to loops 1 & 4 cross-connect check valve. This valve was originally designed for OPP, however normally either V177 or V180 is open in the charging lines to loops 1 & 4. These valves have no SSD function, but are relied upon to open and remain open to preclude overpressurization of penetration X-33 due to thermal expansion of trapped fluid under accident conditions. Therefore, CS-V184 is not needed for this function and may be excluded from IST based on CS-V177 and 180 inclusion to IST. References: P&ID D20722, FSAR Sections 5.4.7, 7.4, 9.3.4, SS-EV-960023, Rev. 0, EWR 97-095.							
CS-Various5							
The CVCS purification system depicted on this P&ID is not required for SSD or accident mitigation and is 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.							
CS-V502	2 (B-4)	B	3.0 Gate	Manual			
This valve was to be used as the SC2/NNS piping boundary in the event of a break in the NNS piping during RHR slipstream operations. However, RH-V18 and RH-V19 which are upstream are used for this purpose instead to preserve RHR inventory. Therefore this valve serves no safety function as described in ISTC 1.1.							
CS-V834	NNS (B-4)		0.75 Relief/Safety	Self			
RHR slipstream line relief valve. This valve is designed to provide OPP for the SC2/NNS boundary valves CS-V828, 829 and 502. Per EWR 97-095, this valve is considered important to safety due to its OPP function for the class boundary valves. However, it is not in the scope of ISTC 1.1 since it is NNS and slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station. Will be tested under other App. B program commensurate with its importance to safety per NUREG 1482 guidance.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **CS**

PID No.: **D20724**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions 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.

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **CS**
PID No.: **D20725**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
CS-FCV121	2 (D-12)		3.0 Globe	Air/Diaphragm			
Charging flow control valve. Used for normal charging flow and not an ECCS function. HHSI flow is upstream of this valve. Position of the FCV is inconsequential during DBA. Manual valves CS-V210,219,220 and 221 at Charging Pump discharge are also used for safe shutdown per UFSAR 7.4. CS-FCV121 has no safety function as described in ISTC 1.1							
CS-P128	2 (C-7)						
The Charging system PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTC 1.1							
CS-P243A	2 (A-10)						
The motor driven Charging Pump Lube Oil Pump is normally running whenever the lube oil pressure falls below 8 psig (CCP gear driven pump not running). It is a backup to the gear driven pump (run off the CCP while it is running). Satisfactory operation of this pump is determined when the CCP is not running and it should be treated as an integral skid-mounted component of the CCP. It is excluded per ISTC 1.2c and is adequately tested by other means.							
CS-P243B	2 (C-10)						
The motor driven Charging Pump Lube Oil Pump is normally running whenever the lube oil pressure falls below 8 psig (CCP gear driven pump not running). It is a backup to the gear driven pump (run off the CCP while it is running). Satisfactory operation of this pump is determined when the CCP is not running and it should be treated as an integral skid-mounted component of the CCP. It is excluded per ISTC 1.2c and is adequately tested by other means.							
CS-V205	2 (D-6)		2.0 Globe	Motor	C		
PDP Minimum flow valve. The PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTC 1.1							

SYSTEM: **CS**
PID No.: **D20725**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
CS-V230	2 (F-11)		1.0 Check	Self			
Chemical mixing tank outlet check valve. Infrequently used during power operation. Administratively controlled use of this valve by Control Room due to reactivity change potential. Normally closed manual valve CS-V229 upstream of this check valve is SC2/NNS boundary. Per NUREG 1482 section 2.4.2 guidance this valve is not considered active since it is repositioned for a short period of time and administratively controlled and therefore serves no safety function as described by ISTC 1.1.							
CS-V492	2 (D-6)		0.75 Relief/Safety	Self			
PDP discharge piping relief valve. The PDP and its subcomponents are not powered from a safety bus and are not considered active. They are not relied upon to provide a safety function as described in ISTC 1.1							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**
PID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
CS-Various2	2						
The RCP seal water return components inside containment, except for the RVs and CIVs, are not required for SSD or accident mitigation and are not within the IST scope per ISTC 1.1, and should be removed from the IST Program. Only that portion of the seal water return piping which is required for CCP min flow cooling is included within the IST scope. RCP Seal water injection valves are within the IST scope as described on the individual valve basis sheets.							
CS-V10	2 (A-12)		0.75 Globe	Air/Diaphragm	O		
RCP #1 seal water return isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V28	2 (B-12)		0.75 Globe	Air/Diaphragm	O		
RCP #2 seal water return isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V44	2 (C-12)	B	0.75 Globe	Air/Diaphragm	O		
RCP #3 seal water return isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V59	2 (D-12)		0.75 Globe	Air/Diaphragm	O		
RCP #4 seal water return isolation valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V1166	2 (A-12)		0.75 Check	Self	O		
RCP #1 seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **CS**
PID No.: **D20726**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
CS-V1167	2 (B12)		0.75 Check	Self	O		
RCP #2 seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V1168	2 (C-12)		0.75 Check	Self	O		
RCP #3 seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-V1169	2 (D-12)		0.75 Check	Self	O		
RCP #4 seal water return check valve. Seal water return is not required for SSD or accident mitigation, and is therefore excluded per ISTC 1.1. References: P&ID D 20726, FSAR Sections 9.3.4, 5.4.7, 7.4.							
CS-Various3							
The Boron Thermal Regeneration System (BTRS) is not required for SSD or accident mitigation and is 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: FSAR 5.4.7, 7.4, 9.3.4.							
CS-Various4							
The Boron Thermal Regeneration System (BTRS) is not required for SSD or accident mitigation and is 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: FSAR 5.4.7, 7.4, 9.3.4.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **CS**
PID No.: **D20729**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
CS-FCV110A	3 (A-5)		2.0 Globe	Air/Diaphragm			
Boric Acid Blender flow control valve. Can be isolated by manual upstream valve CS-V432 or other downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. Per UFSAR Table 9.3-7, position of this valve is inconsequential to safe shutdown operation as there are alternate means of boration which are unaffected by the position of this valve. No safety function as described in ISTC 1.1							
CS-FCV110B	2 (C-4)		2.0 Saunders Weir	Air/Diaphragm			
Boric Acid Blender flow control valve to Charging Pumps. Downstream of CS-FCV110A, this valve can be isolated by upstream or downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. Per UFSAR Table 9.3-7, position of this valve is inconsequential to safe shutdown operation as there are alternate means of boration which are unaffected by the position of this valve. No safety function as described in ISTC 1.1							
CS-FCV111A	3 (D-5)		2.0 Globe	Air/Diaphragm			
RMW to Boric Acid Blender flow control valve. Is isolated by manual upstream valve RMW-V34 prior to emergency boration to avoid dilution. Per UFSAR Table 9.3-7 position of this valve is inconsequential to safe shutdown operation. No safety function as described in ISTC 1.1							
CS-FCV111B	2 (C-4)		2.0 Saunders Weir	Air/Diaphragm			
Boric Acid Blender to VCT flow control valve. Can be isolated by upstream or downstream valves, if necessary. Per UFSAR Table 9.3-7 position of this valve is inconsequential to safe shutdown operation. No safety function as described in ISTC 1.1							
CS-V434	3 (A-5)		2.0 Check	Self			
Boric Acid supply to BA Blender check valve. Can be isolated by manual upstream valve CS-V432 or other downstream valves, if necessary. Piping is seismic, as these lines are used during normal plant operation. This valve is not in the emergency boration flowpath, thus has no safety function as described in ISTC 1.1							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20458**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
DG-P115A	3* (G-10)						
The engine driven Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-P116A	3* (B-5)						
Motor driven Pre-lube and filter pump. This portion of the DG lube oil system does not perform a safety function as described in ISTC 1.1. Also, this pump is excluded from IST because it is ANS Class 3.							
DG-P117A	3* (D-11)						
The motor driven aux. lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTB 1.1. Reference: DBD- DG-01, revision 1.							
DG-P227A	3* (C-6)						
The motor driven Rocker Arm lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTB 1.1. Reference: DBD- DG-01, revision 1.							
DG-P228A	3* (C-6)						
The engine drivenRocker Arm Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-V8A	3* (E-11)	C	3.0 Relief/Safety	Self	O	C	
Motor driven aux LO pump discharge relief valve. This pump is not required to support EDG operation. Therefore, the RV is not within the IST scope per ISTC 1.1. Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20458**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V18A Motor driven rocker arm prelube pump discharge check valve. This valve has a safety related close function only. This function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within normal ranges. Therefore, the valve is excluded from IST by ISTC1.2(c). Also excluded because it is ANS Class 3. Pump operation is not required to support EDG operation. The valve is exercised to the closed position by OX1426.14. References: P&ID D20458, DBD-DG-01, OX1426.14.	3* (C-6)	C	0.5 Check	Self	O	C	
DG-V23A Engine driven LO pump discharge check valve. This valve must open to support EDG operation. There is no safety related close function for this valve. Valve is adequately tested in the open direction during normal surveillance testing, and may be excluded by ISTC 1.2(c). Open and close testing (non-safety) is also performed quarterly by procedure OX1426.14.References: P&ID D20458, DBD-DG-01,OX1426.14	3 (G-10)	C	5.0 Check	Self	C	O	
DG-V24A Motor driven aux LO pump discharge check valve. The motor driven pump is not required to support EDG operation. This valve, if open, must close to ensure adequate LO flow to the EDG. This function is adequately tested during normal surveillance testing through maintenance of process parameters within normal range. Therefore, the valve is excluded from IST by ISTC1.2(c). The open and close functions are also verified quarterly by OX1426.14. References: P&ID D20458, DBD-DG-01, OX1426.14.	3 (F-10)	C	5.0 Check	Self	O	C	
DG-V29A Self contained lube oil temperature control valve, exempt from IST per ISTC 1.2(b). references: P&ID D20458, DBD-DG-01.	3 (C-10)	B	5.0 Three way	Self	C	O	
DG-V31A Motor driven prelube and filter pump discharge check valve. This valve is normally open and is closed when the EDG is running to prevent lube oil bypass flow. The closure function is adequately verified during normal srveillance by maintanence of adequate LO pressure and temperatures. Therefore, the valve is excluded from IST by ISTC1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.	3* (B-5)	C	2.0 Check	Self	O	C	

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20458**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	 SAF	 FAL
DG-V37A	3* (B-5)	C	 Relief/Safety	Self			
Prelube and filter pump integral discharge relief valve. The pump is not required to support EDG operation. Therefore, the valve is exempt from IST per ISTC 1.1 (scope). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							
DG-V41A	3* (D-7)		0.38 Gate	Self			
Lube oil reservoir tank level control valve. This valve performs a safety function (per EWR 97-095) of maintaining lube oil inventory. It is excluded from IST because it is ANS 3 and an integral subcomponent to the lube oil reservoir. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V42A	3* (D-7)	B	0.5 Relief/Safety	Self	TH	TH	
Rocker arm duplex filter outlet pressure regulating valve. Provides pressure regulation in the rocker arm lubricating header at 12 psig and is excluded from IST by ISTC 1.2(b). Not required to perform a function as described in ISTC 1.1, per EWR 97-095. Also excluded because it is ANS Class 3. References: P&ID D20458 , DBD-DG-01 EDG OM Manual C470-1.							
DG-V195A	NNS (D-7)		 Relief/Safety	Self	C		
Lube oil keep warm filter internal relief valve. This portion of the system is not required to support EDG operation and the valve is not in the IST scope per ISTC 1.1. References: P&ID D20458, DBD-DG-01.							
DG-V196A	3* (G-10)	C	 Relief/Safety	Self	C	O	
Engine driven LO pump integral relief valve, adequately verified during pump operation. This valve is in scope per ISTC 1.1. However, excluded because it is ANS Class 3 and it is an integral subcomponent to the pump so it is excluded per ISTC 1.2c. References: P&ID D20458, DBD-DG-01.							
DG-V257A	3* (G-6)	B	0.75 Globe	Self	C	O	
EDG lube oil resevoir tank makeup valve. This is a self contained pressure regulator which is exempt from IST per ISTC 1.2(b). Also excluded because it is ANS Class 3. References: P&ID D20458, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20458**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V261A	3*	C		Self	C	O	
	(C-6)		Check				

Engine driven rocker arm lube oil pump discharge check valve. This valve must open to ensure adequate engine lubrication. This valve has no safety related closure function. Operational readiness is verified during normal surveillance testing by maintanence of adequate LO pressure and temperature and may be excluded by ISTC 1.2(c). Also excluded because it is ANS Class 3. Both the open and the non- safety closure functions are periodically verfied in OX1426.14.
References: P&ID D20458, DBD-DG-01, OX1426.14.

SYSTEM: **DG**
PID No.: **D20459**

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-P38A	3 (B-10)						
The fuel oil transfer pumps operate periodically to replenish the EDG day tank. These PD pumps have a specified flow rate of 20 GPM and an actual flow rate of 25 GPM. The FO Transfer pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO day tank level within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). References: P&ID D20459, FSAR Table 9.5-4, OX1426.10.							
DG-P118A	3* (H-7)						
The motor driven aux fuel oil pump is not required to support EDG operation and is excluded from the IST Program by ISTB 1.1. Reference: DBD-DG-01, revision 1.							
DG-P119A	3* (G-7)						
The engine driven FO pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-V82A	3* (F-7)	C	1.0 Check	Self	C	O	
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions. No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20459, DBD-DG-01.							
DG-V83A	3* (F-7)	C	1.0 Check	Self	C	O	
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions and is excluded by ISTC 1.2(c). No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20459, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20459**

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-V84A	3 (H-7)	C	1.0 Check	Self	O	C	
Motor driven aux fuel oil pump discharge check valve. The pump is not required to support EDG operation, and the check valve has a safety close function only to prevent fuel oil bypass. This function is adequately verified during normal surveillance and may be exempted by ISTC 1.2(c). Both the open and closure functions are also verified quarterly by OX1426.14. References: P&ID D20459, DBD-DG-01.							
DG-V85A	3* (G-7)	C	1.0 Check	Self	C	O	
Engine driven fuel oil pump discharge check valve. This valve has a safety related open function only which is verified during normal surveillance testing and may be excluded by ISTC 1.2(c). Both open and close functions are verified by OX1426.14. Also excluded because it is ANS Class 3.							
DG-V99A	3* (H-7)		Relief/Safety	Self			
Aux motor driven fuel oil pump integral relief valve.The aux motor driven fuel oil pump is not required to support EDG operation. This valve is not in scope per ISTC 1.1 References: P&ID D20459, DBD-DG-01.							
DG-V100A	3* (H-7)	C	Relief/Safety	Self	C	O	
Engine driven fuel oil pump integral relief valve. This valve is in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D2059, DBD-DG-01.							
DG-V155A	NNS (H-12)		4.0 Relief/Safety	Self			
EDG fuel oil day tank relief valve. This valve is classified non-nuclear safety, and the tank is vented to atmosphere. References: P&ID D20459, DBD-DG-01.							
DG-V208	NNS (D-8)		Relief/Safety	Self			
Fuel oil tank relief valve. This valve is classified non-nuclear safety, and the tank is vented to atmosphere. References: P&ID D20459, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-D-6A-checks C-2A air dryer check valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliability of the EDG and associated pneumatic components which is verified by periodic surveillance testing. Therefore the valve are excluded per ISTC 1.2(c). Also excluded because they are ANS Class 3. Will be tested periodically commensurate with their importance to safety under another App. B program. These valves include DG-V281A, DG-V282A, DG-V286A, and DG-V287A. References: P&ID D20460, DBD-DG-01.	3* (F-4)	C	Check	Self	DE	DE	
DG-D-6A-SOVs C-2A air dryer solenoid valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliability of the EDG and associated pneumatic components, which is verified by periodic surveillance testing. Therefore, the valves are excluded per ISTC 1.2(c) Also excluded because they are ANS Class 3. These valves include DG-V279A, DG-V280A, DG-V285A, DG-V289A and DG-V290A. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20460, DBD-DG-01.	3* (F-4)	B	Globe	Solenoid	DE	DE	
DG-V52A DG control air press. reducing valve. Reduces air pressure from 600 to 100 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (C-10)		Other	Self			
DG-V53A EDG shutdown air receiver inlet check valve- not required for EDG operation, and the valve is not in the IST scope per ISTC 1.1. References: P&ID D20460, DBD-DG-01.	3 (C-10)		Check	Self			
DG-V54A 125 psig control air relief valve- in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References P&ID D20460, DBD-DG-01.	3* (C-10)	C	0.5 Relief/Safety	Self	C	O	

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V55A DG control air press. reducing valve. Reduces air pressure from 100 to 20 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-10)		Other	Self			
DG-V56A EDG 40 psig control air relief valve.-in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, DBD-DG-01.	3* (D-10)	C	0.25 Relief/Safety	Self	C	O	
DG-V59A DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-8)		Other	Self			
DG-V60A DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-8)		Other	Self			
DG-V72A Starting air compressor discharge piping relief valve-in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&IDD20460, DBD-DG-01.	3* (F-10)	C	Relief/Safety	Self	C	O	
DG-V220A DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-8)		Other	Self			

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V221A	3* (D-8)		Other	Self			
DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V224A	3* (C-8)		Other	Self			
DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V225A	3* (G-9)	B	0.5 Gate	Manual	O	C	
Starting air compressor discharge manual isolation valve. This valve is normally open and is closed to place the backup control air compressor inservice. References: P&ID D20460, OS1026.12, DCR 94-044. Added to the SITR Revision 10. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program.							
DG-V226A	NNS (E-9)		0.75 Check	Self			
C-2A air dryer manifold drain line check valve. This valve is classified non-nuclear safety related. Removal of moisture from the compressor discharge is a design requirement for the unit. Satisfactory performance of the air drying equipment is reflected in the reliability of the EDG. References: P&ID D20460, DBD-DG-01.							
DG-V253A	3* (E-10)		0.25 Three way	Solenoid			
C-2A solenoid operated drain valve.- operates on timer to remove accumulated condensate in the compressor discharge. The operational readiness of this valve is verified through proper compressor operation as well as the reliability of the EDG and associated pneumatic components. Therefore, the valve is excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20460, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	 SAF	 FAL
DG-V258A C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTC 1.1. The RV is excluded per ISTC 1.2(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20460	3* (F-10)	C	 Relief/Safety	Self	C	O	
DG-V259A C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTC 1.1. The RV is excluded per ISTC 1.2(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20460	3* (F-10)	C	 Relief/Safety	Self	C	O	
DG-V260A EDG starting air compressor discharge check valve. This valve has an open safety function to provide control air for long term EDG operation. There is no safety related closure function since the receiver inlet check valves prevent reverse flow when C-2A is in service, and manual valve DG-V225A is closed when the backup compressor (C-18A) is placed in service. The valve is excluded from IST since the valve open function is adequately verified through maintenance of normal air receiver pressure. Also excluded because it is ANS Class 3. Both the open and closed functions are verified quarterly by OX 1426.14. References: P&ID D20460,DBD-DG-01, OX1426.14, OS1026.12, DCR 94-044.	3* (E-10)	C	0.5 Check	Self	C	O	
DG-V269A DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (D-8)		 Other	Self			
DG-V325A C-18A unloader SOV cycles on receiver pressure. SOV is required to support compressor operation which is required for long term EDG operation. This valve is adequately tested during compressor surveillance testing and is excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20460, DBD-DG-01, OX1426.14	3* (F-12)	B	0.25 Relief/Safety	Self	DE	DE	

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20460**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V331A	3* (G-1)	C	Relief/Safety	Self	C	O	
EDG backup control air compressor discharge relief valve. Compressor operation is required to support long term EDG operation. Therefore, the RV is in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, DBD-DG-01, DCR 94-044.							
DG-V332A	3* (G-9)	B	0.5 Ball	Manual	C	O	
EDG backup control air compressor discharge manual isolation valve. This valve is normally closed, and is opened to place the backup air compressor into service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, OS1026.12, DCR 94-044.							
DG-V333A	3* (G-9)	B	0.5 Ball	Manual	C	O	
EDG backup control air compressor discharge manual isolation valve. This valve is normally closed and is opened to place the backup air compressor into service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20460, OS1026.12, DCR 94-044.							
DG-V334A	3* (G-9)	C	0.5 Check	Self	C	O	
EDG backup control air compressor discharge check valve. This valve is required to open to support long term EDG operation. Reverse closure is not required since the air receiver check valves prevent reverse flow when the compressor is in service, and the manual discharge valves V332A and V333A are closed when the compressor is not in service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. This valve is tested in both the open and closed direction by OX1426.14. References: P&ID, DBD-DG-01, OX1426.14.							
DG-V335A	3* (E-12)	C	0.25 Relief/Safety	Self	C	O	
EDG backup control air compressor integral discharge relief valve- In IST scope per ISTC 1.1, but excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. This integral relief valve will be tested periodically with the operation of the compressor. References: P&ID, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20461**

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-P120A	3* (G-11)						
Motor driven Jacket Coolant Standby circulating pump. This portion of the DG jacket coolant water system does not perform a safety function as described in ISTC 1.1. Also, this pump is excluded from IST because it is ANS Class 3.							
DG-P121A	3* (F-9)						
The EDG jacket water coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore it is excluded from IST per ISTB 1.2 (c). Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.							
DG-P122A	NNS (E-6)						
The EDG motor driven aux. coolant pump is not required to support EDG operation and is excluded from IST per ISTB 1.1. Reference: DBD-DG-01, revision 1.							
DG-P231A	3* (D-8)						
The EDG air coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore it is excluded from IST per ISTB 1.2 (c). Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.							
DG-PV7A-1	3 (F-7)		6.0 Globe	Self	TH	TH	
EDG jacket water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20461, DBD-DG-01.							
DG-PV7A-2	3 (D-9)		6.0 Globe	Self	TH	TH	
EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20461, DBD-DG-01.							
DG-TCV7A-1	3 (F-9)	B	6.0 Three way	Air/Diaphragm	TH	TH	O
EDG jacket coolant temperature control valve modulates to maintain coolant temperature setpoint.-- Valve will be excluded from IST per ISTC 1.2(b). References: P&ID D20461, DBD-DG-01,							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-TCV7A-2	3 (F-9)	B	6.0 Three way	Air/Diaphragm	TH	TH	O
EDG air coolant temperature control valve modulates to maintain coolant temperature setpoint.-- valve will be excluded from IST per ISTC 1.2(b). References: P&ID D20461, DBD-DG-01.							
DG-V1A	3 (G7)		6.0 Check	Self			
Aux coolant pump to jacket cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-V2A	3 (F-9)	C	6.0 Check	Self	C	O	
Engine driven jacket coolant pump suction check valve. This valve is closed to prevent flow diversion when the motor driven aux coolant pump is running (not safety related function) . The safety related function for this valve is to open when the engine driven coolant pump is operating. The open function is adequately verified during normal EDG surveillance through maintenance of process temperatures within allowable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). References: P&ID 20461, DBD-DG-01.							
DG-V4A	3 (D8)		6.0 Check	Self			
Aux coolant pump to air cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-V5A	3 (D-8)	C	6.0 Check	Self	C	O	
EDG air coolant pump discharge check valve- opens to support EDG operation. Non-safety reated closure function prevents coolant bypass when the aux coolant pump is operating. The open function for this valve is adequately verified during normal EDG surveillance testing through maintenance of process parameters within allowable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). References: P&ID 20461, DBD-DG-01.							
DG-V9A	3 (F-7)		Butterfly	Air/Piston	C	C	
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20461**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V11A	3 (G-6)		6.0 Butterfly	Air/Piston	C	C	
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-V12A	3 (E-6)		Butterfly	Air/Piston	C	C	
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-V13A	3 (D-6)		Butterfly	Air/Piston	C	C	
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-V86A	3* (G-10)		Relief/Safety	Self			
Jacket coolant standby cir. pump relief valve- This portion of the system is not required to support EDG operation. The standby engine / coolant temperature is essential for EDG Operability, but the keep warm system does not perform a safety related function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1 Also excluded because it is ANS Class 3. References: P&ID D20461, DBD-DG-01.							
DG-V87A	3* (G-10)	C	1.5 Check	Self	O	C	
Engine coolant keep warm pump (P-120A) discharge check valve is normally open and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID 20461, DBD-DG-01.							
DG-V94A	3* (G-10)	C	1.5 Check	Self	O	C	
Engine coolant keep warm pump (P-120A) discharge check valve is normally open and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID 20461, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20461**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V145A	3* (E-9)		0.5 Three way	Self			
DG Coolant 3-way self-contained temperature control valve. Per EWR 97-095 this valve serves a safety function and is required to move to control coolant temp. Excluded from IST because it is ANS 3 and excluded based on ISTC 1.2b and 1.2c. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V271	NNS (E-6)		Relief/Safety	Self			
EDG aux coolant pump relief valve. This portion of the system is not required to support EDG operation. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20461, DBD-DG-01.							
DG-NA1							
There are no valves on this drawing within the IST program scope as defined in ISTC 1.1.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20463**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-P115B	3* (G-10)						
The engine driven Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-P116B	3* (B-5)						
Motor driven Pre-lube and filter pump. This portion of the DG lube oil system does not perform a safety function as described in ISTC 1.1. Also, this pump is excluded from IST because it is ANS Class 3.							
DG-P117B	3* (D-11)						
The motor driven aux. lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTB 1.1. Reference: DBD- DG-01, revision 1.							
DG-P227B	3* (C-6)						
The motor driven Rocker Arm lube oil pump is not required to support EDG operation ,and is excluded from IST per ISTB 1.1. Reference: DBD- DG-01, revision 1.							
DG-P228B	3* (C-6)						
The engine driven Rocker Arm Lube Oil pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of LO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-V8B	3* (E-11)	C	3.0 Relief/Safety	Self	O	C	
Motor driven aux LO pump discharge relief valve. This pump is not required to support EDG operation. Therefore the RV is not within the IST scope per ISTC 1.1. Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20463**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DG-V18B Motor driven rocker arm prelube pump discharge check valve. This valve has a safety related close function only. This function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within normal ranges. Therefore, the valve is excluded from IST by ISTC1.2(c). Also excluded because it is ANS Class 3. Pump operation is not required to support EDG operation. The valve is exercised to the closed position by OX1426.14. References: P&ID D20463, DBD-DG-01, OX1426.14.	3* (C-6)	C	0.5 Check	Self	O	C	
DG-V23B Engine driven LO pump discharge check valve. This valve must open to support EDG operation. There is no safety related close function for this valve. Valve is adequately tested in the open direction during normal surveillance testing, and may be excluded by ISTC 1.2(c). Open and close testing (non-safety) is also performed quarterly by procedure OX1426.14.References: P&ID D20463, DBD-DG-01,OX1426.14	3 (G-10)	C	5.0 Check	Self	C	O	
DG-V24B Motor driven aux LO pump discharge check valve. The motor driven pump is not required to support EDG operation. This valve, if open, must close to ensure adequate LO flow to the EDG. This function is adequately tested during normal surveillance testing, through maintenance of normal LO process paramteres, and may be excluded by ISTC 1.2(c), Both open and closed functions verified quarterly by OX1426.14. References: P&ID D20463, DBD-DG-01, OX1426.14.	3 (F-10)	C	5.0 Check	Self	O	C	
DG-V29B Self contained lube oil temperature control valve, exempt from IST per ISTC 1.2(b). references: P&ID D20463, DBD-DG-01.	3 (C-10)	B	5.0 Three way	Self	C	O	
DG-V31B Motor driven prelube and filter pump discharge check valve. This valve is normally open and is closed when the EDG is running to prevent lube oil bypass flow. The closure function is adequately verified during normal srveillance by maintanence of adequate LO pressure and temperatures. Therefore, the valve is excluded from IST by ISTC1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.	3* (B-5)	C	2.0 Check	Self	O	C	

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20463**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-V37B	3* (B-5)	C	 Relief/Safety	Self			
Prelube and filter pump integral discharge relief valve. The pump is not required to support EDG operation. Therefore, the valve is exempt from IST per ISTC 1.1 (scope). Also excluded because it is ANS Class 3. References: P&ID D20463, DBD-DG-01.							
DG-V41B	3* (D-7)		0.38 Gate	Self			
Lube oil reservoir tank level control valve. This valve performs a safety function (per EWR 97-095) of maintaining lube oil inventory. It is excluded from IST because it is ANS 3 and an integral subcomponent to the lube oil reservoir. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V42B	3* (D-7)	B	0.5 Relief/Safety	Self	TH	TH	
Rocker arm duplex filter outlet pressure regulating valve. Provides pressure regulation in the rocker arm lubricating header at 12 psig, and is excluded from IST by ISTC 1.2(b). Also excluded because it is ANS Class 3. Not required to perform a function as described in ISTC 1.1, per EWR 97-095 References: P&ID D20458 , DBD-DG-01 EDG OM Manual C470-1.							
DG-V195B	NNS (D-7)		 Relief/Safety	Self	C		
Lube oil keep warm filter internal relief valve. This portion of the system is not required to support EDG operation and the valve is not in the IST scope per ISTC 1.1. References: P&ID D20463, DBD-DG-01.							
DG-V196B	3* (G-10)	C	 Relief/Safety	Self	C	O	
Engine driven LO pump integral relief valve, adequately verified during pump operation. This valve is in scope per ISTC 1.1. However, excluded because it is ANS Class 3 and it is an integral subcomponent to the pump so it is excluded per ISTC 1.2c. References: P&ID D20463, DBD-DG-01.							
DG-V257B	3* (G-6)	B	0.75 Globe	Self	C	O	
EDG oil resevoir tank makeup valve. This is a self contained pressure regulator which is exempt from IST per ISTC 1.2(b). Also excluded because it is ANS Class 3. References: P&ID D20464, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20463**

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-V261B	3* (C-6)	C	Check	Self	C	O	

Engine driven rocker arm lube oil pump discharge check valve. This valve must open to ensure adequate engine lubrication. This valve has no safety related closure function. Operational readiness is verified during normal surveillance testing by maintanence of adequate LO pressure and temperature and may be excluded by ISTC 1.2(c). Also excluded because it is ANS Class 3. Both the open and the non- safety closure functions are periodically verfied in OX1426.14. References: P&ID D20464, DBD-DG-01, OX1426.14.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20464**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-P38B	3 (B-8)						
The fuel oil transfer pumps operate periodically to replenish the EDG day tank. These PD pumps have a specified flow rate of 20 GPM and an actual flow rate of 25 GPM. The FO Transfer pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO day tank level within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). References: P&ID D20459, FSAR Table 9.5-4, OX1426.10.							
DG-P118B	3* (H-5)						
The motor driven aux fuel oil pump is not required to support EDG operation and is excluded from the IST Program by ISTB 1.1. Reference: DBD-DG-01, revision 1.							
DG-P119B	3* (G-5)						
The engine driven FO pump is required to support EDG operation, and it's operational readiness is adequately demonstrated during normal EDG surveillance testing by maintenance of FO pressure within the prescribed range. Therefore, this pump is excluded from the IST Program per ISTB 1.2(c). Also excluded because it is ANS Class 3. Reference: DBD-EDG-01, revision 1.							
DG-V82B	3* (F-7)	C	1.0 Check	Self	C	O	
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions. No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20464, DBD-DG-01.							
DG-V83B	3* (F-7)	C	1.0 Check	Self	C	O	
EDG fuel header return check valve. This valve has a safety related open function to return excess fuel to the day tank. This function is adequately verified during normal surveillance testing by maintenance of proper fuel oil process conditions, and is excluded by ISTC 1.2(c). No other testing or monitoring is required. Also excluded because it is ANS Class 3. References : P&ID D20464, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20464**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
DG-V84B	3	C	1.0	Self	O	C	
	(H-7)		Check				
Motor driven aux fuel oil pump discharge check valve. The pump is not required to support EDG operation, and the check valve has a safety close function only to prevent fuel oil bypass. This function is adequately verified during normal surveillance and may be exempted by ISTC 1.2(c). Both the open and closure functions are also verified quarterly by OX1426.14. References: P&ID D20464, DBD-DG-01.							
DG-V85B	3*	C	1.0	Self	C	O	
	(G-7)		Check				
Engine driven fuel oil pump discharge check valve. This valve has a saefty related open function only which is verified during normal surveillance testing and may be excluded by ISTC 1.2(c). Both open and close functions are verified by OX1426.14. Also excluded because it is ANS Class 3.							
DG-V99B	3*			Self	C		
	(H-7)		Relief/Safety				
Aux motor driven fuel oil pump integral relief valve. The aux motor driven fuel oil pump is not required to support EDG operation This valve is not in scope per ISTC 1.1.References: P&ID D20464, DBD-DG-01.							
DG-V100B	3*	C		Self	C	O	
	(H-7)		Relief/Safety				
Engine driven fuel oil pump integral relief valve. This valve is in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20464, DBD-DG-01.							
DG-V155B	NNS		4.0	Self			
	(H-12)		Relief/Safety				
EDG fuel oil day tank relief valve. This valve is classified non-nuclear safety, and the tank is vented to atmosphere. References: P&ID D20464, DBD-DG-01.							
DG-V209	NNS			Self			
	(D-8)		Relief/Safety				
Fuel oil tank relief valve. This valve is classified non-nuclear safety, and the tank is vented to atmosphere. References: P&ID D20464, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-D-6B-checks C-2A air dryer check valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliability of the EDG and associated pneumatic components which is verified by periodic surveillance testing. Therefore the valve are excluded per ISTC 1.2(c). Also excluded because they are ANS Class 3. These valves include DG-V281B, DG-V282B, DG-V286B, and DG-V287B. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01.	3* (F-4)	C	Check	Self	DE	DE	
DG-D-6B-SOVs C-2A air dryer solenoid valves open and close as required by dryer design /operation. The dryer is required to remove moisture to within design limits of the supplied components. Proper operation of the dryer and associated components is verified via proper operation and reliability of the EDG and associated pneumatic components, which is verified by periodic surveillance testing. Therefore, the valves are excluded per ISTC 1.2(c) Also excluded because they are ANS Class 3. These valves include DG-V279B, DG-V280B, DG-V285B, DG-V289B and DG-V290B. Will be tested periodically commensurate with their importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01.	3* (F-4)	B	Globe	Solenoid	DE	DE	
DG-V52B DG control air press. reducing valve. Reduces air pressure from 600 to 100 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.	3* (C-10)		Other	Self			
DG-V53B EDG shutdown air receiver inlet check valve- not required for EDG operation, and the valve is not in the IST scope per ISTC 1.1. References: P&ID D20465, DBD-DG-01.	3 (C-10)		Check	Self			
DG-V54B 125 psig control air relief valve- in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References P&ID D20465, DBD-DG-01.	3* (C-10)	C	0.5 Relief/Safety	Self	C	O	

SYSTEM: **DG**
PID No.: **D20465**

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-V55B	3* (D-10)		Other	Self			
DG control air press. reducing valve. Reduces air pressure from 100 to 20 psig. Performs safety function for control air subsystem according to EWR 97-095. Self contained pressure control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V56B	3* (D-10)	C	0.25 Relief/Safety	Self	C	O	
EDG 40 psig control air relief valve.-in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, DBD-DG-01.							
DG-V59B	3* (D-8)		Other	Self			
DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V60B	3* (D-8)		Other	Self			
DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V72B	3* (F-10)	C	Relief/Safety	Self	C	O	
Starting air compressor discharge piping relief valve-in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&IDD20465, DBD-DG-01.							
DG-V220B	3* (D-8)		Other	Self			
DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20465**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
DG-V221B	3* (D-8)		 Other	Self				DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V224B	3* (C-8)		 Other	Self				DG main air start valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.
DG-V225B	3* (G-9)	B	0.5 Gate	Manual	O	C		Starting air compressor discharge manual isolation valve. This valve is normally open and is closed to place the backup control air compressor inservice. References: P&ID D20465, OS1026.12, DCR 94-044. Added to SITR revision 10. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program.
DG-V226B	NNS (E-9)		0.75 Check	Self				C-2B air dryer manifold drain line check valve. This valve is classified non-nuclear safety related. Removal of moisture from the compressor discharge is a design requirement for the unit. Satisfactory performance of the air drying equipment is reflected in the reliability of the EDG. References: P&ID D20465, DBD-DG-01.
DG-V253B	3* (E-10)		0.25 Three way	Solenoid				C-2A solenoid operated drain valve.- operates on timer to remove accumulated condensate in the compressor discharge. The operational readiness of this valve is verified through proper compressor operation as well as the reliability of the EDG and associated pneumatic components. Therefore, the valve is excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20465, DBD-DG-01.

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
DG-V258B	3* (F-10)	C	Relief/Safety	Self	C	O	
C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTC 1.1. The RV is excluded per ISTC 1.2(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20465							
DG-V259B	3* (F-10)	C	Relief/Safety	Self	C	O	
C-2A integral stage relief valve. This RV protects the compressor which is required to support long term EDG operation and is in scope per ISTC 1.1. The RV is excluded per ISTC 1.2(c) and will be periodically tested as part of the compressor unit. Also excluded because it is ANS Class 3. References: P&ID D20465							
DG-V260B	3* (E-10)	C	0.5 Check	Self	C	O	
EDG starting air compressor discharge check valve. This valve has an open safety function to provide control air for long term EDG operation. There is no safety related closure function since the receiver inlet check valves prevent reverse flow when C-2B is in service, and manual valve DG-V225B is closed when the backup compressor (C-18B) is placed in service. The valve is excluded from IST since the valve open function is adequately verified through maintenance of normal air receiver pressure. Also excluded because it is ANS Class 3. Both the open and closed functions are verified quarterly by OX 1426.14. References: P&ID D20465,DBD-DG-01, OX1426.14, OS1026.12, DCR 94-044.							
DG-V269B	3* (D-8)		Other	Self			
DG starting air booster valve. Performs safety function for DG starting air subsystem according to EWR 97-095. Self contained control valve excluded from IST based on ISTC 1.2b and 1.2c and because it is ANS 3. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V325B	3* (F-12)	B	0.25 Relief/Safety	Self	DE	DE	
C-18B unloader SOV cycles on receiver pressure. SOV is required to support compressor operation which is required for long term EDG operation. This valve is adequately tested during compressor surveillance testing and is excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID D20465, DBD-DG-01, OX1426.14							

SYSTEM: **DG**
PID No.: **D20465**

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-V331B	3* (G-1)	C	Relief/Safety	Self	C	O	
EDG backup control air compressor discharge relief valve. Compressor operation is required to support long term EDG operation. Therefore, the RV is in scope per ISTC 1.1. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, DBD-DG-01, DCR 94-044.							
DG-V332B	3* (G-9)	B	0.5 Ball	Manual	C	O	
EDG backup control air compressor discharge manual isolation valve. This valve is normally closed, and is opened to place the backup air compressor into service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, OS1026.12, DCR 94-044.							
DG-V333B	3* (G-9)	B	0.5 Ball	Manual	C	O	
EDG backup control air compressor discharge manual isolation valve. This valve is normally closed and is opened to place the backup air compressor into service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. References: P&ID D20465, OS1026.12, DCR 94-044.							
DG-V334B	3* (G-9)	C	0.5 Check	Self	C	O	
EDG backup control air compressor discharge check valve. This valve is required to open to support long term EDG operation. Reverse closure is not required since the air receiver check valves prevent reverse flow when the compressor is in service, and the manual discharge valves V332B and V333B are closed when the compressor is not in service. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. This valve is tested in both the open and closed direction by OX1426.14. References: P&ID, DBD-DG-01, OX1426.14.							
DG-V335B	3* (E-12)	C	0.25 Relief/Safety	Self	C	O	
EDG backup control air compressor integral discharge relief valve- In IST scope per ISTC 1.1, but excluded per ISTC 1.2(c). Also excluded because it is ANS Class 3. This integral relief valve will be tested periodically with the operation of the compressor. References: P&ID, DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20466**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-P120B Motor driven Jacket Coolant Standby circulating pump. This portion of the DG jacket coolant water system does not perform a safety function as described in ISTC 1.1. Also, this pump is excluded from IST because it is ANS Class 3.	3* (G-11)						
DG-P121B The EDG jacket water coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during n ormal surveillance testing. Therefore it is excluded from IST per ISTB 1.2 (c). Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.	3* (F-8)						
DG-P122B The EDG motor driven aux. coolant pump is not required to support EDG operation and is excluded from IST per ISTB 1.1. Reference: DBD-DG-01, revision 1.	NNS (E-5)						
DG-P231B The EDG air coolant pump is required to support EDG operation and its operational readiness is adequately demonstrated during normal surveillance testing. Therefore is is excluded from IST per ISTB 1.2 (c). Also excluded because it is ANS Class 3. Reference: DBD-DG-01, revision 1.	3* (D-7)						
DG-PV7B-1 EDG jacket water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20466, DBD-DG-01.	3 (F-7)		6.0 Globe	Self	TH	TH	
DG-PV7B-2 EDG air cooling water pressure control valve - staked in a pre-determined throttled position. References: P&ID D20466, DBD-DG-01.	3 (D-9)		6.0 Globe	Self	TH	TH	
DG-TCV7B-1 EDG air coolant temperature control valve modulates to maintain coolant temperature setpoint.--valve is excluded from IST per ISTC 1.2(b). References: P&ID D20466, DBD-DG-01.	3 (F-8)	B	6.0 Three way	Air/Diaphragm	TH	TH	O

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DG**
PID No.: **D20466**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DG-TCV7B-2 EDG air coolant temperature control valve modulates to maintain coolant temperature setpoint.-- valve is excluded from IST per ISTC 1.2(b). References: P&ID D20466, DBD-DG-01.	3 (D-8)	B	6.0 Three way	Air/Diaphragm	TH	TH	O
DG-V1B Aux coolant pump to jacket cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.	3 (G7)		6.0 Check	Self			
DG-V2B Engine driven jacket coolant pump suction check valve. This valve is closed to prevent flow diversion when the motor driven aux coolant pump is running (not safety related function) . The safety related function for this valve is to open when the engine driven coolant pump is operating. The open function is adequately verified during normal EDG surveillance through maintenance of process temperatures within allowable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). References: P&ID 20466, DBD-DG-01.	3 (F-9)	C	6.0 Check	Self	C	O	
DG-V4B Aux coolant pump to air cooling header discharge check valve. The aux coolant pump is not required to support EDG operation. This check valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.	3 (D8)		6.0 Check	Self			
DG-V5B EDG air coolant pump discharge check valve- opens to support EDG operation. Non-safety reated closure function prevents coolant bypass when the aux coolant pump is operating. The open function for this valve is adequately verified during normal EDG surveillance testing through maintenance of process parameters within allowable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). References: P&ID 20466, DBD-DG-01.	3 (D-8)	C	6.0 Check	Self	C	O	
DG-V9B Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.	3 (F-7)		Butterfly	Air/Piston	C	C	

SYSTEM: **DG**
PID No.: **D20466**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
DG-V11B	3 (G-6)		6.0 Butterfly	Air/Piston	C	C	
Aux coolant pump discharge isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.							
DG-V12B	3 (E-6)		Butterfly	Air/Piston	C	C	
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.							
DG-V13B	3 (D-6)		Butterfly	Air/Piston	C	C	
Aux coolant pump suction isolation valve. The aux coolant pump is not required to support EDG operation. This valve has no active open or close safety function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.							
DG-V86B	3* (G-10)		Relief/Safety	Self			
Jacket coolant standby cir. pump relief valve- This portion of the system is not required to support EDG operation. The standby engine / coolant temperature is essential for EDG Operability, but the keep warm system does not perform a safety related function. Therefore, this valve is not within the IST scope as defined in ISTC 1.1 Also excluded because it is ANS Class 3. References: P&ID D20466, DBD-DG-01.							
DG-V87B	3* (G-10)	C	1.5 Check	Self	O	C	
Engine coolant keep warm pump (P-120A) discharge check valve is normally open and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID 20466, DBD-DG-01.							
DG-V94B	3* (G-10)	C	1.5 Check	Self	O	C	
Engine coolant keep warm pump (P-120A) discharge check valve is normally open and closes upon engine start to prevent coolant bypass. The reverse closure function is adequately demonstrated during normal surveillance testing through maintenance of process parameters within acceptable ranges. Therefore, this valve is excluded from IST per ISTC 1.2(c). Also excluded because it is ANS Class 3. References: P&ID 20466, DBD-DG-01.							

SYSTEM: **DG**
PID No.: **D20466**

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-V145B	3* (E-9)		0.5 Three way	Self			
DG Coolant 3-way self-contained temperature control valve. Per EWR 97-095 this valve serves a safety function and is required to move to control coolant temp. Excluded from IST because it is ANS 3 and excluded based on ISTC 1.2b and 1.2c. It will be tested periodically under another App. B program commensurate with its importance to safety.							
DG-V272	NNS (E-6)		Relief/Safety	Self			
EDG aux coolant pump relief valve. This portion of the system is not required to support EDG operation. Therefore, this valve is not within the IST scope as defined in ISTC 1.1. References: P&ID D20466, DBD-DG-01.							
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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DGA-FY-ACO	3* (D-11)	B	0.38 Three way	Solenoid	C	O	
EDG control air isolation valve. This valve is normally closed (vented) and opens to admit control air to the engine components when the engine starts and speed exceeds 375 RPM. Control air is required for engine operation. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. This valve is adequately tested during normal surveillance testing through maintenance of engine water and oil temperatures within allowable ranges. References: P&ID D20460, DBD-DG-01.							
DGA-FY-AS1	3 (B-8)	B	0.38 Three way	Solenoid	C	O	
EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC1.2c. Will be tested periodically commensurate with its importance to safety under another App. B program. References: P&ID D20460, DBD-DG-01, TS 4.8.1.1.2.a.5.							
DGA-FY-AS2	3 (B-9)	B	0.38 Three way	Solenoid	C	O	
EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC1.2c. Will be tested periodically commensurate with its importance to safety under another App. B program. References: P&ID D20460, DBD-DG-01, TS 4.8.1.1.2.a.5.							
DGA-FY-SDS	3 (D-9)		0.38 Three way	Solenoid			
EDG air shutdown solenoid. This valve is energized to admit air to move the fuel rack servo to the min fuel position to shutdown the EDG which is not a safety related function. Operation of this valve is not required to support EDG operation and therefore, it is not within the IST scope per ISTC 1.1. References: P&ID D20460. DBD-DG-01.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **DGB**
PID No.: **D20465**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
DGB-FY-ACO EDG control air isolation valve. This valve is normally closed (vented) and opens to admit control air to the engine components when the engine starts and speed exceeds 375 RPM. Control air is required for engine operation. However, excluded because it is ANS Class 3. Will be tested under other Appendix B program. This valve is adequately tested during normal surveillance testing through maintenance of engine water and oil temperatures within allowable ranges. References: P&ID D20465, DBD-DG-01.	3* (D-11)	B	0.38 Three way	Solenoid	C	O	
DGB-FY-AS1 EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC1.2c. Will be tested periodically commensurate with its importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01, TS 4.8.1.1.2.a.5. [	3 (B-8)	B	0.38 Three way	Solenoid	C	O	
DGB-FY-AS2 EDG air start solenoid valve- energizes to admit control air to the main air start valve. This valve is adequately tested during normal EDG surveillance, where meeting the EDG minimum start time criterion in TS 4.8.1.1.2.(a).5, verifies the operational readiness of the SOVs and associated main air start valves. Exclude from IST scope per ISTC1.2c. Will be tested periodically commensurate with its importance to safety under another App. B program. References: P&ID D20465, DBD-DG-01, TS 4.8.1.1.2.a.5.	3 (B-9)	B	0.38 Three way	Solenoid	C	O	
DGB-FY-SDS EDG air shutdown solenoid. This valve is energized to admit air to move the fuel rack servo to the min fuel position to shutdown the EDG which is not a safety related function. Operation of this valve is not required to support EDG operation and therefore, it is not within the IST scope per ISTC 1.1. References: P&ID D20465. DBD-DG-01.	3 (D-9)		0.38 Three way	Solenoid			

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **DM**
PID No.: **D20352**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
DM-V274	NNS (D-8)	C	0.75 Relief/Safety	Self	C	O	

This relief valve relieves overpressure in X-36 (DM) adjacent NNS piping caused by thermal 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.

SYSTEM: **FW**
PID No.: **D20426**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-P113	NNS (C-5)						
The startup feedwater pump is operated during plant startup and shutdown and can perform as a 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 (C-7)	C	6.0 Check	Self	C	O	
Startup aux feedwater pump discharge check valve. This valve 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.							

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-FCV510 SG #1 FW level control valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.	NNS (F-5)	B	18.0 Globe	Air/Diaphragm	O	C	C
FW-FCV520 SG #2 FW level control valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.	NNS (D-5)	B	18.0 Globe	Air/Diaphragm	O	C	C
FW-FCV530 SG #3 FW level control valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32.However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.	NNS (B-5)	B	18.0 Globe	Air/Diaphragm	O	C	C
FW-FCV540 SG #4 FW level control valve. This valve is open during power operation and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32. (OPEN ITEM: (1)add to IST Program, (2) Active qualification status-and safety classification?)	NNS (H-5)	B	18.0 Globe	Air/Diaphragm	O	C	C

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

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (In.) and Type	Actuator Type	Positions NRM	SAF	FAL
FW-LV4210	NNS (F-5)	B	4.0 Globe	Air/Diaphragm	DE	DE	C
SG #1 FW level control valve bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#1 as required by TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							
FW-LV4220	NNS (D-5)	B	4.0 Globe	Air/Diaphragm	DE	DE	C
SG #2 FW level control valve bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#2 as required by TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							
FW-LV4230	NNS (B-5)	B	4.0 Globe	Air/Diaphragm	DE	DE	C
SG #3FW level control valve bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#3 as required by TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							
FW-LV4240	NNS (H-5)	B	4.0 Globe	Air/Diaphragm	DE	DE	C
SG #4 FW level control valve bypass valve. This valve may open during power operation up to 20%, and closes on receipt of a feedwater isolation signal. Closure of this valve is credited in the SB steam line piping failure analysis FSAR Section 15.1.5, and it has a critical closure time limit of 5 seconds in DWG 1-NHY-250000, Revision 32. This valve is also opened to align the SUFP to SG#4 as required by TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20686, FSAR Section 15.1.5, DWG 1-NHY-250000, Revision 32.							

SYSTEM: **FW**

PID No.: **D20686**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
FW-V28	NNS (F-4)		16.0 Gate	Motor	O		
This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.							
FW-V37	NNS (D-4)		16.0 Gate	Motor	O		
This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.							
FW-V46	NNS (C-4)		16.0 Gate	Motor	O		
This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.							
FW-V55	NNS (H-4)		16.0 Gate	Motor	O		
This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.							

SYSTEM: **FW**

PID No.: **D20687**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-Various3 The SUFP and associated flow paths from the CST protected water volume to the SGs, via both the EFW header and the normal FW discharge header, are required by TS 3.7.1.2 to be operable in Modes 1,2 & 3. NNS Components in the TS required flow paths have been identified using the applicable TS surveillance procedures and the FW P&IDs, for inclusion in the scope of components which are important to safety but non-ASME and therefore excluded from IST. Those components will be tested under other App. B program. No components shown on this drawing are in the IST scope.	NNS						
FW-PCV4326 This is the SUFP recirculation flow control valve, maintains SUFP discharge pressure at setpoint value. - excluded from IST per ISTC 1.2(b) and because it is non-ASME. This valve is adequately tested during normal SUFP surveillance testing. References: P&ID D20426, TS 3.7.1.2, DBD-EFW-01 Revision 1.	NNS (B-8)	B	4.0 Globe	Air/Diaphragm	TH	TH	
FW-PCV4377 This is a self-contained pressure control valve which is excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b, DBD-EFW-01 Revision 1.	NNS (A-8)		0.75 Gate	Air/Diaphragm			
FW-PCV4378 This is a self-contained pressure control valve which is excluded from IST per ISTC 1.2b. It is also excluded because it is NNS. This valve is adequately tested during normal SUFP surveillance testing. References: TS 4.7.1.2.2b, DBD-EFW-01 Revision 1.	NNS (A-7)		0.75 Gate	Air/Diaphragm			
FW-V1 Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.	NNS (D-4)		20.0 Check	Self	O		

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
FW-V2 This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (D-4)		20.0 Gate	Motor	O		
FW-V12 Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.	NNS (D-7)		20.0 Check	Self	O		
FW-V13 This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (D-7)		20.0 Gate	Motor	O		
FW-V23 This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (G-3)		24.0 Gate	Motor	O		
FW-V25 This is an NNS valve in the normal feedwater supply line. It serves an alternate function of providing a flowpath in the event the primary flowpath through the EFW header (with the SUFP operating as an emergency feedwater pump) is not available. Since manual operator action is required to align this flowpath and the components are not supplied from an emergency power source, it is excluded from IST.	NNS (G-6)		24.0 Gate	Motor	O		

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

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Remarks
					NRM	SAF	FAL	
FW-V100	NNS (B-8)	B	6.0 Gate	Manual	O	DE		SUFP discharge isolation valve. This valve is normally open, closed prior to starting FW-P113, and then reopened to align the SUFP to the normal feedwater header. It is also closed when aligning the SUFP to the EFW discharge header. Note this is a TS required flow path per TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20426, OX1436.05 &.12, TS 3.7.1.2
FW-V102	NNS (E-4)		18.0 Check	Self	C	C		Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.
FW-V163	NNS (B-7)	B	6.0 Gate	Motor	C	O		Startup feedwater pump discharge to the EFW header isloation valve. This valve is normally closed, and is opened to align the SUFP to the EFW discharge header. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20688, TS 3.7.1.2.
FW-V456	NNS (D-7)		0.75 Check	Self	O			Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.
FW-V458	NNS (D-4)		0.75 Check	Self	O			Manual operator action is required in the event the main feedwater header is used as an emergency flow path. This check valve can be isolated to prevent reverse flow, if required. This NNS valve is therefore excluded from IST.
FW-V465	NNS (B-7)	B	Globe	Manual	C	DE		SUFP discharge isolation bypass valve. This valve is normally closed, opened during SUFP startup, and then reclosed when the pump discharge valve is open. Note this is a TS required flow path per TS 4.7.1.2.2.b. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20687, TS 3.7.1.2, OX1436.12.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **FW**
PID No.: **D20688**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL	Remarks
FW-V156	NNS (H-4)	B	6.0 Gate	Motor	C	O		Startup feedwater pump discharge to the EFW header isloation valve. This valve is normally closed, and is opened to align the SUFP to the EFW discharge header. However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20688, TS 3.7.1.2.
FW-V258	3* (B-5)	C	0.5 Relief/Safety	Self	TH	TH		Turbine Driven EFW pump lube oil pressure regulating valve. This pressure valve regulates the LO pressure at 14-16 psig and is excluded from IST per ISTC 1.2 (b). This valve is also excluded from IST because it is non-ASME (ANS Class 3). Satisfactory operation of this regulating valve is demonstrated during normal pump surveillance testing. References: P&ID D20688.
FW-V467	3* (C-5)		0.25 Relief/Safety	Self				Turbine Driven EFW pump turbine shell steam pressure relief valve. This valve is excluded from IST per ISTC 1.2 (b). This valve is also excluded from IST because it is non-ASME (ANS Class 3). Satisfactory operation of this regulating valve is demonstrated during normal pump surveillance testing. References: P&ID D20688.
FW-Various2								There are no accident mitigating or safe shutdown components shown on this drawing.
FW-Various1								There are no accident mitigating or safe shutdown components shown on this drawing.
FW-Various4	NNS							The startup feed pump lube oil is normally provided by a shaft driven pump. A skid mounted motor driven pump (P-161) supplies the lube oil during startup and in the event of a failure of the shaft driven pump. The entire lube oil system including the check valves (V120, V122,V123 V469, V470), pressure regulating valve V124, and the lube oil pumps, is adequately tested during normal pump surveillance testing, and is therefore excluded from IST per ISTC 1.2(c). Also excluded because it is NNS equipment. References: P&ID D20691, DBD-EFW-01, Revision 1.

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	Positions NRM	SAF	FAL
IA-V545	3* (G-12)	C	1.0 Check	Self	O	C	
Alternate air supply to MS-V395, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow 1-MS-TK-243 to supply nitrogen to the MS-V393 actuator.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program References: P&ID B20644, DBD-EFW-01, revision 1, FSAR Section 9.3.1.							
IA-V546	3* (G-12)	C	1.0 Check	Self	O	C	
Alternate air supply to MS-V395, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow 1-MS-TK-243 to supply nitrogen to the MS-V393 actuator.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20644, DBD-EFW-01, revision 1 FSAR Section 9.3.1..							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **IA**
PID No.: **B20647**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
IA-Various1 There are several N2 PCVs and SOVs in the alternate supply to the pneumatic valves shown on this drawing. The PCVs are excluded from IST per ISTC 1.2(b). The SOVs are tested as an integral part of the associated control valve, and are excluded from IST per ISTC 1.2(c). Furthermore, these components are all ANSI Class 3.	3*						
IA-V547 Alternate N2 supply to MS-V394 & MS-PV3002, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.	3* (F-10)	C	0.75 Check	Self	O	C	
IA-V548 Alternate N2 supply to MS-V394 & MS-PV3002, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.	3* (F-10)	C	0.75 Check	Self	O	C	
IA-V549 Alternate N2 supply to MS-V393 & MS-PV3001, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.	3* (H-10)	C	0.75 Check	Self	O	C	
IA-V550 Alternate N2 supply to MS-V393 & MS-PV3001, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators. However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.	3* (H-10)	C	0.75 Check	Self	O	C	

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **IA**
PID No.: **B20647**

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
IA-V8030	3* (B-10)	C	1.0 Check	Self	O	C	
Alternate N2 supply to CC-TV2171-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.							
IA-V8031	3* (B-11)	C	1.0 Check	Self	O	C	
Alternate N2 supply to CC-TV2171-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.							
IA-V8032	3* (D-11)	C	1.0 Check	Self	O	C	
Alternate N2 supply to CC-TV2271-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.							
IA-V8033	3* (D-10)	C	1.0 Check	Self	O	C	
Alternate N2 supply to CC-TV2271-1,-2, SC-3 / NNS interface boundary check valve. This valve is normally open and closes on loss of normal instrument air to isolate the NNS system and allow N2 bottles to supply nitrogen to the valve actuators.However, this valve is non-ASME (ANSI Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID B20647, FSAR Section 9.3.1.							

SYSTEM: **MS**
PID No.: **D20582**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
MS-V129	3* (E-6)	B	4.0 Globe	Manual	O	DE	

Turbine driven EFW pump trip and throttle valve. This valve is normally open when the pump is in standby, and remains open during the auto start process. The valve is manually closed and opened during periodic pump testing and will trip closed on turbine over speed. The operation of this valve is 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.

SYSTEM: **NG**
PID No.: **D20135**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
NG-V47	2 (C-5)		1.0 Check	Self			
Nitrogen supply 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. Water suction source is from RWST and ECCS containment sump.							
NG-V187	2 (C-6)		1.0 Check	Self			
Nitrogen supply 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. Water suction source is from RWST and ECCS containment sump.							
NG-V18	2 (G-6)		1.0 Check	Self			
Nitrogen supply to SI Accum check valve. This valve serves no safety function as described in ISTC 1.1. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve.							
NG-V20	2 (G-6)		1.0 Check	Self			
Nitrogen supply to SI Accum check valve. This valve serves no safety function as described in ISTC 1.1. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve.							
NG-V22	2 (G-6)		1.0 Check	Self			
Nitrogen supply to SI Accum check valve. This valve serves no safety function as described in ISTC 1.1. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve.							
NG-V24	2 (F-6)		1.0 Check	Self			
Nitrogen supply to SI Accum check valve. This valve serves no safety function as described in ISTC 1.1. Any Accum gas leakage is contained by the normally closed AOV upstream of this check valve.							

SYSTEM: **RC**
PID No.: **D20218**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
RC-V147	2 (H-8)		0.38 Gate	Air/Piston	O		
Reactor vessel flange leakoff to the RCDT. The position of this valve is inconsequential and it serves no safety function as described in ISTC 1.1.							
RC-Various1							
RCS Loop 2 P&ID. There are no valves (shown in function) on this drawing which are within the IST scope as defined in ISTC 1.1.							
RC-V81	1 (B-8)		3.0 Gate	Motor	O		
Letdown Isolation from loop 3. This valve has no safety function as described in ISTC 1.1, as letdown is isolated by downstream valves RC-LCV459 and RC-LCV460 to provide the RCS Class 1 boundary. Letdown is not used during DBA conditions nor for safe shutdown, so this valve has no open safety function either.							
RC-PCV455A	1 (F-5)		4.0 Ball	Air/Diaphragm			
Pressurizer Spray Control valve. This valve is used for operating convenience and is not required for safe shutdown. Excluded per ISTC 1.2b and 1.1 scope.							
RC-PCV455B	1 (G-5)		4.0 Ball	Air/Diaphragm			
Pressurizer Spray Control valve. This valve is used for operating convenience and is not required for safe shutdown. Excluded per ISTC 1.2b and 1.1 scope.							

SYSTEM: **RH**
PID No.: **D20662**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
Remarks					NRM	SAF	FAL
RH-V8	2 (E-9)		0.75 Globe	Manual	C		
RH-P-8A discharge local grab sample valve. Although listed in UFSAR Table 7.4-1 as 'equipment required for safe shutdown', per EWR 97-095 and NUREG 1482 section 2.4.2 guidance this valve is not considered active since it is repositioned for a short period of time, administratively controlled and is for the sole purposes of drawing a sample. Therefore, it is excluded from IST requirements.							
RH-V18	2 (G-12)		2.0 Globe	Manual	C		
RHR Train A to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train A RHR slipstream flow. It is required to be closed in the event of a NNS piping break downstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTC 1.1 for this station. Will be tested under other App. B program commensurate with its importance to safety per NUREG 1482 guidance.							
RH-V19	2 (G-12)		2.0 Globe	Manual	C		
RHR Train B to CVCS Purification (slipstream) isolation. This valve is normally closed and is opened to initiate Train B RHR slipstream flow. It is required to be closed in the event of a NNS piping break downstream to preserve RHR inventory while in slipstream operation and therefore is considered active per EWR 97-095. But, since slipstream operations are used during shutdown cooling only and do not occur while in Hot Standby, which is the licensing basis for Seabrook Station, this valve will not be tested under the IST program as it does not perform a safety function as described in ISTC 1.1 for this station. Will be tested under other App. B program commensurate with its importance to safety per NUREG 1482 guidance.							
RH-V33	2 (G-9)		8.0 Gate	Manual	C		
RHR to CBS-P-9B suction. This valve is normally locked closed and is administratively restricted from operation in Modes 1-4.							
RH-V44	2 (E-9)		0.75 Globe	Manual	C		
RH-P-8B discharge local grab sample valve. Although listed in UFSAR Table 7.4-1 as 'equipment required for safe shutdown', per EWR 97-095 and NUREG 1482 section 2.4.2 guidance this valve is not considered active since it is repositioned for a short period of time, administratively controlled and is for the sole purposes of drawing a sample. Therefore, it is excluded from IST requirements.							

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	Positions		
					NRM	SAF	FAL
RMW-V107 This valve provides over pressure protection for containment penetration adjacent piping (X-36), where the overpressue condition is caused by thermal 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 D20360, Engineering Evaluation SS-EV-960023, revision 0.	NNS (H-5)	C	1.5 Relief/Safety	Self	C	O	
RMW-V36 Reactor makeup water isolation to the CCP suction. This valve is normally closed and remains closed for SSD and accident mitigation. This valve is verified closed in OS1200.01. Upstream valves RMW-V31 & V34 are active and closed/verified closed in OS1200.01 providing the necessary barrier for dilution potential and therefore RMW-V36 serves no active function, regardless of its position.	2 (E-5)	B	2.0 Globe	Manual	C	C	
RMW-V37 RMW to charging pump suction isolation check valve. Has no safety function. OS1202.04 for Emergency Boration provides instructions for closing RMW-V31 and V34 to avoid dilution during boron insertion. Emerg. Boration is from the BAT, thus reverse closure would be the intended function, but the multiple barriers provided by the closed manual valves provide the required isolation.	2 (E-5)		2.0 Check	Self			

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **SB**
PID No.: **D20841**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SB-V2	2 (C-11)		2.0 Gate	Manual	C		
SG A alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V189	2 (C-11)		3.0 Globe	Manual	O		
SG A blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V4	2 (C-5)		2.0 Gate	Manual	C		
SG B alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V191	2 (C-5)		3.0 Globe	Manual	O		
SG B blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V6	2 (E-6)		2.0 Gate	Manual	C		
SG C alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V193	2 (E-6)		3.0 Globe	Manual	O		
SG C blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							

SYSTEM: **SB**
PID No.: **D20844**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	SAF	FAL
SB-V8	2 (E-10)		2.0 Gate	Manual	C		
SG D alternate blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							
SB-V195	2 (E-10)		3.0 Globe	Manual	O		
SG D blowdown isolation. This valve and this portion of the SB system have no safety function as described in ISTC 1.1. Only the containment isolation valves downstream provide a safety function for this system.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

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

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
SF-P10A	3 (D-7)						
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not serve an active safety function as described in ISTB 1.1 and are not considered active pumps in the UFSAR. Therefore, they are excluded from IST. References: P&ID D20482, FSAR Table 9.1-3, OX1414.03.							
SF-P10B	3 (D-4)						
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not serve an active safety function as described in ISTB 1.1 and are not considered active pumps in the UFSAR. Therefore, they are excluded from IST. References: P&ID D20482, FSAR Table 9.1-3, OX1414.03.							
SF-P10C	3 (B-5)						
The spent fuel cooling pump operates continuously to remove decay heat from spent fuel elements stored in the spent fuel pool. The Spent Fuel Pumps do not serve an active safety function as described in ISTB 1.1 and are not considered active pumps in the UFSAR. Therefore, they are excluded from IST. References: P&ID D20482, FSAR Table 9.1-3, OX1414.03.							
SF-V110	3 (G-4)		3.0 Check	Self			
CVCS Filter F1 Inlet check valve from SF. This purification and chemistry control portion of CVCS does not perform a safety function as described in ISTC 1.1							

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	Positions NRM	SAF	FAL
SI-V297	2 (H-6)		4.0 Check	Self			
Hi Head SI to RCS cold legs check valve. Internals were removed from this valve during OR04 in accordance with MMOD 90-598.							
SI-V314	NNS (G-12)	C	0.75 Relief/Safety	Self	O	C	
This valve provides overpressure protection for penetration X-35 adjacent NNS piping and is in scope per ISTC 1.1 However, this valve is non-ASME and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20450, DCR 97-0008.							

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **SW**
PID No.: **D20794**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions		
					NRM	SAF	FAL
SW-V63	NNS (F-4)		38.0 Butterfly	Motor	O	O	
Service water pump discharge isolation to the discharge transition structure. This valve is normally locked open with power removed. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V64	NNS (G-4)		38.0 Butterfly	Motor	O	O	
Service water pump discharge isolation to the intake transition structure. This valve is normally locked closed with power removed. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V179	3* (B-8)	C	1.0 Check	Self	C	DE	
SW cooling tower pump (P-110A) vacuum breaker. This valve opens when the pump stops to allow air into the system to preclude water hammer when the pump restarts. The valve closes when the pump starts to preclude water discharge. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20794, DBD-SW-01, revision 1.							
SW-V180	3* (B-7)	C	1.0 Check	Self	C	DE	
SW cooling tower pump (P-110B) vacuum breaker. This valve opens when the pump stops to allow air into the system to preclude water hammer when the pump restarts. THe valve closes when the pump starts to preclude water discharge. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20794, DBD-SW-01, revision 1.							

SYSTEM: **SW**
PID No.: **D20795**

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

Valve Number	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions			Remarks
					NRM	SAF	FAL	
SW-V66	3 (C-12)	B	24.0 Butterfly	Manual	C	O		Service water strainer bypass valve. Based on system design and operating characteristics, it is unlikely that the plant will experience a large ingress of material which will cause rapid and simultaneous strainer blockage. Although this valve is included for possible operation in abnormal operating procedure OS1201.16 for a degraded ultimate heat sink, the event of this valve's operation for that purpose is beyond the design basis of the plant. Therfore this valve is considered not to have an active safety function per EWR 97-095. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03
SW-V69	3 (A-11)	B	24.0 Butterfly	Manual	C	O		Service water strainer bypass valve. Based on system design and operating characteristics, it is unlikely that the plant will experience a large ingress of material which will cause rapid and simultaneous strainer blockage. Although this valve is included for possible operation in abnormal operating procedure OS1201.16 for a degraded ultimate heat sink, the event of this valve's operation for that purpose is beyond the design basis of the plant. Therfore this valve is considered not to have an active safety function per EWR 97-095. References: P&ID D20795, DBD-SW-01, revision 1, OS1016.03
SW-V224	3* (F-9)	C	1.0 Check	Self	C	DE		Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. The alternate SFC heat exchanger is placed into service when both CC trains are out of service for maintenance. Under this condition, this is the only available SFC cooling path. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20795, DBD-SW-01, revision 1.
SW-V225	3* (D-9)	C	1.0 Check	Self	C	DE		Service water vacuum breaker check valve. This valve is normally closed, opens when the SW pump trips to preclude water hammer transients on subsequent pump start, and closes to prevent water discharge or air introduction when the system is operating under steady state conditions. The alternate SFC heat exchanger is placed into service when both CC trains are out of service for maintenance. Under this condition, this is the only available SFC cooling path. However, this valve is non-ASME (ANS Class 3) and therefore excluded from IST. Will be tested under other App. B program. References: P&ID D20795, DBD-SW-01, revision 1.

FIGURE F6
EXCLUSION JUSTIFICATION DOCUMENT TABLES

SYSTEM: **WG**
PID No.: **D20773**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
WG-V53	2 (G-12)		1.0 Check	Self			

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.

FIGURE F6
EXCLUSION JUSTIFICATION
DOCUMENT TABLES

SYSTEM: **WLD**
PID No.: **D20218**

Valve Number Remarks	Class and Coord	Valve (CAT)	Size (in.) and Type	Actuator Type	Positions NRM	Positions SAF	Positions FAL
WLD-V277	NNS (F-11)	C	0.75 Relief/Safety	Self	C	O	
This relief valve relieves overpressure in X-32 adjacent NNS piping caused by thermal 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 D20218, Engineering Evaluation SS-EV-960023, revision 0.							
WLD-V211	NNS (D-11)	C	0.75 Relief/Safety	Self	C	O	
This relief valve relieves overpressure in X-34 adjacent NNS piping caused by thermal 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 D20218, Engineering Evaluation SS-EV-960023, revision 0.							