



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-14-188

October 14, 2014

10 CFR 50.4

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2
Construction Permit No. CPPR-92
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant (WBN) Unit 2 - Submittal of Preoperational Test Instruction**

The following approved WBN Unit 2 Preoperational Test Instruction (PTI) is enclosed.

PTI NUMBER	Rev.	TITLE
2-PTI-032-02	0	Loss of Air Test

There are no new regulatory commitments associated with this submittal. If you have any questions, please contact Nick Welch at (423) 365-7820.

Respectfully,


J. W. Shea
Vice President, Nuclear Licensing

Enclosure

cc: See Page 2

U.S. Nuclear Regulatory Commission
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Enclosure

Watts Bar Nuclear Plant

Unit 2 Preoperational Test

ENCLOSURE

**WATTS BAR NUCLEAR PLANT
UNIT 2 PREOPERATIONAL TEST**

TITLE: LOST OF AIR TEST

5 Aug-14 2014

Instruction No: 2-PTI-032-02

Revision No: 0000

PREPARED BY: T. W. Padgett

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DATE: 01/24/2014

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DATE: 01/24/14

INSTRUCTION APPROVAL

JTG MEETING No: 2-14-029A

JTG CHAIRMAN: Steven R Smith / SR Smith

DATE: 9-11-14

APPROVED BY: Steven R Smith / SR Smith

PREOPERATIONAL STARTUP MANAGER

DATE: 9-11-14

TEST RESULTS APPROVAL

JTG MEETING No: _____

JTG CHAIRMAN: _____

DATE: _____

APPROVED BY: _____

PREOPERATIONAL STARTUP MANAGER

DATE: _____

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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	9-11-14	ALL	Initial Issue, Incorporated applicable Unit 1 Change Notice 3 & TDN 95-0891 of SPT-032-01 and Change Notice 4 & 5, Plus TDN-95-0597 of PTI-032-02.

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1.0 INTRODUCTION

1.1 Test Objectives

- A. Verify the Auxiliary Control Air System (ACAS) Safety Related components fail to their failsafe positions in response to a gradual (decreasing) loss of system air pressure as described by design documents (2-TSD-032-2) with the exceptions identified in FSAR 14.2.7 (Conformance of Test Programs with Regulatory Guidelines) that defines individual test requirements for sudden loss of system pressure.
- B. Verify that simultaneous operation of the six highest demand loads described in 2-TSD-032-02, Att. A, supplied from each ACAS train will NOT cause unacceptable system pressure transients as described in 10CFR50, App. A, GDC-5.
- C. Verify the Control Air System (CAS) Safety Related components fail to their failsafe positions in response to a gradual (decreasing) loss of system air pressure as described by design documents.
- D. Verify that 2-HS-32-112A will activate the purge solenoids Open for the non essential CAS reactor building ONLY when 2-FCV-32-111 is position to Closed, and that designated components go to their failsafe position within the prescribed time as described in applicable design documents.

1.2 Scope

- A. The scope of this test includes the following boundaries:
 - Selected Unit 2 air operated components served by ACAS Train A & B [23] & B [25] for systems 1, 3, 32, 65, 68, & 90.
 - Selected Unit 2 air operated components served by the CAS [135] for systems 1, 3, 30, 31, 32, 43, 61, 67, 68, 74, 77, & 8.
- B. The testing will encompass:
 - Coordinating components initial pre-test and post test positions as may be impacted by unit 1/unit isolation and/or ABSCE boundary considerations.
 - Use of M&TE pressure gages for acceptance criteria [2] & baseline data [4]
 - Use of M&TE to record time of component movement & pressure changes
 - Use of plant pressure gages [4] to obtain baseline data
 - Use of temporary test connections [2] for CAS gradual loss of air testing

1.2 Scope (continued)

- Initial pre-fail safe component lineups and restoration after failsafe testing
- venting various pressure regulators and/or air lines for gradual loss of air test
- simultaneous operation of six heavy air users to plot pressure losses
- verifying failsafe positioning of air operated components
- verifying purge initiating handswitches function per design
- timing of selected components after purge initiation.
- test director's observations of vibration during component manipulations
- coordinating with operations to restore systems to support plant operations

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2.0 REFERENCES

2.1 Performance References

- A. SMP-7.0, Control of Cleanliness, Lay-up and Flushing
- B. SMP-9.0, Conduct of Test
- C. 0-SOI-32.01, Control Air System
- D. 0-SOI-32.02, Auxiliary Air System
- E. SOI-31.01 ATT 1D, CB HVAC Damper Checklist
- F. SOI-30.07 ATT 1V, Shutdown Board Rooms HVAC EI 757 & 772
- G. SOI-30.06 ATT 1V, Auxiliary Building Gas Treatment System Valve Checklist
- H. NGDC-PI-8, Watts Bar Nuclear Plan Unit 2 System and Equipment Status Control
- I. TI-65, Breaching the Containment Annulus, ABSCE, or MCRHZ Pressure Boundaries
- J. TI-12.08, Control of Unit Interfaces
- K. TI-104, Instrument Air Quality Testing

2.2 Developmental References

- A. Unit 2 Final Safety Analysis Report - Amendment 112
 - 1. FSAR Sect. 9.3.1, Compressed Air System
 - 2. FSAR Table 14.2-1, Sheets 85 and 86 of 89, Compressed Air System Test Summary
 - 3. FSAR 14.2.7, Conformance of Testing Programs with Regulatory Guides, (7. a & b for R. G. 1.68.3, Preoperational Testing of Instrument and Control Air Systems).
- B. Drawings
 - 1. Flow Diagrams
 - a. 2-47W848-1, Rev. 12, Mechanical Flow Diagram Control Air
 - b. 2-47W848-2, Rev. 18, Mechanical Flow Diagram Control Air

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2.2 Developmental References (continued)

- c. 2-47W848-3, Rev. 14, Mechanical Flow Diagram Control Air
 - d. 2-47W848-4, Rev. 8, Mechanical Flow Diagram Control Air
 - e. 2-47W848-5, Rev. 8, Mechanical Flow Diagram Control Air
 - f. 2-47W848-6, Rev. 7, Mechanical Flow Diagram Control Air
 - g. 2-47W848-7, Rev. 6, Mechanical Flow Diagram Control Air
 - h. 2-47W848-9, Rev. 9, Mechanical Flow Diagram Control Air
 - i. 2-47W848-10, Rev 11, Mechanical Flow Diagram Control Air
 - j. 2-47W848-11, Rev. 8, Mechanical Flow Diagram Control Air
 - k. 1-47W846-1, Rev. 40, Flow Diagram Control and Service Air System
 - l. 1-47W846-2, Rev. 40, Flow Diagram Control and Service Air System
 - m. 1-47W846-3, Rev. 10, Flow Diagram Control and Service Air System
 - n. 2-47W801-1, Rev. 13, Flow Diagram Main and Reheat Steam
 - o. 2-47W803-1, Rev. 19, Flow Diagram Auxiliary Feedwater
 - p. 2-47W803-2, Rev. 17, Flow Diagram Auxiliary Feedwater
 - q. 2-47W813-1, Rev. 14, Flow Diagram Reactor Coolant System
2. Electrical
- a. 2-45W600-1-5, Rev. 2, Wiring Diagram Main Steam Schematic Diagram
 - b. 2-45W600-3-3, Rev. 2, Wiring Diagrams Main & Auxiliary Feedwater System Schematic Diagram
 - c. 2-45W600-3-4, Rev. 2, Wiring Diagrams Main & Auxiliary Feedwater System Schematic Diagram
 - d. 2-45W600-3-11, Rev. 2, Wiring Diagrams Main and Aux Feedwater Sys Schematic Diagram
 - e. 2-45W600-3-14, Rev. 0, Wiring Diagrams Main and Auxiliary Feedwater System Schematic Diagram

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2.2 Developmental References (continued)

- f. 2-45W600-30-1, Rev. 1, Wiring Diagrams Ventilating System Schematic Diagram
- g. 2-45W600-30-7, Rev. 2, Wiring Diagrams Ventilating System Schematic Diagram
- h. 2-45W600-30-8, Rev. 3, Wiring Diagrams Ventilating System Schematic Diagram
- i. 2-45W600-30-9, Rev. 2, Wiring Diagrams Ventilating System Schematic Diagram
- j. 2-45W600-30-11, Rev. 1, Wiring Diagrams Ventilating System Schematic Diagram
- k. 2-45W600-30-12, Rev. 1, Wiring Diagrams Ventilating System Schematic Diagram
- l. 2-45W600-31-1, Rev. 1, Wiring Diagrams Air Conditioning System Schematic Diagrams
- m. 2-45W600-32, Rev. 2, Wiring Diagrams Control Air System Schematic Diagrams [FCR-63170-A to match unit 1 lights]
- n. 2-45W600-43-1, Rev.3, Wiring Diagrams Sampling & Water Quality Sys Schematic Diagrams
- o. 2-45W600-61-1, Rev. 1, Wiring Diagram Ice Condenser System Schematic Diagrams
- p. 2-45W600-62-1, Rev. 6, Wiring Diagrams Chemical & Volume Control Sys Schematic Diagrams
- q. 2-45W600-62-2, Rev. 6, Wiring Diagrams Chemical & Volume Control Sys Schematic Diagrams
- r. 2-45W600-62-5, Rev. 9, Wiring Diagrams Chemical & Volume Control Sys Schematic Diagrams
- s. 2-45W600-65-1, Rev. 2, Wiring Diagrams Emergency Gas Treatment System Schematic Diagram
- t. 2-45W600-65-3, Rev. 2, Wiring Diagrams Emergency Gas Treatment System Schematic Diagram
- u. 2-45W600-67-1, Rev 5, Wiring Diagrams Essential Raw Cooling Water Sys Schematic Diagram Sh 1

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2.2 Developmental References (continued)

- v. 2-45W600-68-1, Rev. 5, Wiring Diagrams Reactor Coolant System Schematic Diagrams
- w. 2-45W600-70, Rev. 5, Wiring Diagrams Component Cooling System Schematic Diagrams
- x. 2-45W600-74 Rev. 3, Wiring Diagrams Residual Heat Removal System Schematic Diagrams
- y. 2-45W600-77-1, Rev. 1, Wiring Diagrams Waste Disposal System Schematic Diagrams
- z. 2-45W600-77-2, Rev. 1, Wiring Diagrams Waste Disposal System Schematic Diagrams
- aa. 2-45W600-77-6, Rev. 2, Wiring Diagrams Waste Disposal System Schematic Diagrams
- bb. 2-45W600-81.Rev. 2, Wiring Diagrams Primary Makeup Water System Schematic Diagrams
- cc. 2-45W600-90-1, Rev. 3, Wiring Diagrams Radiation Monitoring System Schematic Diagrams
- dd. 2-45W760-30-16, Rev. 2, Wiring Diagrams Ventilating System Schematic Diagrams
- ee. 2-45W760-30-17, Rev. 2, Wiring Diagrams Ventilating System Schematic Diagrams
- ff. 2-45W760-30-18, Rev. 4, Wiring Diagrams Ventilating System Schematic Diagrams
- gg. 2-45W760-30-19, Rev. 4, Wiring Diagrams Ventilating System Schematic Diagrams
- hh. 2-45W760-30-20, Rev. 2, Wiring Diagrams Ventilating System Schematic Diagrams
- ii. 2-45W760-77-3, Rev. 1, Wiring Diagram Waste Disposal System Schematic Diagrams
- jj. 1-45W760-30-21, Rev. 10, Wiring Diagrams Ventilating System Schematic Diagrams
- kk. 1-45W760-31-9, Rev. 6, Wiring Diagrams Air Conditioning System Schematic Diagrams

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2.2 Developmental References (continued)

- ll. 1-45W760-31-10, Rev. 15, Wiring Diagrams Air Conditioning System Schematic Diagrams
- mm. 1-45W760-31-11, Rev. 18, Wiring Diagrams Air Conditioning System Schematic Diagrams
- nn. 1-45W760-31-13, Rev. 13, Wiring Diagrams Air Conditioning System Schematic Diagrams
- oo. 1-45W760-32-3, Rev. 17, Control Air System Schematic Diagrams
- pp. 2-45W760-62-6, Rev. 6, Wiring Diagrams Chemical & Volume Control Sys Schematic Diagrams
- qq. 1-45W760-65-1, Rev. 13, Wiring Diagrams Emergency Gas Treatment System Schematic Diagram
- rr. 45N1630-28, [AC] Rev. L, Wiring Diagrams Miscellaneous Valves Connection Diagrams
- ss. 45N1630-83, [AC] Rev. L, Wiring Diagrams Miscellaneous Valves Connection Diagrams
- tt. 45N2642-5, [AC] Rev. L, Wiring Diagram Unit Control Panel 2-M-3 Connection Diagrams Sheet 5

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2.2 Developmental References (continued)

3. Mechanical

None

4. Logic/Control

- a. 2-47W610-1-1, Rev. 11, Electrical Control Diagram Main Steam System
- b. 2-47W610-1-1A, Rev. 12, Electrical Control Diagram Main Steam System
- c. 2-47W610-1-2, Rev. 13, Electrical Control Diagram Main Steam System
- d. 2-47W610-1-2A, Rev. 11, Electrical Control Diagram Main Steam System
- e. 2-47W610-3-3, Rev. 5, Electrical Control Diagram Main & Aux Feedwater System
- f. 2-47W610-3-5, Rev. 5, Electrical Control Diagram Main & Aux Feedwater System
- g. 2-47W610-3-5A, Rev. 5, Electrical Control Diagram Main & Aux Feedwater System
- h. 2-47W610-3-7, Rev. 6, Electrical Control Diagram Aux Feedwater System
- i. 2-47W610-30-1, Rev. 4, Electrical Control Diagram Ventilation System
- j. 2-47W610-30-1A, Rev. 0, Electrical Control Diagram Ventilation System
- k. 2-47W610-30-2, Rev. 4, Electrical Control Diagram Ventilation System
- l. 2-47W610-31-5, Rev. 7, Electrical Control Diagram Air Conditioning System
- m. 2-47W610-32-2, Rev. 4, Electrical Control Diagram Control Air System
- n. 2-47W610-43-4, Rev. 2, Electrical Control Diagram Sampling & Water Quality System
- o. 2-47W610-43-5, Rev. 4, Electrical Control Diagram Sampling & Water Quality System

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2.2 Developmental References (continued)

- p. 2-47W610-61-1, Rev. 4, Electrical Control Diagram Ice Condenser System
 - q. 2-47W610-61-3, Rev. 2, Electrical Control Diagram Ice Condenser System
 - r. 2-47W610-62-1, Rev. 8, Electrical Control Diagram Chemical & Volume Control System
 - s. 2-47W610-62-2, Rev. 13, Electrical Control Diagram Chemical & Volume Control System
 - t. 2-47W610-62-3, Rev. 10, Electrical Control Diagram Chemical & Volume Control System
 - u. 2-47W610-65-1, Rev. 5, Electrical Control Diagram Emerg Gas Treatment System
 - v. 2-47W610-65-1A, Rev. 1, Electrical Control Diagram Emerg Gas Treatment System
 - w. 2-47W610-67-2, Rev. 10, Electrical Control Diagram ERCW System
 - x. 2-47W610-67-5, Rev. 7, Electrical Control Diagram ERCW System
 - y. 2-47W610-68-6, Rev. 4, Electrical Control Diagram Reactor Coolant System
 - z. 2-47W610-74-1, Rev. 12, Electrical Control Diagram Residual Heat Removal System
 - aa. 2-47W610-77-4, Rev. 6, Mechanical Control Diagram Waste Disposal System
 - bb. 2-47W610-81-1, Rev. 6, Electrical Control Diagram Primary Make-Up Water System
 - cc. 2-47W610-90-3, Rev. 4, Electrical Control Diagram Radiation Monitoring System
 - dd. 2-47W611-3-2, Rev. 8, Electrical Logic Diagrams Feedwater System
 - ee. 2-47W611-3-3, Rev. 4, Electrical Logic Diagrams Feedwater System
5. Vendor Drawings
- None

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2.2 Developmental References (continued)

6. Documents

- a. Regulatory Guide 1.68.3, April 1982, Preoperational Testing of Instrument and Control Air Systems
- b. N3-32-4002, Rev. 9, Watts Bar Nuclear Plant System Description for Compressed Air System
- c. WBN2-32-4002, Rev. 4, System Description for Compressed Air System
- d. EPM-MF-072589, Rev. 4, Determination of Fail Safe Position of Safety-Related Components Utilizing Air as a Motive Force and Air Quality
- e. 2-TSD-032-2, Rev. 4, Compressed Air System/Auxiliary Control Air Subsystem: Loss of Air Test
- f. PER 424366, ACAS Review
- g. EDCR 57938, Rev A, RB Handswitches for Control Air Header Purge and Thermal Booster Pumps [for App. R lessen manual operator action Unit 2]
- h. PTI-032-02, Rev. 1, Loss of Air Test, WBN-Unit 1 [RIM's Reel E04090/0491/0833]
- i. SPT-32-01, Rev. 0, Air Capacity Test, Train B, WBN-Unit 1 [RIM's Reel E04654/1145/0123]

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3.0 PRECAUTIONS AND LIMITATIONS

- A. Standard precautions shall be followed for working around energized electrical equipment in accordance with TVA Safety Manual Procedure 1021.
- B. Steps may be repeated if all components CANNOT be tested in a step. However, if the test has been exited, prerequisite steps must be re-verified and a Chronological Test Log (CTL) entry made.
- C. Discrepancies between component ID tags and the description in a procedure/instruction do NOT require a Test Deficiency Notice (TDN) in accordance with SMP-14.0, if the UNIDs (Including Unit Specific Designators) match, exclusive of place-keeping zero's and train designators (e.g. 2-HS-31-468 vs. 2-HS-031-0468) and/or the noun descriptions are sufficient to identify the component. If the component label needs to be changed, a Tag Request Form (TR Card) should be processed in accordance with TI-12.14. Make an entry in the CTL and continue testing.
- D. All wires removed/lifted from a terminal shall be identified and taped or covered with an insulator to prevent personnel or equipment hazard and possible spurious initiations. The wires should be grouped together and labeled with the work implementing document number that required them to be lifted if left unattended. Appendix B may be used if documentation is needed.
- E. All open problems are to be tracked by a corrective action document and entered on the appropriate system punch list. SMP-9.0, Conduct of Test, provides means to address needed procedure test change notices (CNs) and test deficiency notices (TDNs).
- F. Problems identified during the test shall be annotated on the CTL from SMP-9.0 including a description of the problem, the procedure step when/where the problem was identified, corrective action steps taken to resolve the problem, and the number of the corrective action document, if one was required.
- G. Observe all Radiation Protection (RP) requirements when working in or near contaminated areas.
- H. Ensure there are NO adverse effects to the operation of Unit 1 related structures, systems, or components.
- I. Test personnel will coordinate with Operations when manipulating Unit 1 related equipment required by this test procedure.

3.0 PRECAUTIONS AND LIMITATIONS (continued)

- J. Operations will maintain operating control of the CAS and ACAS and the applicable existing lineup using SOI-32.01 and 0-SOI-32.02. Preoperational Startup Engineering, (PSE), will coordinate with Operations for lineups of systems under their jurisdiction. Lineups needed for test control and performance are within this test procedure and are temporary in nature and will be restored in this procedure. Adjustments to lineups for test control may be tracked using Appendix B, Temporary Condition Log.
- K. For test control purposes, during gradual and purge testing, valve position and/or timing verification can be accomplished by either local observation or valve position indicators at the associated locations listed within the applicable tables (See the below test table matrix).

System 32 FCV position indicator lights are required to be verified as part of Tables 2 through 16 (multiple locations: green light-close/red light-open).

Incorrect indications for system initial, repositioning or as-left [restored] positioning will only require the generation of corrective documentation. If a listed component does NOT move to its failsafe position a TDN will be required for this procedure.

2-PTI-032-02 TEST TABLE MATRIX						
Sub section	Description [Related Handswitch]	Initial Position Table	Pre-position Table	Failsafe Position Table	Gradual Loss Table	As-Left Table
6.1	ACAS Train A Gradual [2-HS-32-81A]	2	5	7	12	12
6.2	ACAS Train B Gradual [2-HS-32-103A]	3	6	8	13	13
6.3	CAS Gradual [2-HS-32-111A]	4	9	10	11	11
6.3	CAS Purge [2-HS-32-111A/112A]	14	15	16	N/A	N/A

- L. The test method utilized for branch line testing incorporates the intent of Reg. Guide 1.68.3 (C. 8) to demonstrate a gradual loss of Unit 1 operations. Only the Unit 2 components identified in Test Scoping Document 2-TSD-032-2 are to be tested.
- M. For test control purposes, work orders are to be utilized for support personnel to simulate the gradual loss of air on the different branch lines. Except for System 30 Purge Air, the applicable branch lines will be gradually vented either at the respective pressure regulator vent valve, if vent is available, and/or by disconnecting the air supply line tube fitting(s) of the listed regulator to the extent necessary to facilitate venting.

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3.0 PRECAUTIONS AND LIMITATIONS (continued)

- N. For test control purposes, the System 30 purge supply fan and exhaust fan valves related test branches will use two temporary installed test connections between the existing related flow solenoid valve and its cylinder, including a bleed off valve to be gradually opened to provide a vent path. This will be accomplished using two work orders to temporarily remove the associated branch line's heavy duty red rubber hose clamped between the associated solenoid outlet and the actuator cylinder connection at 2-FCV-30-2 and 2-FCV-30-216. A non-intent Test Change Notice, TCN, will be required should another associated valve be selected at the time of testing due to a different IN plant physical access and/or configurations. Copies of the applicable work orders will be attached to the test package as listed in Section 7.0.
- O. For test control purposes, a satisfactory leak check sign off with concurrent verification will be performed as part of each test branch restoration within this test procedure's applicable tables. The associated test support work orders will have steps to ensure the restoration is also complete with any needed plant standards as applicable (e.g., torque/test gauge spacing, QA witness). Copies of the applicable work orders will be attached to the test package as listed in Section 7.0.
- P. For test control purposes, some branch line testing will temporarily isolate an associated instrument panel by closure of the System 32 air supply, to preclude the bleed off of the associated pressure or flow modulators that could be affected by gradual venting of the test branch. These isolations will help to ensure the associated control loops do not have to be re-pressurized and/or recalibrated. The panels and isolation valves are listed and addressed within the applicable subsection tables.
- Q. For test control purposes Unit 2 System 65, EGTS, Train A and Train B components will be individually tested, versus the entire branch components. This is due to the shared common header that has both the Unit 1 and common valves, whose availability allows Unit 1 to remain operational without an LCO being initiated to perform this test. If the EGTS is needed when testing of Train A or Train B is in progress, then testing should stop to allow position of the associated valves to maintain unit separation. It is expected that the most practical time to test the large diameter unit 2 system 65 valves now designated as ABSCE is when this ABSCE designation is no longer applies when Unit 2 containment is part of the present unit 1 pressure boundary or as allowed by TI-65 ABSCE breach approval process.

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3.0 PRECAUTIONS AND LIMITATIONS (continued)

- R. For test control purposes, normally OPEN, 2-ISV-26-3806 and 2-ISV-32- 3807 (per Table 4, CAS Initial Valve Lineup) will be CLOSED for the performance of Table 11, (CAS Gradual Loss of Air Test Branch Lineups). This will temporarily isolate the continuing supervisory control air supply to Fire Protection Deluge Valves 2-FCV-26-219 and 2-FCV-26-223, sprinkler piping via normally OPEN 2-ISV-26-620 and 2-ISV-26-621. This condition will also prevent bleed off during the associated branch line testing which will effectively trap control air within the sprinkler piping maintaining a dry condition. If the deluge valves are in service for fire protection AND if supervisory air is also evaluated to be required, then a fire impairment permit will be required to be generated BEFORE the associated branch line testing in Table 11.

- S. For test control purposes, instrument inaccuracy will be accounted for in this test, when plotting pressure data on the engineering provided curve. M&TE with accuracy of ± 0.5 psig will be used to obtain the measured pressure data. When plotting pressure data, an entry of 0.5 psig less will be used for each point for conservative test purposes. The test is written to submit the plotted curved data to engineering for evaluation regardless of results. If the recorded data falls below the data curve, then a TDN will be generated for an apparent failure to meet acceptance criteria. It should be noted, that during similar Unit 1 testing, via SPT-32-01, plotted results did not meet acceptance criteria with only five valves tested instead of six per this test.

- T. For test control purposes, when the recording of time is specified, the Main Control Room clock should be used for consistency with personal time pieces individually synchronized.

- U. For test control purposes, the simulated gradual loss of air venting of the ACAS served components will continue until a total loss of air occurs on the tested branch line as indicated by no further venting. The simulated gradual loss of air venting of the CAS system served components may be terminated, when the failsafe position has been achieved. The testing time span for venting will be determined by the Test Director for the CAS related positioner. It is expected that the Test Director will attempt venting over the longest time period that is practical with a minimum time span target of approximately 15-30 minutes when practical for test performance consistency using the test methods previously discussed. Time and pressure data will **NOT** be required to be recorded. Each branch line test venting may be repeated at the Test Director's discretion by repeating all of the applicable steps including all applicable prerequisites. Any failure of a test component to go to its failsafe position after full branch line venting will require a TDN. Any other deviation from this test control method will require a TCN.

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3.0 PRECAUTIONS AND LIMITATIONS (continued)

- V. During the performance of this procedure, observation (sight, sound, touch) of piping and components vibration is required by test participants. This includes steady state and transient operation, with confirmation that vibration is NOT excessive by test engineering judgment. Instrumentation readings of vibration may be obtained. If the vibration is determined to be excessive, the Test Director shall initiate a TDN.
- W. There are some current ABSCE boundary and Unit1 /Unit 2 interface point components that are addressed in this procedure that may need to be breached temporarily to establish the Unit 2 supplied controlled air flow paths for the branch testing for gradual loss of air testing. Approval for any changes to ABSCE boundary or Unit1/Unit 2 interface points will be by TI-65 or TI-12.08 process. Evaluation will occur at step 4.1[21] to assure the system have been placed in service. Tables 2, 3, and 4 provide current related identification of the related components.
- X. Annunciation at 1-XA-55-6D-136 [A] (AUX AIR COMP A ABNORMAL) or 1-XA-55-6D-137 [B] (AUX AIR TR B PRESS LO) will occur when System 32 pressures lowers to 68 psig. If the test has NOT already been stopped, then STOP TESTING before restoring system to operational status per SOI-32.01 and 0-SOI-32.02 as required. Other test limits and contingencies are listed below.
- Y. System pressure at the ACAS receivers may be monitored at their pressure indicators or M&TE, (0-PI-32-66 or 0-PI-32-89), with the CAS in service or with either ACAS Train in service. Other possible pressure monitoring locations are identified on Data Sheet 1 and 2 that also will be used during heavy user data collection in subsection 6.1 and 6.2, as discussed below.
- Z. Six M&TE pressure indicators will be installed with an accuracy of ± 0.5 psig. Installation is addressed in Section 4.0 and will require coordination with unit 1 and unit 2 operations. M&TE will be used at selected locations. Two of the indicators will be used for acceptance criteria, replacing PI's that only have a plus or minus 2 psig accuracy, and the other four, as well as two control room plant instruments, will be used to provide baseline data to be recorded on Data Sheets 1 & 2. This data may be used if needed to supplement acceptance criteria pressure indications.
- AA. Test support personnel will be stationed at M&TE to monitor test control pressures and/or at plant instrumentation. Test support personnel will be also stationed at the appropriate branch line isolation valves to reposition the respective test branch from Unit 1 as soon as data is taken or in the event that test control pressure limits are exceeded and to monitor the component positioning locally.

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3.0 PRECAUTIONS AND LIMITATIONS (continued)

- BB. For test control purposes, a pressure low limit of 80 psig will be used for all branch line gradual loss of air testing in Subsections 6.1, 6.2, and 6.3. Plant instrument accuracy at approximately ± 2 psig has an effective indication range from approximately 82 to 78 psig. M&TE accuracy of ± 0.5 psig has an effective indication range of 80.5 to 79.5 psig.

- CC. For test control purposes, a low pressure limit of 72 psig will apply for testing in Subsections 6.1 and 6.2, during the planned 90 second heavy user data collection period. Only the first 60 second data will be used for acceptance criteria, while the remaining data is for baseline purposes. The low pressure limit of 72 psig ensures that there is NO containment isolation which occurs at a set point of 70 psig. This test limit can be observed at any of the installed M&TE pressure indicators. Note that previous similar testing (5 different heavy users ACAS Train B only) has indicated that pressures were reduced to 83 psig, in approximately 30 seconds and continued to lower to 79 psig (with supplemental recorded data at 77 psig, but at no specific time). This data was recorded using plant instruments with the ± 2 psig accuracy, that were found during post test calibrations to be accurate to approximately 1 psig.

- DD. For test control purposes, there is NO need for any set points for System 32 compressor operations to be changed. The CAS system is isolated at 79.5 psig, allowing the ACAS system to start. Normal ACAS loading begins at 83 psig decreasing and will unload at 100 psig increasing. This will allow for normal system pressure loss recovery.

- EE. For test control purposes, AND to support Unit 1 System 65 (EGTS) operations the air supply valves, Train A, 0-ISV-32-685 and Train B 0-ISV-32-413 will remain OPEN. The initial positions are verified in Tables 2 and Table 3. If the EGTS system is needed to support Operations then Table 2 or Table 3 for Unit 2 system 65 valves will need to be restored to allow positioning to provide unit separation.

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Date _____

4.0 PREREQUISITE ACTIONS

NOTE

Like Subsections may be performed in parallel in full or in part prior to step sign off to facilitate test preparations including addressing any ABSCE boundary or U1/U2 interface related component. This activity should be documented in the CTL as to when any subsection is started for what related components to provide test performance clarity with appropriate date inclusion when the step is signed off if different than the heading date.

4.1 Preliminary Actions

- [1] **EVALUATE** open items in Watts Bar Integrated Task Equipment List (WITEL), and

ENSURE they will NOT adversely affect the test performance and results.
 - A. Subsection 6.1, ACAS Unit 2 Train A _____
 - B. Subsection 6.2, ACAS Unit 2 Train B _____
 - C. Subsection 6.3, CAS Unit 2 Non Essential _____

- [2] **ENSURE** changes to the references listed on Appendix A, have been reviewed, and determined NOT to adversely affect the test performance. _____

- [3] **VERIFY** current revisions and change paper for referenced drawings has been reviewed and determined NOT to adversely affect the test performance, and

ATTACH documentation of current drawing revision numbers and change paper that were reviewed to the data package. _____

- [4] **VERIFY** that the test/performance copy of this Preoperational Test Instruction (PTI) is the current revision including any change notices and, as needed, that each test person assisting in this test has the current revision including any change notices. _____

- [5] **ENSURE** special environmental conditions are available for testing if required. _____

Date _____

4.1 Preliminary Actions (continued)

- [6] **ENSURE** outstanding Design Change Notices (DCNs), Engineering Document Construction Releases (EDCRs) or Temporary Modifications (T-Mods) do NOT adversely impact testing, and

ATTACH documentation of DCNs, EDCRs, and T-Mods that were reviewed to the data package. _____
- [7] **ENSURE** by review of the component test matrix PRIOR to start of test that Component Testing (GTI-02 AOV functional or equivalent) has been completed satisfactorily for failsafe testing acceptance criteria for the components listed in the below tables as follows:

 - A. Subsection 6.1, ACAS Train A, Table 7 _____
 - B. Subsection 6.2, ACAS Train B, Table 8 _____
 - C. Subsection 6.3, CAS Table 10 & 16 _____
- [8] **OBTAIN** copies of the applicable forms from the latest revision of SMP-9.0 and

ATTACH to this PTI for use during the performance of this PTI. _____
- [9] **VERIFY** System 32, Control Air System, is under jurisdictional control of the Startup Test Group (SUT) and/or Plant Operations. _____
- [10] **ENSURE** Component Test Matrix Generic Tracking Report has been evaluated and outstanding component test exceptions will NOT impact test start.

 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____
 - C. Subsection 6.3 _____
- [11] **ENSURE** a review of outstanding Clearances has been coordinated with Operations for impact on the test performance, and

RECORD in Appendix B, Temporary Condition Log if required. _____

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Date _____

4.1 Preliminary Actions (continued)

- [12] **VERIFY** plant instruments required for test performance, listed on Appendix C, Permanent Plant Instrumentation Log, have been verified to be filled, vented, placed in service (as required), and are within their calibration interval.
 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____

- [13] **VERIFY** Measuring and Test Equipment (M&TE) required for test performance has been recorded on Measuring and Test Equipment (M&TE) Log, Table 1.
 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____
 - C. Subsection 6.3 _____

- [14] **VERIFY** M&TE calibration due dates will support the completion of this test performance.
 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____
 - C. Subsection 6.3 _____

- [15] **VERIFY** System cleanness, as required for the performance of this test, has been completed in accordance with SMP-7.0 for the piping systems PRIOR to starting Subsections.
 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____
 - C. Subsection 6.3 _____

- [16] **PERFORM** a pretest walk down on equipment to be tested to ensure NO conditions exist that will impact test performance.
 - A. Subsection 6.1 _____
 - B. Subsection 6.2 _____
 - C. Subsection 6.3 _____

Date _____

4.1 Preliminary Actions (continued)

[17] **ENSURE** the necessary Test Support Personnel are available.

- A. Subsection 6.1 _____
- B. Subsection 6.2 _____
- C. Subsection 6.3 _____

[18] **CONDUCT** a pretest briefing with Test and Operations personnel in accordance with SMP-9.0.

- A. Subsection 6.1 _____
- B. Subsection 6.2 _____
- C. Subsection 6.3 _____

[19] **ESTABLISH** communications in areas where testing is to be conducted.

- A. Subsection 6.1 _____
- B. Subsection 6.2 _____
- C. Subsection 6.3 _____

[20] **ENSURE** 120vac Vital Power is available (breakers closed and fuses installed) for Unit 2 isolation valves and dump (purge) solenoid valves including fuses [installed] as follows:
[Dwg: 2-45W600-32]

- A. Subsection 6.1, 2-FCV-32-81, BD 2-III, BKR 41 _____
- B. Subsection 6.2, 2-FCV-32-103, BD 2-IV BKR 36 _____
- C. Subsection 6.3, 2-FCV-32-111, BD 2-IV, BKR 36 _____

NOTE

Purge Dump solenoid electrical power isolation, BD 2-IV, BRK 12, will be opened and closed in Subsection 6.3 steps [19] and [22] respectively, for test control purposes.

- D. Subsection 6.3, Solenoid Valves, BD 2-IV BKR, 12 _____
- E. Subsection 6.3, Two Fuses, 2-FU-235-4/F12 _____

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Date _____

4.1 Preliminary Actions (continued)

NOTES	
1)	Each subsection has a corresponding branch related valve(s) to be tested for failsafe positioning on a gradual loss of air. Each test branch line to be gradually vented is individually isolated from the rest of the system. Drawing series 2-47W848 can be reviewed to determine which components could be impacted by testing. Test Branch Testing Tables 11, 12, & 13 list the applicable drawing sheet / coordinates. Initial lineup Tables 2, 3, & 4 also list the associated vents, drains and spares to be verified as CLOSED.
2)	Each subsection branch line's initial lineup and charging may supply some adjacent components (NOT to be tested). The test method employed does NOT require these related components. System 32 proper operation requires that these related components are NOT excessively leaking by disconnection, have faulty performance or have broken lines. These unneeded Unit 2 system components will remain under the control of the Startup Test Engineer and/or Operations and may be placed in service or isolated as required to support plant operations.
3)	Part of the requirement of Step 4.1[21] is to ensure that there is NO impact to this test or NO impact to an unneeded component by the performance of this test. Appendix B, Temporary Condition Log may be used to isolate/restore any needed air supply, and the Chronological Test Log, (CTL), to record pertinent clarifications. This may apply to some branch lines having valves or panels that are NOT to be tested. This action will ensure that system configuration is controlled as applicable using this test procedure.
4)	Some components listed in initial line up Tables 2, 3 and 4 are now ABSEC boundary or Unit 1 / Unit 2 interface points and may require approval per the processes of TI-65 or TI-12.08 in order for their positions to be changed temporarily for testing purposes. These boundary or interface points may have changed at the time of the test with components added or deleted. This will require a reviewed of the applicable documents such as drawings, boundary tags, interface tags, clearance tags or by walkdown.

[21] **ENSURE** the following systems have been place in service to the extent necessary to perform each listed Subsection, and

ENSURE that any system component that may receive an air supply on a branch line to be tested is isolated and/or will NOT be impacted by having the air supply available.

System Number	System Description	Subsection 6.1	Subsection 6.2	Subsection 6.3
		By/Date	By/Date	By/Date
1	Main Steam			

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Date _____

4.1 Preliminary Actions (continued)

System Number	System Description	Subsection 6.1	Subsection 6.2	Subsection 6.3
		By/Date	By/Date	By/Date
3	Main / Aux Feedwater			
30	Ventilation	N/A	N/A	
31	HVAC	N/A	N/A	
32	Control Air			
43	Sample & Water Quality	N/A	N/A	
61	Ice Condenser	N/A	N/A	
62	CVCS	N/A	N/A	
65	EGTS			N/A
67	ERCW	N/A	N/A	
68	RCS			
70	CCS	N/A	N/A	N/A
74	RHR	N/A	N/A	
77	Waste Disposal	N/A	N/A	
81	PMW	N/A	N/A	
90	Rad. Monitoring			N/A

NOTE

The handswitches on 2-M-15 Unit 2 Containment System 32 isolation valves 2-FCV-32-81, 103, & 111 will have to be placed to the Open position as part of each section's initial line up for Tables 2, 3, & 4. These handswitches are listed in Tables 5, 6, & 9.

[22] **ENSURE** that the CAS system is used to charge the Unit 2 respective headers PRIOR to testing using applicable portions of SOI-32.01 along with the listed system 32 line up tables.

A. Subsection 6.1, Table 2, [Table 5, 2-HS-32-81A] _____

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4.1 Preliminary Actions (continued)

- B. Subsection 6.2, Table 3, [Table 6, 2-HS-32-103A] _____
- C. Subsection 6.3, Table 4, [Table 9, 2-HS-32-111A] _____

[23] **PERFORM** a plant impact evaluation just prior to performance of the following subsections coordinating with Operations:

- A. Subsection 6.1 _____
- B. Subsection 6.2 _____
- C. Subsection 6.3 _____

[24] **ENSURE** Air Quality is acceptable for test performance and

RECORD the latest air quality check per Technical Instruction TI-104, Instrument Air Quality Testing, or equivalent:

[25] **REVIEW** preventive maintenance for system/components covered by this test, and

VERIFY NO conditions exist that will impact test performance.

[26] **ENSURE** that test support work orders are available for test performance (e.g. PTI general support, M&TE usage/installation, component positioning/venting, access, safety equipment, leak detection, tubing gages, FME, etc.)

RECORD Work Order numbers:

- A. Subsection 6.1
 WO #: _____
- B. Subsection 6.2
 WO #: _____
- C. Subsection 6.3
 WO #: _____
- D. OTHER (N/A if NO other is used)
 WO # _____

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Date _____

4.1 Preliminary Actions (continued)

[27] **ENSURE** for Subsection 6.3 PRIOR to Step 6.3[26] that components listed in Table 16 and at Unit 2 Accumulator Room 4 (purge solenoid valves) there are appropriate physical blocking techniques in place to protect personnel from the impact of venting the purge solenoid valves including air pressure, noise, dust, and moving components.

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Date _____

4.2 Special Tools, Measuring and Test Equipment, Parts, and Supplies

NOTES

- 1) For Subsections 6.1 and 6.2 one stopwatch will be required for each ACAS Train's related acceptance criteria timing, to plot pressure data. Additional stopwatches are desired at remote locations if sequential timing announcement is NOT practical.
- 2) For test purposes Section 6.3, twenty one (21) stopwatches are required for purge venting timing. The acceptance criteria for the timing of nine valves is less than or equal to sixty second, and for the remaining twelve valves, the acceptance criteria is less than or equal to 120 minutes (it is expected that these valves and dampers will open in significantly less time). Procedure steps will allow using additional stopwatches or to reset a stopwatch to record total elapse time GREATER than 60 minutes for any component. An announcement of the start of the purging venting will be made.
- 3) The digital stopwatches CANNOT be calibrated. A post test accuracy check may be performed.
- 4) M&TE usage is also required to be recorded in Table 1 for Subsections 6.1, 6.2 and 6.3. Stopwatch usage will also be recorded on Table 16 for Subsection 6.3.
- 5) Plant Instrumentation listed in Appendix C will be used for baseline qualification data and they do NOT require any post test calibration verification of accuracy.

[1] **OBTAIN** six M&TE Pressure Indicators of a desired range of 0-150 psig (0-200 psig max) and equivalent accuracy of plus or minus 0.5 psig Full Scale. [for subsection 6.1 and 6.2] _____

[2] **OBTAIN** enough M&TE Stopwatches to perform each Subsection 6.1, 6.2, and 6.3 effectively and each stopwatch with a range from 0 to 60 minutes (0-59 minutes and 59 seconds) and equivalent accuracy of plus or minus 0.1 second or less.

A. Subsection 6.1. ACAS Train A pressure timing _____

B. Subsection 6.2. ACAS Train B pressure timing _____

C. Subsection 6.3. Purge Vent failsafe timing _____

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Date _____

4.2 Special Tools, Measuring and Test Equipment, Parts, and Supplies (continued)

NOTE

Coordination will be required with both unit 1 and unit 2 Operations to connect M&TE pressure gages for the performance of subsections 6.1 and 6.2. Table 1 will be used to record related M&TE Data.

[3] **INSTALL** M&TE pressure gauge for Subsection 6.1 acceptance criteria data, in place of existing ACAS Train A, Air Receiver 0-RCVR-32-62, Pressure Indicator 0-PI-32-66 [757/A9U], by:

[4] **RECORD** pressure at 0-PI-32-66: _____ psig, **THEN**
CLOSE isolation valve 0-RTV-32-263, **THEN**
REMOVE 0-PI-32-66 storing at receiver using FME, **THEN**
CONNECT M&TE pressure gage, **THEN**
OPEN 0-RTV-32-26 to place M&TE in service, **THEN**
RECORD pressure at M&TE: _____ psig _____

[5] **INSTALL** M&TE pressure gauge for Subsection 6.2 acceptance criteria data, in place of existing ACAS Train B, Air Receiver 0-RCVR-32-88, Pressure Indicator 0-PI-32-89 [757/A9U], by:

RECORD pressure at 0-PI-32-89: _____ psig

CLOSE isolation valve 0-RTV-32-309A, **THEN**

REMOVE 0-PI-32-89 storing at receiver using FME, **THEN**

CONNECT M&TE pressure gage, **THEN**

OPEN 0-RTV-32-309A to place M&TE in service, **THEN**

RECORD pressure at M&TE: _____ psig _____

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Date _____

4.2 Special Tools, Measuring and Test Equipment, Parts, and Supplies (continued)

[6] **INSTALL** M&TE pressure gauge for baseline related data, downstream of Unit 1 Train A containment isolation valve 1-FCV-32-80 at the downstream check pressure root valve 1-RTV-32-302 [723/298] by closing for installation, **THEN**

OPEN 1-RTV-32-302 to place M&TE in service . _____

[7] **INSTALL** M&TE pressure gauge for baseline related data, downstream of Unit 2 Train A containment isolation valve 2-FCV-32-81 at the downstream check pressure root valve 2-RTV-32-332 [716/291] by closing for installation, **THEN**

OPEN 2-RTV-32-332 M&TE to place in-service. _____

[8] **INSTALL** M&TE pressure gauge for baseline related data, downstream of Unit 1 Train B containment isolation valve 1-FCV-32-102 at the downstream check pressure root valve 1-RTV-32-312 [716/285] by closing for installation, **THEN**

OPEN 1-RTV-32-312 to place M&TE in service. _____

[9] **INSTALL** M&TE pressure gauge for baseline related data, downstream of Unit 2 Train B containment isolation valve 2-FCV-32-103 at the downstream check pressure root valve 2-RTV-32-322 [716/291] by closing for installation, **THEN**

OPEN 2-RTV-32-322 to place M&TE in-service. _____

[10] **OBTAIN** a site approved air leakage detector such as “snoop” and/or “MSA smoke tubes” to test for air leakage after restoration of pressure regulator vent or air tubing reconnection and tightening. _____

[11] **INSTALL** two test connections (one for each test branch) with vent valve, for gradual loss of air testing in Subsection 6.3, Table 11 System 30 test branch line venting and

RECORD the Work Order number:

- A. Between 2-FSV-30-2 outlet port and 2-FCV-30-2 [Approx. EI 750] cylinder [737/A13V]

WO #: _____

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4.2 Special Tools, Measuring and Test Equipment, Parts, and Supplies (continued)

- B. Between 2-FSV-30-216 outlet port and 2-FCV-30-216 [approx. EI 720] cylinder [713/A16V]

WO #: _____

[12] **ENSURE** the Control Air System is aligned and in operation per SOI-32.01 with both Train A & B Auxiliary Control Air System in standby as required per 0-SOI-32.02.

[13] **ENSURE** each Unit 2 respective test headers and components are pressurized (charged) using the following:

- A. Subsection 6.1, Table 2, used to pressurize ACAS Train A Unit 2 branches for initial alignment.
- B. Subsection 6.2, Table 3, used to pressurize ACAS Train B Unit 2 branches for initial alignment.
- C. Subsection 6.3, Table 4, used to pressurize CAS Unit 2 related branches for initial alignment.

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4.3 Approvals and Notifications

[1] **OBTAIN** permission of the Preoperational Startup Manager to start the test.

Preoperational Startup Manager Signature	Date
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[2] **OBTAIN** the Unit 2 Supervisor's (US/SRO) authorization.

US/SRO (circle) Signature	Date
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[3] **OBTAIN** the Unit 1 Supervisor's (US/SRO) or Shift Manager's (SM) authorization.

US/SRO/SM (circle) Signature	Date
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Date _____

5.0 ACCEPTANCE CRITERIA

- [1] The Auxiliary Control Air System Safety Related Valves listed in Table 7 and Table 8 fail to their failsafe positions on a gradual decreasing air pressure.
 - A. ACAS Train A (Step 6.1[17], Table 7)
 - B. ACAS Train B (Step 6.2[17], Table 8)

- [2] The simultaneous stroking of six engineering selected valves for each train of the Auxiliary Control Air System, when plotted on an engineering supplied time / pressure curve, is within the identified acceptable area.
 - A. ACAS Train A (Step 6.1[39], Figure 1)
 - B. ACAS Train B (Step 6.2[39], Figure 2)

- [3] The Safety-Related Valves listed in Table 10 fail to their failsafe position on a gradual loss of Control Air system pressure. (Step 6.3[13])

- [4] The Non-Essential Unit 2 Reactor Building Control Air System header purge solenoids: 2-XSV-32-112A1 & 2-XSV-32-112A2, and 2-XSV-32-112B1 & 2-XSV-32-112B2 downstream from 2-ISV-32-1337 and 2-ISV-32-1339, respectively will:
 - A. Remain in the CLOSED position with containment isolation valve 2-FCV-32-111 in the OPEN position and handswitch 2-HS-32-112A in OPEN. (Step 6.3[24])
 - B. Go to the OPEN position with containment isolation valve 2-FCV-32-111 in the CLOSED position and handswitch 2-HS-32-112A in OPEN. (Step 6.3[27])
 - C. Go OPEN, allowing the associated valves to obtain failsafe within the desired time as listed in Table 16, (Step 6.3[28])

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Date _____

6.0 PERFORMANCE

NOTE

Subsections 6.1, 6.2, and 6.3 may be performed in any order.

6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing

[1] **VERIFY** prerequisites listed for Subsection 6.1 have been completed. _____

[2] **ENSURE** the CAS system is in service to support plant operations. _____

[3] **IF** Operations requires Main Steam PORVs to be isolated
THEN

VERIFY/CLOSE the following (block) valves, **OTHERWISE**

MARK the applicable signoff blank N/A.

A. 2-ISV-1-619, MAIN STEAM LOOP 1 PORV ISOLATION [SVVR/751] _____

B. 2-ISV-1-621, MAIN STEAM LOOP 3 PORV ISOLATION [NVVR/751] _____

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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

NOTES
<p>1) Steps 6.1[4] and 6.1[5] ensure that both trains of the ACAS system remain available.</p> <p>2) Observations for indications of excessive vibration will be performed during this subsection.</p> <p>3) Not all unit 1 and unit 2, including common, components served by the ACAS Train A compressor will be isolated by this subsection in order to remain available if required to support current plant operations.</p>

[4] **ENSURE** that the ACAS Train A compressor A-A selector switch 0-HS-32-60, AUX AIR COMPR A-A MODE SELECTOR, is in AUTO at 0-L-321 [757/A7U]. _____

[5] **ENSURE** that the ACAS Train B compressor B-B selector switch 0-HS-32-86, AUX AIR COMPR B-B MODE SELECTOR, is in AUTO at 0-L-322 [757/A9U]. _____

[6] **OPEN** 2-BYV-32-328, ESSENT CONTROL AIR 2-FCV-32-81 BYPASS [702/301] to provide an air flow path for upcoming venting. _____

[7] **NOTIFY** Operations that Step 6.1[8] will isolate the CAS from the ACAS Train A, and that the ACAS Train A compressor will be allowed to load and unload before branch line testing in this Subsection. _____

NOTE
<p>Step 6.1[8] isolates air delivery from the operating CAS system to the ACAS Train A Receiver, 0-RCVR-32-62, and allows automatic start of the Train A as pressure is lost from the downstream lines/users. The A Train ACAS Compressor will begin loading at approximately 83 psig, and unload at approximately 100 psig. Receiver pressure data, including start and stop loading data, is for baseline information only.</p>

[8] **PLACE** 0-HS-32-82, ESSENT CONTROL AIR TR A NORM FLOW ISOL, at 0-JB-292-1174-A [757/A7U], to the CLOSE position to provide initial isolation between the CAS and ACAS Train A, and

VERIFY 0-FCV-32-82, ESSENT CONTROL AIR TR A NORM FLOW ISOL, is CLOSED by indication at 0-HS-32-82. _____

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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[9] **ALLOW** the ACAS Train A compressor to cycle to a low and high pressure indication at installed M&TE at 0-RCVR-32-62 to permit automatic loading and to stop loading, and

RECORD

A. M&TE ID #: _____,

Cal. Due Date: ____ / ____ / ____ _____

B. Loading Started

Low Pressure M&TE reading: _____ PSIG,

Time: _____ [baseline data]. _____

C. Loading Stopped

High Pressure M&TE reading: _____ PSIG,

Time: _____ [baseline data]. _____

Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

NOTES
1) Steps 6.1[10] through 6.1[17], will be repeated for each branch line's gradual loss of air testing. Branch testing may be performed in any order and multiple branch lines may be performed simultaneously, provided Steps 6.1[10] through 6.1[17] are performed sequentially.
2) Table 2 will have been performed as a prerequisite to charge the system and position the related valves to the As Found position for the gradual loss of air testing.
3) Table 5 will be used to pre-position the related components being tested for failsafe positioning prior to venting to simulate a gradual loss of air. The listed controllers may also be used for restoration purposes.
4) Table 12 will be used to set up and perform the gradual loss to total loss of air testing, including the documentation of the restorations and leak checks.
5) Table 7 will be used to verify the failsafe positions achieved/NOT achieved for any component on the test branch.

- [10] **ENSURE** INITIAL As Found position of related System 32 isolation valves and other system valves are as listed on Table 12. _____
- [11] **POSITION** each test branch component controllers to their pre-failsafe position as listed on Table 12 using Table 5. _____
- [12] **POSITION** System 32 and other system related isolation valves for each test branch line to be tested using Table 12. _____
- [13] **INITIATE** VENTING of each test branch for a gradual loss of air as listed in Table 12. _____
- [14] **INITIATE** VERIFICATION of each system component(s) failsafe position after venting using Table 7. _____
- [15] **INITIATE** RESTORATION of each System 32 related isolation valve and pressure regulator and/or connections after venting to their As Left position as listed on Table 12. _____
- [16] **INITIATE** RESTORATION of each component valve after venting to their As Left position as listed on Table 12 using the controllers listed on Table 5. _____

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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[17] **VERIFY** ACAS Train A components moved to their failsafe position after venting using Table 7. **[Acc. Crit. 5.0[1]A]** _____

CAUTIONS

- 1) The following Steps 6.1[18] through 6.1[29] is a first time iteration of this test method for Unit 2 where Unit 1 components may be in service.
- 2) Heavy user testing will begin at a pressure of 89.5 psig with low pressure limit of 72 psig. This provides for test control to the extent that NO actuation of containment isolation will be expected.
- 3) Steps 6.1[18] through 6.1[22] is delineated below to ensure coordination with Unit 1 and Unit 2 Operations to ensure that appropriate contingencies are in place BEFORE stroking the valves simultaneously.

NOTES

- 1) This Subsection will stroke six Unit 2 heavy air user components simultaneously. A like test method was used for Unit 1 stroking of five heavy users on only ACAS Train B with NO report for any impact to the plant within the test document.
- 2) Control Room indicators at 2-M-4 are acceptable for verifying valve positions.

[18] **ENSURE** by coordination with Startup Engineering and Operations that systems listed at Step 4.1[21] for Subsection 6.1 are in a condition to support Unit 2 testing. _____

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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[19] **ENSURE** that Unit 2 plant conditions are conducive to cycling the following:

- A. 2-LCV-3-156, SG 2 SUPPLY FRM PMP A-A
[MD AFW PUMP 2A-A SG 2 LEVEL CONTROL] _____
- B. 2-LCV-3-164, SG 1 SUPPLY FRM PMP A-A
[MD AFW PUMP 2A-A SG 1 LEVEL CONTROL] _____
- C. 2-LCV-3-172, SG 3 SUPPLY FRM T-D PMP
[TD AFW PUMP SG 3 LEVEL CONTROL] _____
- D. 2-LCV-3-175, SG 4 SUPPLY FRM T-D PMP
[TD AFW PUMP SG 4 LEVEL CONTROL] _____
- E. 2-PCV-3-122, AFW PMP A-A DISCH PRESS
CONTROL, [AUX FEEDWATER PMP 2A-A
DISCHARGE PRESS CONTROL] _____
- F. 2-PCV-68-340D, PZR PRESS CONTROL LOOP 1
SPRAY CONT, [RCS LOOP 1 PZR SPRAY LINE
ISOL] _____

[20] **OBTAIN** authorization to perform this heavy user subsection from Operations.

- A. Unit 1 Operations:
Name/Title: _____ / _____
- B. Unit 2 Operations:
Name/Title: _____ / _____

[21] **ENSURE** the ACAS Train A system is in service, and

RECORD

ACAS Train A Receiver 0-RCVR-32-62,

M&TE Pressure: _____ PSIG, Time: _____

WBN Unit 2	LOSS OF AIR TEST	2-PTI-032-02 Rev. 0000 Page 41 of 222
-----------------------	-------------------------	--

Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[22] **PLACE** the following Hand Switches at 2-M-4 to the ACC RESET MODULATE position:

- A. 2-HS-3-156A, SG 2 SUPPLY LCV-3-156 CNTL _____
- B. 2-HS-3-164A, SG 1 SUPPLY LCV-3-164 CNTL _____
- C. 2-HS-3-172A, SG 3 SUPPLY LCV-3-172 CNTL _____
- D. 2-HS-3-175A, SG 4 SUPPLY LCV-3-175 CNTL _____

[23] **DEPRESS** the following Hand Switch MANUAL pushbuttons at 2-M-4:

- A. 2-LIC-3-164A, SG 1 SUPPLY FRM PMP A-A _____
- B. 2-LIC-3-156A, SG 2 SUPPLY FRM PMP A-A _____
- C. 2-LIC-3-172A, SG 3 SUPPLY FRM T-D PMP _____
- D. 2-LIC-3-175A, SG 4 SUPPLY FRM T-D PMP _____
- E. 2-PDIC-3-122A, AFW PMP A-A DISCH PRESS CONTROL _____
- F. 2-PIC-68-340D, PZR PRESS CONTROL LOOP 1 SPRAY CONT _____

[24] **ENSURE** the following valves are OPEN:

- A. 2-LCV-3-164, SG 1 SUPPLY FRM PMP A-A _____
- B. 2-LCV-3-156, SG 2 SUPPLY FRM PMP A-A _____
- C. 2-PCV-3-122, AFW PMP A-A DISCH PRESS CONTROL _____

[25] **ENSURE** the following valves are CLOSED:

- A. 2-PCV-68-340D, PZR PRESS CONTROL LOOP 1 SPRAY CONT _____
- B. 2-LCV-3-172, SG 3 SUPPLY FRM T-D PMP _____
- C. 2-LCV-3-175, SG 4 SUPPLY FRM T-D PMP _____

Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

NOTES
<p>1) Four operators are desired for Step 6.1[26] simultaneous operations.</p> <p>2) Steps 6.1[27] and 6.1[28] are required to simultaneously be performed immediately after Step 6.1[26].</p> <p>3) An announcement should be made before the execution of Step 6.1[26] to prepare test personnel to standby for execution of Steps 6.1[27] and 6.1[28].</p> <p>4) The simultaneous operation of the below listed controllers for valve cycling and pressure data recordings begin with M&TE pressure indication of 89.5 psig at ACAS Train A Receiver, 0-RCVR-32-62.</p> <p>5) Steps 6.1[29] and [30] may be performed after steps 6.1[31], [32] and [33].</p>

[26] **WHEN** 0-RCVR-32-62
 ESSEN CONTROL AIR TR A AIR RECEIVER,
 pressure is at 89.5 psig, **THEN**

SIMULTANEOUSLY OPERATE the following valves:

- A. 2-LCV-3-156 by placing 2-LIC-3-156A to CLOSE at the fastest rate _____
- B. 2-LCV-3-164 by placing 2-LIC-3-164A to CLOSE at the fastest rate _____
- C. 2-LCV-3-172 by placing 2-HS-3-172A to ACC RESET and return to AUTO _____
- D. 2-LCV-3-175 by placing 2-HS-3-175A to ACC RESET and return to AUTO _____
- E. 2-PCV-3-122, by placing 2-PDIC-3-122A to CLOSE at the fastest rate _____
- F. 2-PCV-68-340D by placing 2-HS-68-340D to OPEN and return to AUTO _____

Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[27] **WHEN** ALL valves operators are position per Step 6.1[26]
AND the corresponding system pressure at the M&TE installed
at the ACAS Train A Receiver, 0-RCVR-32-62, is at 89.5 psig,
THEN

IMMEDIATELY MAKE an Announcement to Start Data
Collection **AND RECORD** the current time.
THEN

RECORD system pressures at approximately 10 second
intervals as read at the M&TE in the table below.

Time Elapse in seconds [plot 0-60 second data]	PSIG	BY
zero time = _____	89.5	
10		
20		
30		
40		
50		
60		
70 baseline		
80 baseline		
90 baseline		

[28] **RECORD** additional baseline system pressures data on
Data Sheet 1 from time zero to 90 seconds in approximately
10 second intervals.

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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[29] **PLOT** the data collected in Step 6.1[27] for time and pressure data on Figure 1, reducing the recorded value by 0.5 psig. _____

Review By _____

[30] **PROVIDE** Engineering with copies of test data, and **RECORD** the Name / Dept. of recipient.

[31] **OPEN** the following valves at 2-M-4: _____

A. 2-LCV-3-164, [2-LIC-3-164A] _____

B. 2-LCV-3-156, [2-LIC-3-156A] _____

C. 2-PCV-3-122, [2-PDIC-3-122A] _____

[32] **CLOSE** the following valves at 2-M-4: _____

A. 2-LCV-3-172, [2-LIC-3-172A] _____

B. 2-LCV-3-175, [2-LIC-3-175A] _____

C. 2-PCV-68-340D, [2-PIC-68-340D] _____

[33] **DEPRESS** the following Hand Switches AUTO pushbutton: _____

A. 2-LIC-3-164A _____

B. 2-LIC-3-156A _____

C. 2-LIC-3-172A _____

D. 2-LIC-3-175A _____

E. 2-PDIC-3-122A _____

F. 2-PIC-68-340D _____

WBN Unit 2	LOSS OF AIR TEST	2-PTI-032-02 Rev. 0000 Page 45 of 222
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Date _____

**6.1 Train A Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[34] **0-IF** CLOSED in Step 6.1[3], **THEN**

OPEN the following valves **OTHERWISE**
MARK the blanks N/A.

A. 2-ISV-1-619 [SVVR/751] _____

B. 2-ISV-1-621 [NVVR/751] _____

[35] **VERIFY** NO excessive vibration of the piping system and components associated with the performance of this subsection was observed. _____

[36] **RESTORE** M&TE used for this subsection as described in Section 7.0 _____

[37] **COORDINATE** with Operations to **RESTORE** the CAS system to **NORMAL** operation to supply Unit 1 and Unit 2 (Train A, 0-FCV-32-82 Open) with ACAS Train A in Auto (standby) using 0-SOI-32.01 and 0-SOI-32.02 as required to support plant operations and,

RECORD

Unit 1 Operations (name/title):

_____ / _____

Unit 2 Operations (name/title):

_____ / _____

[38] **ENSURE** final restoration of all systems tested by this Subsection is addressed in Section 7.0. _____

[39] **VERIFY** ACAS Train A system pressures, when plotted on Figure 1, ACAS Train A Curve, was in the identified **ACCEPTABLE** region of the curve line during the 60 second time period. **[Acc. Crit. 5.0[2]A]** _____

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Date _____

6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing

[1] **VERIFY** prerequisites listed for Subsection 6.2 have been completed. _____

[2] **ENSURE** the CAS system is in service to support plant operations. _____

[3] **IF** Operations requires Main Steam PORVs to be isolated **THEN**

VERIFY/CLOSE the following (block) valves, **OTHERWISE**

MARK the applicable signoff blank N/A.

A. 2-ISV-1-620, MAIN STEAM LOOP 2 PORV ISOLATION [NVVR/751] _____

B. 2-ISV-1-622, MAIN STEAM LOOP 4 PORV ISOLATION [SVVR/751] _____

NOTES

- 1) Steps 6.2[4] and 6.2[5] ensure that both trains of the ACAS system remain available.
- 2) Observations for indications of excessive vibration will be performed during this subsection.
- 3) Not all unit 1 and unit 2, including common, components served by the ACAS Train B compressor will be isolated by this subsection in order to remain available if required to support current plant operations.

[4] **ENSURE** that the ACAS Train A compressor A-A selector switch 0-HS-32-60, AUX AIR COMPR A-A MODE SELECTOR, is in AUTO at 0-L-321 [757/A7U]. _____

[5] **ENSURE** that the ACAS Train B compressor B-B selector switch 0-HS-32-86, AUX AIR COMPR B-B MODE SELECTOR, is in AUTO at 0-L-322 [757/A9U]. _____

[6] **OPEN** 2-BYV-32-318, ESSENT CONTROL AIR 2-FCV-32-103 BYPASS [724/280] to provide an air flow path for upcoming venting. _____

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-----------------------	-------------------------	--

Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

- [7] **NOTIFY** Operations that Step 6.2[8] will isolate the CAS from the ACAS Train B and that the ACAS Train B compressor will be allowed to load and unload before branch line testing this Subsection. _____

NOTE

Step 6.2[8] isolates air delivery from the operating CAS system to the ACAS Train B Receiver, 0-RCVR-32-88, and allows automatic start of the Train B as pressure is lost from the downstream lines/users. The B Train ACAS Compressor will begin loading at approximately 83 psig, and unload at approximately 100 psig. Receiver pressure data, including start and stop loading data, is for baseline information only.

- [8] **PLACE** 0-HS-32-85, ESSENT CONTROL AIR TR B NORM FLOW ISOL, at 0-JB-292-1175B [757/A9U], to the CLOSE position to provide initial isolation between the CAS and ACAS Train B, and _____

VERIFY 0-FCV-32-85, ESSENT CONTROL AIR TR B NORM FLOW ISOL, is CLOSED by indication at 0-HS-32-85. _____

- [9] **ALLOW** the ACAS Train B compressor to cycle to a low and high pressure indication at installed M&TE at 0-RCVR-32-88 to permit automatic loading and stop loading, and _____

RECORD

A. M&TE ID #: _____,

Cal. Due Date: ____ / ____ / ____ _____

B. Loading Started

Low Pressure M&TE reading: _____ PSIG,

Time: _____ [baseline data] _____

C. Loading Stopped

High Pressure M&TE reading: _____ PSIG,

Time: _____ [baseline data]. _____

Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

NOTES
1) Steps 6.2[10] through 6.2[17], will be repeated for each branch line's gradual loss of air testing. Branch testing may be performed in any order and multiple branch lines may be performed simultaneously, provided steps 6.2[10] through 6.2[17] are performed sequentially.
2) Table 3 will have been performed as a prerequisite to charge the system and position the related valves to the As Found position for the gradual loss of air testing.
3) Table 6 will be used to pre-position the related components being tested for failsafe positioning prior to venting to simulate a gradual loss of air. The listed controllers may also be used for restoration purposes.
4) Table 13 will be used to set up and perform the gradual loss to total loss of air testing, including the documentation of the restoration and leak checks.
5) Table 8 will be use to verify the failsafe positions achieved/NOT achieved for any component on the test branch.

- [10] **ENSURE** INITIAL As Found position of related System 32 isolation valves and other system valves are as listed on Table 13. _____
- [11] **POSITION** each test branch components controllers to their pre-failsafe position as listed on Table 13 using Table 6. _____
- [12] **POSITION** System 32 and other system related isolation valves for each test branch line to be tested using Table 13. _____
- [13] **INITIATE** VENTING of each test branch for a gradual loss of air as listed in Table 13. _____
- [14] **INITIATE** VERIFICATION of each system component(s) failsafe position after venting using Table 8. _____
- [15] **INITIATE** RESTORATION of each System 32 related isolation valve and pressure regulator and/or connections after venting to their As Left position as listed on Table 13. _____
- [16] **INITIATE** RESTORATION of each component valve after venting to their As Left position as listed on Table 13 using the controllers listed on Table 6. _____

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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[17] **VERIFY** ACAS Train B components moved to their failsafe position after venting using Table 8. **[Acc. Crit. 5.0[1]B]** _____

CAUTIONS

- 1) The following Steps 6.2[18] through 6.2[29] is a first time iteration of this test method for Unit 2 where Unit 1 components may be in service.
- 2) Heavy user testing will begin at a pressure of 89.5 psig with low pressure limit of 72 psig. This provides for test control to the extent that NO actuation of containment isolation will be expected.
- 3) Steps 6.2[18] through 6.2[22] is delineated below to ensure coordination with Unit 1 and Unit 2 Operations to ensure that appropriate contingencies are in place BEFORE stroking the valves simultaneously.

NOTES

- 1) This Subsection will stroke six Unit 2 heavy air user components simultaneously. A like test method was used for Unit 1 stroking of five heavy users on only ACAS Train B with NO report of any impact to the plant within the test document.
- 2) Control Room indicators at 2-M-4 are acceptable for verifying valve positions.

[18] **ENSURE** by coordination with Startup Engineering and Operations that systems listed at Step 4.1[21] for Subsection 6.2 are in a condition to support Unit 2 testing. _____

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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[19] **ENSURE** that Unit 2 plant conditions are conducive to cycling the following:

- A. 2-LCV-3-148, SG 3 SUPPLY FRM PMP B-B
[MD AFW PUMP 2B-B SG 3 LEVEL CONTROL] _____
- B. 2-LCV-3-171, SG 4 SUPPLY FRM PMP B-B
[MD AFW PUMP 2B-B SG 4 LEVEL CONTROL] _____
- C. 2-LCV-3-173, SG 2 SUPPLY FRM T-D
[TD AFW PUMP SG 2 LEVEL CONTROL] _____
- D. 2-LCV-3-174, SG 1 SUPPLY FROM T-D PMP
[TD AFW PUMP SG 1 LEVEL CONTROL] _____
- E. 2-PCV-3-132, AFW PMP B-B DISCH PRESS
CONTROL, [AUX FEEDWATER PMP 2B-B
DISCHARGE PRESS CONTROL] _____
- F. 2-PCV-68-340B, PZR PRESS CONTROL LOOP 2
SPRAY CONT, [RCS LOOP 2 PZR SPRAY LINE
ISOL] _____

[20] **OBTAIN** authorization to perform this heavy user subsection from Operations.

- A. Unit 1 Operations:
Name/Title: _____ / _____
- B. Unit 2 Operations:
Name/Title: _____ / _____

[21] **ENSURE** the ACAS Train B system is in service, and

RECORD

ACAS Train B Receiver 0-RCVR-32-88,

M&TE Pressure: _____ PSIG, Time: _____

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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[22] **PLACE** the following Hand Switches at 2-M-4 to the ACC RESET MODULATE position:

- A. 2-HS-3-148A, SG 3 SUPPLY LCV-3-148 CNTL _____
- B. 2-HS-3-171A, SG 4 SUPPLY LCV-3-171 CNTL _____
- C. 2-HS-3-173A, SG 2 SUPPLY LCV-3-173 CNTL _____
- D. 2-HS-3-174A, SG 1 SUPPLY LCV-3-174 CNTL _____

[23] **DEPRESS** the following Hand Switch MANUAL pushbuttons at 2-M-4:

- A. 2-LIC-3-148A, SG 3 SUPPLY FRM PMP B-B _____
- B. 2-LIC-3-171A, SG 4 SUPPLY FRM PMP B-B _____
- C. 2-LIC-3-173A, SG 2 SUPPLY FRM T-D PMP _____
- D. 2-LIC-3-174A, SG 1 SUPPLY FRM T-D PMP _____
- E. 2-PDIC-3-132A, AFW PMP B-B DISCH PRESS CONTROL _____
- F. 2-PIC-68-340B, PZR PRESS CONTROL LOOP 2 SPRAY CONT _____

[24] **ENSURE** the following valves are OPEN:

- A. 2-LCV-3-171, SG 4 SUPPLY FRM PMP B-B _____
- B. 2-LCV-3-148, SG 3 SUPPLY FRM PMP B-B _____
- C. 2-PCV-3-132, AFW PMP B-B DISCH PRESS CONTROL _____

[25] **ENSURE** the following valves are CLOSED:

- A. 2-PCV-3-340B, PRZ PRESS CONTROL LOOP 2 SPRAY CONT _____
- B. 2-LCV-3-173, SG 2 SUPPLY FRM T-D PMP _____
- C. 2-LCV-3-174, SG 1 SUPPLY FRM T-D PMP _____

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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

NOTES
1) Four operators are desired for step 6.2[26] simultaneous operations.
2) Steps 6.2[27] and 6.2[28] are required to simultaneously be performed immediately after Step 6.2[26].
3) An announcement should be made before the execution of Step 6.2[26] to prepare test personnel to standby for the execution of Steps 6.2[27] and 6.2 [28].
4) The simultaneous operation of the below listed controllers for valve cycling and pressure data recordings begin with M&TE pressure indication of 89.5 psig at Train B receiver, 0-RCVR-32-88.
5) Steps 6.2[29] and [30] may be performed after steps 6.2[31], [32] and [33].

[26] **WHEN** 0-RCVR-32-88
ESSEN CONTROL AIR TR B AIR RECEIVER,
pressure is at 89.5 psig, **THEN**

SIMULTANEOUSLY OPERATE the following valves:

- A. 2-LCV-3-148 by placing 2-LIC-3-148A to CLOSE at the fastest rate _____
- B. 2-LCV-3-171 by placing 2-LIC-3-171A to CLOSE at the fastest rate _____
- C. 2-LCV-3-173 by placing 2-HS-3-173A to ACC RESET and return to AUTO _____
- D. 2-LCV-3-174 by placing 2-HS-3-174A to ACC RESET and return to AUTO _____
- E. 2-PCV-3-132 by placing 2-PDIC-3-132C to CLOSE at the fastest rate _____
- F. 2-PCV-68-340B by placing 2-HS-68-340B to OPEN and return to AUTO _____

Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[27] **WHEN** ALL valves are position per Step 6.2[26]
AND the corresponding system pressure at the M&TE installed
at the ACAS Train B Receiver, 0-RCVR-32-88, is at 89.5 psig,
THEN

IMMEDIATELY MAKE an Announcement to Start Data
Collection **AND RECORD** the current time,
THEN

RECORD system pressures at approximately 10 second
intervals as read at the M&TE in the table below.

Time Elapse in seconds [plot 0-60 second data]	PSIG	BY
zero time = _____	89.5	
10		
20		
30		
40		
50		
60		
70 baseline		
80 baseline		
90 baseline		

[28] **RECORD** additional baseline system pressures data on
Data Sheet 2 from time zero to 90 seconds in approximately
10 second intervals.

WBN Unit 2	LOSS OF AIR TEST	2-PTI-032-02 Rev. 0000 Page 54 of 222
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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[29] **PLOT** the data collected in Step 6.2[27] for time and pressure data on Figure 2, reducing the recorded value by 0.5 psig. _____

Review By _____

[30] **PROVIDE** Engineering with copies of test data, and **RECORD** the Name / Dept. of recipient.

[31] **OPEN** the following valves at 2-M-4:

A. 2-LCV-3-171, [2-LIC-3-171A] _____

B. 2-LCV-3-148, [2-LIC-3-148A] _____

C. 2-PCV-3-132, [2-PDIC-3-132A] _____

[32] **CLOSE** the following valves at 2-M-4:

A. 2-LCV-3-173, [2-LIC-3-173A] _____

B. 2-LCV-3-174, [2-LIC-3-174A] _____

C. 2-PCV-3-340B, [2-PIC-68-340B] _____

[33] **DEPRESS** the following Hand Switches AUTO pushbutton:

A. 2-LIC-3-148A _____

B. 2-LIC-3-171A _____

C. 2-LIC-3-173A _____

D. 2-LIC-3-174A _____

E. 2-PDIC-3-132A _____

F. 2-PIC-68-340B _____

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Date _____

**6.2 Train B Auxiliary CAS Gradual Loss of Air & Heavy User Testing
(continued)**

[34] **IF** CLOSED in Step 6.2[3], **THEN**

OPEN the following valves, **OTHERWISE MARK** the blanks N/A.

A. 2-ISV-1-620 [NVVR/751] _____

B. 2-SV-1-622 [SVVR/751] _____

[35] **VERIFY** NO excessive vibration of the piping system and components associated with the performance of this subsection was observed. _____

[36] **RESTORE** M&TE used for this subsection as described in Section 7.0 _____

[37] **COORDINATE** with Operations to **RESTORE** the CAS system to **NORMAL** operation to supply Unit 1 and Unit 2 (Train B, 0-FCV-32-85 Open) with ACAS Train B in Auto (standby) using 0-SOI-32.01 and 0-SOI-3 2.02 as required to support plant operations and,

RECORD

Unit 1 Operations (name/title):
_____ / _____

Unit 2 Operations (name/title):
_____ / _____

[38] **ENSURE** final restoration of all systems tested by this Subsection is addressed in Section 7.0. _____

[39] **VERIFY** ACAS Train B system pressures, when plotted on Figure 2, ACAS Train B Curve, was in the identified **ACCEPTABLE** region of the curve line during the 60 second time period. **[Acc. Crit. 5.0[2]B]** _____

WBN Unit 2	LOSS OF AIR TEST	2-PTI-032-02 Rev. 0000 Page 56 of 222
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Date _____

6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing

NOTE

The CAS system includes common, Unit 1 and Unit 2 components. Step 6.3[2] valve lineup allows control air charging of the Unit 2 components to be tested.

[1] **ENSURE** the CAS system is in service to support plant operation. _____

[2] **VERIFY** prerequisites listed for Subsection 6.3 have been completed, including Subsections 4.1, and 4.2. _____

NOTES

1) Steps 6.3[3] and 6.3[4] ensure the both trains of the ACAS system remain available.

2) Observations for indications of excessive vibration will be performed during this subsection.

[3] **ENSURE** that the ACAS Train A compressor A-A selector switch 0-HS-32-60, AUX AIR COMPR A-A MODE SELECTOR, is in AUTO at 0-L-321 [757/A7U]. _____

[4] **ENSURE** that the ACAS Train B compressor B-B selector switch 0-HS-32-86, AUX AIR COMPR B-B MODE SELECTOR, is in AUTO at 0-L-322 [757/A9U]. _____

[5] **OPEN** 2-BYV-32-338, CONTROL AIR 2-FCV-32-111 BYPASS, [716/297] to provide an air flow path for upcoming venting. _____

Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

NOTES
<p>1) Steps 6.3[6] through 6.3[13], will be repeated for each branch line gradual loss of air testing. Branch testing may be performed in any order and multiple branch lines may be performed simultaneously, provided Steps 6.3[6] through 6.3[13] are performed sequentially.</p> <p>2) Table 4 will have been performed as a prerequisite to charge the system and position the related valves to the As Found position for the gradual loss of air testing.</p> <p>3) Table 9 will be use to pre-position the related components being tested for failsafe positioning prior to venting to simulate a gradual loss of air. The listed controllers may also be used for restoration purposes.</p> <p>4) Table 11 will be used to set up and perform the gradual loss of air testing, including the documentation of the restorations and leak checks.</p> <p>5) Table 10 will be use to verify the failsafe positions achieved or NOT achieved for any component on the test branch.</p>

[6] **ENSURE** INITIAL As Found position of related System 32 isolation valves and other system valves are as listed on Table 11. _____

[7] **POSITION** each test branch component controllers to their pre-failsafe position as listed on Table 11 using Table 9. _____

[8] **POSITION** System 32 and other system related isolation valves for each test branch line to be tested using Table 11. _____

CAUTION

There are some common and Unit 1 related components to be considered prior to branch line test performance.

[9] **INITIATE** VENTING of each test branch for a gradual loss of air as listed in Table 11. _____

[10] **INITIATE** VERIFICATION of each system component(s) failsafe position after venting using Table 10. _____

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Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

- [11] **INITIATE** RESTORATION of each System 32 related isolation valve and pressure regulator and/or connections after venting to their As Left positions listed on Table 11. _____
- [12] **INITIATE** RESTORATION of each component valve after venting to their As-Left position as listed on Table 11 using the controllers listed on Table 9. _____
- [13] **VERIFY** CAS components moved to their failsafe position after venting using Table 10. **[Acc. Crit. 5.0[3]]** _____

NOTES
1) Considerations for isolation or pre-positioning of other system valves NOT controlled by this Subsection's purge testing will be addressed as part of Steps 6.3[14] and 6.3[15].
2) Observations for excessive vibration will be performed during this Subsection.

- [14] **COORDINATE** with Startup Engineering and Operations to ENSURE that systems listed at Step 4.1[21] for Subsection 6.3 are in a condition to support this subsection. _____
- [15] **COORDINATE** with Operations to ENSURE that the CAS is in service to the extent necessary to support Unit 2 Purge Solenoid testing [Steps 6.3[17] to [30]. _____
- [16] **OBTAIN** authorization to perform this subsection from Operations:
 - A. Unit 1 Operations
Name/Title: _____ / _____
 - B. Unit 2 Operations:
Name/Title: _____ / _____
- [17] **PERFORM** Table 14, CAS U2 RB Header Purge Initial System 32 Lineups. _____

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Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

- [18] **PERFORM** Table 15,
CAS U2 RB Header Purge Pre-Positioning Lineups. _____
- [19] **ENSURE** the U2 RB solenoid electrical power is **NOT**
available from 120 VAC VITAL POWER BOARD 2-IV, BKR 12
is in the OFF [OPEN] position. _____
- [20] **ENSURE** 2-HS-32-112A, RB NON-ESSENTIAL CNTL AIR
PURGE, selector switch at 2-M-23A is in CLOSE. _____
- [21] **ENSURE** 2-HS-32-111 for 2-FCV-32-111,
REACTOR BLDG UNIT 2 NON-ESSENT ISOL,
at 2-M-15, is in the OPEN position,
[Green Light OFF and Red Light ON]. _____
- [22] **ENSURE** 120 VAC VITAL POWER BOARD 2-IV, BKR 12 ON
[CLOSED] to make purge solenoids electrical power available. _____
- [23] **VERIFY** U2 CNTMT NON-ESSENTIAL HEADER DUMP
SOLENOID VALVES are CLOSED, by Green Light ON and
Red Light OFF for the following solenoid valves at 2-M-23A

 - A. 2-XSV-32-112A1 _____
 - B. 2-XSV-32-112A2 _____
 - C. 2-XSV-32-112B1 _____
 - D. 2-XSV-32-112B2 _____

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Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

[24] **PLACE** 2-HS-32-112A to OPEN, and

VERIFY U2 CNTMT NON-ESSENTIAL HEADER DUMP SOLENOID VALVES did **NOT** OPEN (Remained CLOSED) by Green Light ON and Red Light OFF indication:

[Acc. Crit. 5.0[4]A]

- A. 2-XSV-32-112A1 _____
- B. 2-XSV-32-112A2 _____
- C. 2-XSV-32-112B1 _____
- D. 2-XSV-32-112B2 _____

NOTE

Twelve of the listed valves to be timed for failsafe positioning have an acceptance criteria of less than or equal to 120 minutes which is 60 minutes beyond the stopwatches range specified and may require an additional stopwatch or the resetting of a stop watch to record total time. Nine stopwatches will be used for timing of the acceptance criteria of less than one minute and may be available for backup sequential timing of some of the twelve valves mentioned above. Timing will begin at the same time with an announcement to test personnel. . A minimum of 21 stopwatches are required. Step 6.3[25] may be completed after all stopwatch usage has occurred.

[25] **ENSURE** that M&TE digital stopwatches to be used for purge timing are recorded in both Table 1 for calibration data and Table 16 to identify which stopwatch is used for each component's timing for traceability. _____

Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

CAUTIONS

- 1) Step 6.3[26] will energize the purge solenoids in Unit 2 Reactor Building causing all components to bleed off and go to their failsafe position if NOT already in that position or if NOT isolated by closing the associated CAS isolation valve.
- 2) For PERSONNEL SAFETY considerations, BEFORE the performance of Step 6.3[26] personnel need to stand clear of the bleed off of the purge solenoid valves (ACC. Rm. 4 [721/298]) and the valves listed in Table 16. Appropriate flagging and/or other area physical blocking techniques may be employed. Goggles and double ear protection PPE may be desirable if personnel are near the purge solenoid air exhaust ports. This is also addressed at Step 4.1[27].

NOTE

Communication of the performance of Step 6.3[26] is required for test personnel to begin the failsafe timing for purge vent testing.

[26] **PLACE** 2-HS-32-111, in the CLOSED position
[Green light ON and Red Light OFF]. _____

[27] **VERIFY** U2 CNTMT NON-ESSENTIAL HEADER DUMP
SOLENOID VALVES are OPEN,
by Green Light OFF and Red Light ON
for the following solenoid valves at 2-M-23A,
[Acc. Crit. 5.0[4]B]

A. 2-XSV-32-112A1 _____

B. 2-XSV-32-112A2 _____

C. 2-XSV-32-112B1 _____

D. 2-XSV-32-112B2 _____

[28] **VERIFY** that the valves listed in Table 16 go to their failsafe
position within the desired time specified. **[Acc. Crit. 5.0[4]C]** _____

[29] **PLACE** 2-HS-32-112A to the CLOSED position, and

VERIFY Green Light ON and Red Light OFF
for the following solenoid valves:

A. 2-XSV-32-112A1 _____

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Date _____

**6.3 CAS Gradual Loss of Air & RB Header Purge Failsafe Testing
(continued)**

B. 2-XSV-32-112A2 _____

C. 2-XSV-32-112B1 _____

D. 2-XSV-32-112B2 _____

[30] **PLACE** 2-HS-32-111, in the OPEN position
[Green light OFF and Red Light ON]. _____

[31] **NOTIFY** Startup Engineering and Operations that the CAS will
be available to Reactor Building Unit 2 Non-Essential valves. _____

[32] **RESTORE** the valves to the pre-failsafe positions listed in
Table 15. _____

[33] **ENSURE** final restoration of all systems tested by this
Subsection is addressed in Section 7.0. _____

[34] **VERIFY** that NO excessive vibration was observed during the
performance of the above steps. _____

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Date _____

7.0 POST PERFORMANCE ACTIVITIES

NOTE

Notification to operations of interim configuration status may be performed at anytime. Final signoff of the notification to operations of all system status will be documented last. Other steps may be performed in part and/or in any order or as referenced by Subsections.

- [1] **RESTORE** 0-PI-32-66 at ACAS Train A Air Receiver Tank 0-RCVR-32-62 after data collection in Subsection 6.1 by:

CLOSING isolation valve 0-RTV-32-263, **THEN**

REMOVE M&TE for post test calibration check, **THEN**

INSTALL 0-PI-32-66, **THEN**

OPEN 0-RTV-32-263, **THEN**

RECORD the pressure indication of 0-PI-32-89:

_____ psig _____

- [2] **RESTORE** 0-PI-32-89 at ACAS Train B Air Receiver Tank 0-RCVR-32-88 after data collection in Subsection 6.2 by:

CLOSING isolation valve 0-RTV-32-309A, **THEN**

REMOVE M&TE for post test calibration check, **THEN**

INSTALL 0-PI-32-89, **THEN**

OPEN 0-RTV-32-309A, **THEN**

RECORD the pressure indication of 0-PI-32-89:

_____ psig _____

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Date _____

7.0 POST PERFORMANCE ACTIVITIES (continued)

[3] **REMOVE** M&TE pressure gages [4] **AFTER BOTH** Subsections 6.1 and Subsection 6.2 baseline data collection by:

A. **CLOSING** 1-RTV-32-302 downstream of Unit 1 Train A containment isolation valve 1-FCV-32-80 and

REMOVING the M&TE _____

B. **CLOSING** 1-RTV-32-312 downstream of Unit 1 Train B containment isolation valve 1-FCV-32-102 and

REMOVING the M&TE _____

C. **CLOSING** 2-RTV-32-332 downstream of Unit 2 Train A containment isolation valve 2-FCV-32-81 and

REMOVING the M&TE _____

D. **CLOSING** 2-RTV-32-322 downstream of Unit 2 Train B containment isolation valve 2-FCV-32-103 and

REMOVING the M&TE _____

[4] **VERIFY** that post test calibration of the M&TE used to record quantitative acceptance criteria has been satisfactorily **PERFORMED** and **RECORDED** on M&TE Log in Table 1. _____

[5] **VERIFY** that any post test calibration of permanent plant instruments used to record quantitative acceptance criteria has been satisfactorily **PERFORMED** and **RECORDED** on Appendix C, Permanent Plant Instrumentation Log (mark N/A if post test calibration is NOT required). _____

[6] **ENSURE** participants who initialed or signed steps in the prerequisite and instruction sections, test logs, or data sheets enter their names, initials and signature on the Signature Log. _____

Date _____

7.0 POST PERFORMANCE ACTIVITIES (continued)

[7] **ENSURE** that the test connections installed for as part of prerequisites for gradual loss of air testing in Subsection 6.3 have been REMOVED and the permanent plant configuration has been RESTORED and valves listed below are ready for service. [Associated Work Orders are listed at step 4.2[12]]

A. 2-FCV-30-216 _____

B. 2-FCV-30-2 _____

NOTE

NGDC-PI-08, Watts Bar Nuclear Plant Unit 2 System and Equipment Status Control, establishes the responsibilities and programmatic methods for obtaining, maintaining and documenting control of equipment and system configuration status when desired by Unit 2 Startup Engineering / Operations. Systems / equipment under jurisdiction of Unit 1 and transferred to Unit 1 will be under the requirements of Unit 1.

[8] **ENSURE** the following systems have been place in the configuration to the extent necessary to support plant configuration requirements.

System Number	System Description	Subsection 6.1	Subsection 6.2	Subsection 6.3
		By/Date	By/Date	By/Date
1	Main Steam			
3	Main / Aux Feedwater			
30	Ventilation	N/A	N/A	
31	HVAC	N/A	N/A	
32	Control Air			
43	Sample & Water Quality	N/A	N/A	
61	Ice Condenser	N/A	N/A	
62	CVCS	N/A	N/A	
65	EGTS			N/A
67	ERCW	N/A	N/A	
68	RCS			
70	CCS	N/A	N/A	N/A
74	RHR	N/A	N/A	
77	Waste Disposal	N/A	N/A	
81	PMW	N/A	N/A	
90	Rad. Monitoring			N/A

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Date _____

7.0 POST PERFORMANCE ACTIVITIES (continued)

[9] **ATTACH** Work Orders associated with test performance (e.g. M&TE installation/removal, branch line gradual loss of air testing including tubing/regulator adjustments, leak checks, installation/removal test connections) to this test procedure and

RECORD Work Order numbers as follows:

A. Subsection 6.1,

WO #: _____

B. Subsection 6.2,

WO #: _____

C. Subsection 6.3,

WO #: _____

D. Subsection 6.3,

- Test Connection at 2-FCV-30-2

WO #: _____

- Test Connection at 2-FCV-30-216

WO #: _____

E. OTHER (N/A if NOT Needed)

WO #: _____

[10] **RECORD** the AS LEFT positions of 120 vac Vital Power for Unit 2 isolation valves and dump [purge] solenoid valves (including fuses [installed]), as follows: Dwg: 2-45W600-32]

A. Subsection 6.1, 2-FCV-32-81, BD 2-III, BKR 41

B. Subsection 6.2, 2-FCV-32-103, BD 2-I,V BKR 36

Date _____

7.0 POST PERFORMANCE ACTIVITIES (continued)

- C. Subsection 6.3, 2-FCV-32-111, BD 2-IV, BKR 36

- D. Subsection 6.3, Solenoid Valves, BD 2-IV BKR, 12

- E. Subsection 6.3, Two Fuses, 2-FU-235-4/F12

[11] **RECORD** the AS LEFT position of the containment isolation and their bypass valves as follows:

- A. Subsection 6.1,
2-FCV-32-81: _____
2-BYP-32-328: _____
- B. Subsection 6.2,
2-FCV-32-103: _____
2-BYP-32-318: _____
- C. Subsection 6.3, (reference Step 4.2[10])
2-FCV-32-111: _____
2-BYP-32-338: _____

[12] **NOTIFY** the Unit 2 US/SRO of the test completion and System alignment.

Unit 2 Ops (name/title): _____ / _____

[13] **NOTIFY** the Unit 1 US/SRO of the test completion and System alignment.

Unit 1 Ops (name/title): _____ / _____

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Date _____

8.0 RECORDS

8.1 QA Records

Complete Test Package

8.2 Non-QA Records

None

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.Appendix C
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PERMANENT PLANT INSTRUMENTATION LOG

Date _____

INSTRUMENT OR INSTRUMENT LOOP NO.	CAL DUE DATE	FILLED AND VENTED ¹ INITIAL/DATE	PLACED IN SERVICE ¹ INITIAL/DATE	USED FOR QUANTITATIVE ACC. CRIT.		POST TEST CAL DATE ²	POST TEST CALIBRATION ACCEPTANCE INITIAL/DATE
				YES	NO		
0-PI-32-104D					X	N/A	N/A
0-PI-32-105D					X	N/A	N/A
0-LPP-32-104 (0-PI-32-104B)					X	N/A	N/A
0-LPP-32-105 0-PI-32-105B					X	N/A	N/A

- 1 This data to be entered during test conduct.
- 2 May be identified as N/A if instrument was not used to verify/record quantitative acceptance criteria data
AND UNLESS the instrument was post calibrated checked due to suspicious readings

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Table 1
(Page 1 of 5)

MEASURING AND TEST EQUIPMENT LOG

Date _____

NOTE

Only the expected needed minimum number of M&TE is listed. The same digital stopwatches[s] may be employed for different steps. Blanked copies of this table or SMP-9.0 M&TE Log may be used for additional M&TE entries if needed.

Test Steps Used In ¹	M&TE ID #	Description	Range and Min [Max] Accuracy Requirements	Cal. Due Date ¹	Filled & Vented. ² Initial/Date	Placed In-Serviced Initial/Dated	Used for Accept. Crit.		Post Test Cal. Date ²	Post Test Calib. Accept. ² Initial/Date
							YES	NO		
		PRESSURE GAGE	0-150 [0-200] PSIG (± 0.5 PSIG F.S.)							
		PRESSURE GAGE	0-150 [0-200] PSIG (± 0.5 PSIG F.S.)							
		PRESSURE GAGE	0-150 [0-200] PSIG (± 0.5 PSIG F.S.)							
		PRESSURE GAGE	0-150 [0-200] PSIG (± 0.5 PSIG F.S.)							
		PRESSURE GAGE	0-150 [0-200] PSIG (± 0.5 PSIG F.S.)							

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Table 1
(Page 5 of 5)

MEASURING AND TEST EQUIPMENT LOG

Date _____

Test Steps Used In ¹	M&TE ID #	Description	Range and Min [Max] Accuracy Requirements	Cal. Due Date ¹	Filled & Vented. ² Initial/Date	Placed In-Serviced Initial/Dated	Used for Accept. Crit.		Post Test Cal. Date ²	Post Test Calib. Accept. ² Initial/Date
							YES	NO		
		DIGITAL STOPWATCH	0-59 MIN 59.99 SEC Acc. ± 0.1 SEC		N/A					
		DIGITAL STOPWATCH	0-59 MIN 59.99 SEC Acc. ± 0.1 SEC		N/A					
		DIGITAL STOPWATCH	0-59 MIN 59.99 SEC Acc. ± 0.1 SEC		N/A					
		DIGITAL STOPWATCH	0-59 MIN 59.99 SEC Acc. ± 0.1 SEC		N/A					

¹ This data to be entered during test conduct.

² May be identified as N/A if instrument was not used to verify/record quantitative acceptance criteria data OR Does NOT require Fill and Vent.

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Table 2
(Page 1 of 5)

ACAS Train A Initial Valve Lineup

Date _____

NOTES

- 1) The isolation of the panels noted below will occur after prepositioning of the related component valves to be tested for failsafe and the opening of the listed valves for later restoration is addressed in Tables 5 & 12.
- 2) This line up is to be ensured by startup engineering or operations as part of their jurisdiction. This requirement is included at prerequisite steps 4.1[21].
- 3) Valves are shown on Control Air Flow Diagrams 2-47W848 sheets 1 & 10. [e.g., 1-G/8 typically denotes sheet 1 coordinates G & 8 and E/3 typically denotes drawing sheet 10 at coordinates E & 3]S
- 4) 2-HS-32-081A is to be placed to OPEN at 2-M-15. Verify 2-FCV-32-81 Handswitch indication of Red Light ON & Green Light OFF.
- 5) The components description referring to ABSEC boundary or Unit 1/Unit 2 interface (U1/U2) may require approval to change via the TI-65 or TI-12.08 processes. This is delineated by prerequisite step 4.1 [21] for placing the applicable components in service. Precaution and Limitations of section 3.0 provides additional clarification for test control purposes.

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-327	ESSENT CONTROL AIR 2-FCV-32-81 IN ISOL [Annulus]	1-G/8	702/289	OPEN	
2-RTV-32-326	ESSENT CONTROL AIR CNTMT ISOL U/S PRESS TEST [Annulus]	1-G/8	716/288	CLOSED	
2-RTV-32-346	ESSENT CONTROL AIR ROOT TO 2-PREG-32-81 [Annulus]	1-G/8	719/280	OPEN	
2-FCV-32-81	ESSENT CONTROL AIR TR A CNTMT ISOL [Note 4] [Annulus]	1-G/9	719/280	OPEN	
2-BYV-32-328	ESSENT CONTROL AIR 2-FCV-32-81 BYPASS [Annulus]	1-G/9	719/290	CLOSED	

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Table 2
(Page 2 of 5)

ACAS Train A Initial Valve Lineup

Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-RTV-32-330	2-PIC-32-81 ROOT [Annulus]	1-G/9	724/285	OPEN	
2-ISV-32-331	ESSENT CONTROL AIR 2-FCV-32-81 OUT ISOL [Annulus]	1-G/9	719/290	OPEN	
2-RTV-32-329	ESSENT CONTROL AIR CNTMT ISOL CHECK PRESS TEST [Annulus]	1-G/10	716/291	CLOSED	
2-RTV-32-332	ESSENT CNTL ISOL CNTMT CHECK PRESS TEST [AC 4]. (Note: To be OPEN for Step 4.2[6] for M&TE usage in Subsection 6.1)	1-G/10	716/291	CLOSED	
0-ISV-32-385	ESSENT CNTL AIR EL 757 AB BRANCH HDR ISOL	E/2	757/A12U	OPEN	
2-ISV-32-3702	CONTROL AIR ISOLATION VALVE TO 2-FCV-65-9 [24"] [ABSCE, L.C.]	E/2	757/A13U	OPEN	
2-ISV-32-3705	CONTROL AIR ISOLATION VALVE TO 2-FCO-65-46 [ABSCE, L.C.]	E/2	757/A13V	OPEN	
2-ISV-32-3706	CONT AIR ISOL VLV TO 2-FCV-65-50 [8" to be installed] [U1/U2, L.C.]	E/2	757/A13V	OPEN	
2-ISV-32-3708	CONTROL AIR ISOLATION VALVE TO 2-FCV-65-5, [ABSCE, L.C.]	E/2	757/A13U	OPEN	
0-ISV-32-390	ESSENT CNTL AIR EL 737 AB HDR SECT ISOL [U1/U2, L.C.] [2"]	E/3	757/A12U	OPEN	☐
0-ISV-32-388	ESSENT CNTL AIR U-2 RB SUPPLY HDR ISOL [ABSCE, L.C.] [2"]	E/4	737/A12W	OPEN	
0-ISV-32-389	ESSENT CNTL AIR EL 737 AB HDR SECT [U1/U2, L.C.] [2"]	F/2	757/A12T	OPEN	
0-ISV-32-384	ESSENT CNTL AIR BRANCH HDR ISOL [SVVR]	F/3	737/A13V	OPEN	

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Table 2
(Page 3 of 5)

ACAS Train A Initial Valve Lineup

Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-3749	CONTROL AIR HDR ISOL VALVE TO 2-PCV-1-5 [6"]	F/4	737/A13V	OPEN	
2-ISV-32-3750 (Note 1)	ISOL 2-L-423 [2-PM-1-6 for 2-PCV-1-5]	F/4	758/A14U	OPEN	
0-ISV-32-383	ESSENT CNTL AIR EL 713 RB BRANCH HDR ISOL	F/3	737/A13T	OPEN	
2-ISV-32-3751	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-156	F/3	737/A13T	OPEN	
2-ISV-32-3752	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-156A	F/3	737/A13T	OPEN	
2-ISV-32-3753	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-164	F/4	737/A13T	OPEN	
2-ISV-32-3754	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-164A	F/4	737/A13T	OPEN	
2-ISV-32-3763 (Note 1)	Isolation to 2-PL-218A [2-LM-3-156A/164A]	F/4	737/A13T	OPEN	
0-ISV-32-1486	ESSENT CNTL AIR BRANCH HDR ISOL (2-L-214B & 2-PCV-3-122)	F/3	713/A13T	OPEN	
2-ISV-32-3755 (Note 1)	CONTROL AIR ISOLATION TO 2-L-214B [2-PM-3-122]	F/4	713/A12S	OPEN	
2-ISV-32-3756	ESSENT CNTL AIR ISOL VLV TO 2-PCV-3-122	F/4	713/A12S	OPEN	
0-ISV-32-1485	ESSENT CNTL AIR ISOL TO 2-LCV-3-172/175 (2" HDR)	F/4	737/A11V	OPEN	
0-ISV-32-387	ESSENT CNTL AIR ISOL VLV TO 2-LCV-3-172/175	F/5	737/A11U	OPEN	

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ACAS Train A Initial Valve Lineup

Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
0-RTV-32-1584	ESSENT CNTL 0-CKV-032-1579 U/S TEST	F/5	737/A11U	CLOSED	
0-RTV-32-1580	ESSENT CNTL 0-CKV-032-1579 D/S TEST	F/5	737/A11U	CLOSED	
2-ISV-32-3767	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-175	F/6	755/A14V	OPEN	
2-ISV-32-3768	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-172	F/6	737/A13U	OPEN	
2-ISV-32-457	ESSENT CNTL SPARE (Capped) [Annulus]	G/7	756/227	CLOSED	
2-ISV-32-1572	ESSENT CONTROL AIR HDR ISOL VLV (HDR to system 90) [Annulus]	G/7	760/226	OPEN	
2-ISV-32-3990	ESSENT CONTROL AIR ISOL VALVE TO 2-FCV-90-107 [Annulus]	F/6	748/294	OPEN	
2-ISV-32-3991	ESSENT CONTROL AIR ISOL VALVE TO 2-FCV-90-111 [Annulus]	F/6	748/293	OPEN	
2-ISV-32-3992	ESSENT CONTROL AIR ISOL VALVE TO 2-FCV-90-113 [Annulus]	G/6	748/293	OPEN	
2-ISV-32-3993	ESSENT CONTROL AIR ISOL VALVE TO 2-FCV-90-117 [Annulus]	G/6	748/293	OPEN	
2-ISV-32-453	ESSENT CONTROL AIR EL 811 RB (HDR Isolation 1/2") [Annulus]	F/7	835/360	OPEN	
2-ISV-32-3792	CONTROL AIR ISOL VLV TO PCV-65-86 (/81)/2-PCV-65-86 [Annulus]	F/6	756/359	OPEN	
2-ISV-32-3793	CONTROL AIR ISOL VLV TO 2-PCO-65-80(/88) [Annulus]	F/6	811/360	OPEN	

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Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-3794 (Note 1)	ISOL VLV TO 2-L-44 [2-PDM-65-80 for 2-PCV-35-80]	F/7	782/A16W	OPEN	
2-ISV-32-454	ESSENT CNTL AIR HDR TO 2-L-420 (and 2-PCV-1-23) [NVVR]	F/8	765/A14X	OPEN	
2-ISV-32-3795 (Note 1)	ISOL 2-L-420 [2-PM-1-24 for 2-PCV-1-23] [NVVR]	F/8	765/A14X	OPEN	
2-ISV-32-456	ESSENT CNTL HDR ISOL 2-PCV-1-23 [6"] [NVVR]	F/9	765/A14X	OPEN	
2-ISV-32-450	ESSENT CONTROL AIR HDR EL 716 RB (to 2-ISV-32-451) [AC 4]	E/7	730/298	OPEN	
2-ISV-32-451	ESSENT CNTL EL 725 RB BRANCH (to 2-ISV-32-3791)	E/8	728/095	OPEN	
2-ISV-32-3791	ESSENT CONTROL AIR ISOL VALVE TO 2-PCV-68-340D	E/8	736/091	OPEN	
2-ISV-32-3790 (Note 1)	ISOL 2-L-351B [2-PM-68-340H for 2-PCV-68-340D]	E/7	702/068	OPEN	

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ACAS Train B Initial Valve Lineup

Date _____

NOTES

- 1) The isolation of the panels listed below will occur after repositioning of the related component valves to be tested for failsafe and the opening of the listed valves for later restoration is addressed in Tables 6 & 13.
- 2) This line up is to be ensured by Startup Engineering or Operations as part of their jurisdiction. This requirement is included at prerequisite steps 4.1[21].
- 3) Valves are shown on Control Air Flow Diagrams 2-47W848 sheets 1 & 10. [e.g., typically 1-E/8 denotes sheet 1 coordinates E & 8 and typically C/3 denotes drawing 10 coordinates C & 3]
- 4) With 2-HS-32-103A to OPEN at 2-M-15, Verify 2-FCV-32-103 Handswitch indication of Red Light ON / Green Light OFF.
- 5) The components description referring to ABSEC boundary or Unit 1/Unit 2 interface (U1/U2) may require approval to change via the TI-65 or TI-12.08 processes. This is delineated by prerequisite step 4.1 [21] for placing the applicable components in service. Precaution and Limitations of section 3.0 provides additional clarification for test control purposes.

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-317	ESSEN CONTROL AIR 2-FCV-32-103 IN ISOL [Annulus]	1-E/8	724/280	OPEN	
2-RTV-32-316	ESSEN CNTL AIR CNTMT ISOL U/S PRESS TEST [Annulus]	1-E/8	724/280	CLOSED	
2-RTV-32-348	ESSEN CONTROL AIR ROOT TO 2-PREG-32-103 [Annulus]	1-E/8	724/280	OPEN	
2-FCV-32-103	ESSENT CONTROL AIR TR B CNTMT ISOL [test] [Note 4] [Annulus]	1-E/9	730/280	OPEN	
2-BYV-32-318	ESSENT CONTROL AIR 2-FCV-32-103 BYPASS [Annulus]	1-E/9	724/280	CLOSED	

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Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-RTV-32-320	2-PIC-32-103 ROOT VLV [Annulus]	1-E/9	724/280	OPEN	
2-ISV-32-321	ESSENT CONTROL AIR 2-FCV-32-103 OUT ISOL [Annulus]	1-E/9	724/280	OPEN	
2-RTV-32-319	ESSENT CNTL AIR CNTMT ISOL D/S PRESS TEST [AC 4]	1-E/10	716/288	CLOSED	
2-RTV-32-322	ESSENT CNTL AIR CNTMT ISOL CHECK PRESS TEST [AC 4] (Note: to be OPEN for Step 4.2[8] to install M&TE for Subsection 6.2)	1-E/10	716/291	CLOSED	
0-ISV-32-419	ESSENT CNTL AIR EL 737 HDR SECT ISOL	C/3	737/A11U	OPEN	
0-ISV-32-418	ESSENT CNTL AIR U-2 RB SUPPLY HDR ISOL [2"] [ABSCE L.C.]	B/4	737/A9W	OPEN	
0-ISV-32-1484	ESSENT CNTL AIR EL 737 AB HDR ISOL [2"] [U1/U2 L.C.]	B/3	737/A12U	OPEN	
0-ISV-32-411	ESSENT CNTL AIR EL 757 AB BRANCH HDR ISOL [Test Branch]	B/2	757/A12U	OPEN	
2-ISV-32-3687	CONTROL AIR ISOL VALVE TO 2-LCV-3-148	B/2	737/A13S	OPEN	
2-ISV-32-3688	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-148A	B/2	737/A13S	OPEN	
2-ISV-32-3689	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-171	B/2	737/A13T	OPEN	
2-ISV-32-3691	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-171A	B/2	737/A13T	OPEN	
2-ISV-32-3692 (Note 1)	ISOLATION 2-L-929 [2-LM-3-148A/171A]	B/2	739/A13S	OPEN	

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ACAS Train B Initial Valve Lineup

Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
0-ISV-32-415	ESSENT AIR ISOL TO 2-LCV-3-173/174 [Test Branch]	B/4	737/A9U	OPEN	
0-RTV-32-1582	ESSENT CNTL AIR 0-CKV-32-1581 ISOL D/S TEST	B/4	737/A9U	CLOSED	
0-RTV-32-1583	ESSENT CNTL AIR 0-CKV-32-1581 ISOL U/S TEST	B/4	737/A9U	CLOSED	
2-ISV-32-3728	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-173	B/4	737/A13U	OPEN	
2-ISV-32-3729	ESSENT CONTROL AIR ISOL VALVE TO 2-LCV-3-174	B/4	737/A13V	OPEN	
2-ISV-32-1487	ESSENT CNTL AIR BRANCH HDR ISOL	A/4	713/A13S	OPEN	
2-ISV-32-3725 (Note 1)	ISOLATION TO 2-L-222B [2-PM-3-132]	A/4	713/A13S	OPEN	
2-ISV-32-3724	CONTROL AIR ISOLATION VALVE TO 2-PCV-3-132	A/4	713/A13S	OPEN	
0-ISV-32-413	ESSENT CNTL AIR EL 757 AB BRANCH HDR ISOL	A/2	757/A11U	OPEN	
2-ISV-32-3683	CONTROL AIR ISOLATION VALVE TO 2-FCV-65-29 [24"] [ABSCE, L.C.]	A/2	757/A13V	OPEN	
2-ISV-32-3690	CONTROL AIR ISOLATION VALVE TO 2-FCV-65-7 [8"] [ABSCE, L.C.]	A/1	757/A13U	OPEN	
2-ISV-32-3678	ESSENT CONTROL AIR ISOL VALVE TO 2-FCO-65-45 [ABSCE, L.C.]	A/2	757/A11V	OPEN	
2-ISV-32-3680	CONTROL AIR ISOLATION VALVE TO 2-FCV-65-4 [ABSCE, L.C.]	B/2	757/A12V	OPEN	

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Date _____

VALVE NUMBER	DESCRIPTION	Coor.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-3727 (Note 1)	ISOLATION 2-L-422 [2-PM-1-31]	A/3	737/A13U	OPEN	
2-ISV-32-3726	ISOLATION 2-PCV-1-30 [6"]	A/3	737/A13U	OPEN	
0-ISV-032-412	ESSENT CNTL AIR BRANCH HDR ISOL [TO 2-PCV-1-30] [6"]`	B/3	765/SVVR	OPEN	
2-ISV-32-460	ESSENT CNTL AIR HDR ISOL VLV (2" Branch)	A/7	757/A12V	OPEN	
2-ISV-32-461	ESSENT CNTL AIR ISOL VLV OFF HDR	A/8	726/116	OPEN	
2-ISV-32-3775 (Note 1)	ISOL VALVE TO 2-L-180 [2-PM-68-340G for 2-PCV-68-340B] [RCS PNL]	B/8	726/113	OPEN	
2-ISV-32-3776	ESSEN CONTROL AIR ISOL VALVE TO 2-PCV-68-340B	B/8	736/117	OPEN	
2-ISV-32-3777	ESSEN CONTROL AIR ISOL TO 2-PCO-65-89(82) [Annulus]	B/7	834/360	OPEN	
2-ISV-32-1481	SPARE [CAP] [Annulus]	B/7	716/348	CLOSED	
2-ISV-32-463	ESSEN CONTROL AIR HDR VLV [Test Branch Isolation] [Annulus]	B/7	811/360	OPEN	
2-ISV-32-3778	ESSENT CONTROL AIR ISOL VLV TO 2-PCV-65-83/87 [Annulus]	B/6	834/360	OPEN	
2-ISV-32-3780 (Note 1)	ISOL VALVE TO 2-L-45 [2-PDM-65-82 for 2-PCV-65-82]	B/7	782/323	OPEN	
2-ISV-32-464	ESSENT CONTROL AIR ISOL VALVE TO 2-L-421 [NVVR]	B/8	765/A14X	OPEN	

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ACAS Train B Initial Valve Lineup

Date _____

VALVE NUMBER	DESCRIPTION	Coord.	LOCATION	POSITION	BY INIT/DATE
2-ISV-32-3781 (Note 1)	ISOL VALVE TO 2-L-421 [Control for 2-PM-1-13 for 2-PCV-1-12] [NVVR]	B/8	765/A14X	OPEN	
2-ISV-32 465	ESSEN CNTL AIR HDR ISOL TO 2-PCV-1-12 [NVVR]	B/8	765/A14X	OPEN	

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Table 4
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CAS Initial Valve Lineup

Date _____

NOTES

- 1) This Table supports prerequisite Step 4.1[21] for Startup Engineering And/Or Operations to consider other system valves that are NOT addressed below such as those lines designated in brackets as "mixed" and "multiple".
- 2) The isolation and restoration [via Table 11] of the panel isolation valves listed below occurs after preposition [via Table 9].
- 3) The valves are shown on Control Air Flow Diagrams 2-47W848 series on sheets indicated at the coordinates provided below.
- 4) This line up also requires that when verifying the line isolation valve to a component that may have a pressure regulator that its vent is closed and that the tubing is connected to the associated components to support testing in Table 11.
- 5) 2-HS-32-11A placed to OPEN at 2-M-15. Verify 2-FCV-32-111 Handswitch indication of Red Light ON / Green Light OFF.
- 6) The components description referring to ABSEC boundary or Unit 1/Unit 2 interface (U1/U2) may require approval to change via the TI-65 or TI-12.08 processes. This is delineated by prerequisite step 4.1 [21] for placing the applicable components in service. Precaution and Limitations of section 3.0 provides additional clarification for test control purposes.

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-337	CONTROL AIR 2-FCV-32-111 IN ISOL	1-H/8	295/720 ANN	OPEN	
2-RTV-32-336	CONTROL AIR CNTMT ISOL U/S PRESS TEST	1-H/8	295/719 ANN	CLOSED	
2-RTV-32-344	CONTROL AIR ROOT VALVE TO 2-PREG-32-111	1-H/8	288/720 ANN	OPEN	
2-PREG-32-111	PRESSURE REGULATOR VENT [To be vented for testing]	1-H/8	288/718 ANN	CLOSED	

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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-FCV-32-111	CONTROL AIR CNTMT ISOLATION [To be tested] (Note 5)	1-H/9	290/720 ANN	OPEN	
2-BYV-32-338	CONTROL AIR 2-FCV-32-111 BYPASS [To be open later for testing]	1-H/9	297/723 ANN	CLOSED	
2-RTV-32-340	2-PIC-32-111 ROOT	1-H/9	300/716 ANN	OPEN	
2-ISV-32-341	CONTROL AIR 2-FCV-32-111 OUT ISOL	1-H/9	300/723 ANN	OPEN	
2-RTV-32-339	CONTROL AIR CNTMT ISOL D/S PRESS TEST	1-H/9	300/723 ACC 4	CLOSED	
2-RTV-32-342	CONTROL AIR CNTMT ISOL CHECK PRESSURE TEST	1-H/9	300/723 ACC 4	CLOSED	
0-ISV-32-862	CONTROL AIR EL 729 TB BRANCH HDR ISOL [0.5"] [U1/U2] [Mixed]	3-H/3	T14P/729	OPEN	
2-ISV-32-2583	ISOLATION 2-L-87 [2-FM-3-35, 35G, 48, 48G, 90, 90G, 103, 103G]	3-H/2	T14N/729	OPEN	
2-ISV-32-2668	CONTROL AIR ISOL VALVE TO 2-FCV-3-103 [16"] [To be tested]	3-H/2	T15N/72	OPEN	
2-ISV-32-2587	CONTROL ISOLATION VALVE TO 2-FCV-3-35 [16"] [To be tested]	3-H/2	T15N/729	OPEN	
2-ISV-32-2584	CONTROL AIR ISOLATION VALVE TO 2-FCV-3-48 [6"] [To be tested]	3-H/3	T15N/729	OPEN	
2-ISV-32-2586	CONTROL AIR ISOLATION VALVE TO 2-FCV-3-90 [16"] [To be tested]	3-H/3	T15N/729	OPEN	
0-ISV-32-948	CONTROL AIR EL 692 AB BRANCH HDR ISOL [1"] [Mixed] [U1/U2]	4-A/6	A14U/692	OPEN	

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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3804	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-342 [2"] [test branch]	4-A/6	A15U/692	OPEN	
2-ISV-32-3805	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-344 [2"] [test branch]	4-A/6	A14U/692	OPEN	
2-ISV-32-3806	CONTROL AIR ISOLATION VALVE TO 2-FCV-26-219 [4"] (This valve will be closed in Table 11. A Fire Impairment may be required)	4-A/6	A13V/692	OPEN	
2-ISV-32-3807	CONTROL AIR ISOLATION VALVE TO 2-FCV-26-223 [4"] (This valve will be closed in Table 11. A Fire Impairment may be required)	4-A/6	A12V/692	OPEN	
2-ISV-32-2963	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-346 [test branch]	4-A/5	A12V/692	OPEN	
2-ISV-32-2964	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-348 [test branch]	4-A/5	A12V/692	OPEN	
2-ISV-32-4947	CONTROL AIR SPARE	4-A/6	A13V/692	CLOSED	
2-ISV-32-4948	CONTROL AIR SPARE	4-A/6	A12V/702	CLOSED	
2-ISV-32-4949	CONTROL AIR SPARE	4-A/6	A12V/692	CLOSED	
2-ISV-32-4950	CONTROL AIR SPARE [end of branch]	4-A/4	A12V/699	CLOSED	
0-ISV-32-1295	CNTL AIR EL 676 AB BRANCH HDR ISOL [0.5"] [U1/U2] [multiple]	4-E/9	A8U/676	OPEN	
2-ISV-32-3028	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-186 [test branch]	4-E/9	A9U/676	OPEN	

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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3029	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-184 [test branch]	4-E/9	A9U/676	OPEN	
0-ISV-32-939	CNTL AIR EL 692 AB BRANCH HDR ISOL [0.5"] [U1/U2] [multiple]	4-C/2	A11T/692	OPEN	
2-ISV-32-2880	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-182 [test branch]	4-C/2	A9U/692	OPEN	
2-ISV-32-2881	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-176 [test branch]	4-C/2	A9V/692	OPEN	
0-ISV-32-1003	CONTROL AIR EL 713 AB BRANCH HDR ISOL [1"] [Mixed] [U1/U2]	5-B/6	A13U/713	OPEN	
2-ISV-32-3102	CONTROL AIR ISOLATION VALVE TO 2-PCV-62-126 [test branch]	5-B/5	A13U/702	OPEN	
2-ISV-32-3111	CONTROL AIR ISOLATION VALVE TO 2-PCV-43-42 [test branch]	5-A/6	A13U/713	OPEN	
2-ISV-32-3110	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-140 [test branch]	5-A/6	A12V/713	OPEN	
2-ISV-32-3106	CONTROL AIR ISOLATION VALVE TO 2-PCV-43-43 [test branch]	5-A/6	A12V/713	OPEN	
2-ISV-32-4956	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-1228 [test branch]	5-A/6	A13U/713	OPEN	
2-ISV-32-4957	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-1229 [test branch]	5-A/5	A13U/713	OPEN	
0-ISV-32-1023	CONTROL AIR EL 713 AB BRANCH HDR ISOL [multiple]	5-B/8	A14U/713	OPEN	
2-ISV-32-3167	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-352 [test branch]	5-B/8	A13U/713	OPEN	

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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3166	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-350 [test branch]	5-B/8	A14V/713	OPEN	
0-ISV-32-1005	CNTL AIR EL 713 AB BRANCH HDR ISOL [1"] [Mixed] [U1/U2, L.C.]	5-B/9	A14U/713	OPEN	
2-ISV-32-3169	U2 AIRLOCK DOOR	5-A/9	A15W/713	OPEN	
2-ISV-32-3168	ISOLATION 2-L-487 [U2 DOOR]	5-A/9	061/713	OPEN	
2-ISV-32-3170	CONTROL AIR ISOL VALVE TO 2-FCV-30-213 [36"] [ABSCE] [test]	5-B/9	A15V/713	OPEN	
2-ISV-32-3165	CONTROL AIR ISOL VALVE TO 2-FCV-30-61 [36"] [ABSCE] [test]	5-A/9	A115U/713	OPEN	
2-ISV-32-3164	CONTROL AIR ISOL VALVE TO 2-FCV-30-62 [36"] [ABSCE] [test]	5-A/9	A14U/713	OPEN	
2-ISV-32-3163	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-216 [ABSCE] [test]	5-A/9	A14V/713	OPEN	
0-ISV-32-997	CONTROL AIR EL 713 AB BRANCH HDR ISOL [0.5"] [Mixed] [U1/U2]	5-C/3	A12S/713	OPEN	
2-ISV-32-3066	CONTROL AIR ISOLATION VALVE TO 2-TCV-62-79 [test branch]	5-C/3	A11T/713	OPEN	
0-ISV-32-981	CONTROL AIR EL 713 AB BRANCH HDR ISOL [0.5"] [Mixed] [U1/U2]	5-E/5	A7V/713	OPEN	
2-ISV-32-3089	CONTROL AIR ISOLATION VALVE TO 2-FCV-74-28 [8"] [test branch]	5-E/5	A8V/713	OPEN	
0-ISV-32-987	CNTL AIR EL 713 AB BRANCH HDR ISOL [0.5"] [U1/U2] [multiple]	5-E/6	A7V/713	OPEN	

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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3136	CONTROL AIR ISOLATION VALVE TO 2-FCV-74-16 [8"] [test branch]	5-D/6	A9W/713	OPEN	
2-ISV-32-3135	CONTROL AIR ISOLATION VALVE TO 2-FCV-74-32 [test branch]	5-D/6	A9W/713	OPEN	
0-ISV-32-992	CNTL AIR EL 713 AB BRANCH HDR ISOL [0.5"] [U1/U2] [multiple]	5-C/7	A11W2FC-713	OPEN	
2-ISV-32-3172	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-69 [test branch]	5-C/8	A11W/713	OPEN	
2-ISV-32-3171	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-67 [test branch]	5-C/8	A11W/713	OPEN	
0-ISV-32-973	CONTROL AIR EL 713 AB BRANCH HDR ISOL [1"] [U1/U2] [Mixed]	5-D/9	A11W/713	OPEN	
2-ISV-32-3175	CONTROL AIR ISOL VALVE TO 2-FCV-77-10 [3"] [ABSCE] [test]	5-D/8	A11W/713	OPEN	
2-ISV-32-3187	CONTROL AIR ISOL VALVE To 2-FCV-77-19 [1"] [ABSCE] [test]	5-D/9	A11W/713	OPEN	
2-ISV-32-3186	CONTROL AIR ISOL VALVE TO 2-FCV-68-305 [0.75"] [ABSCE] [test]	5-D/9	A11W/713	OPEN	
2-ISV-32-3183	CONTROL AIR ISOL VALVE TO 2-FCV-77-17 [0.75"] [ABSCE] [test]	5-D/9	A11W/713	OPEN	
2-ISV-312-3180	CONTROL AIR ISOL VALVE TO 2-FCV-77-128 [2"] [ABSCE] [test]	5-C/9	A11W/713	OPEN	
2-ISV-32-3179	CONTROL AIR ISOL VALVE TO 2-FCV-62-77 [2"] [ABSCE] [test]	5-C/9	A12W/713	OPEN	
2-ISV-32-3177	CONTROL AIR ISOLATION VALVE TO 2-FCV-81-12 [3"] [ABSCE] [test]	5-C/9	A12W/713	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
0-ISV-32-1016	CONT AIR AB HDR TO U-2 NON-ESSENT RB [ABSCE]	5-D/10	A12W/713	OPEN	
0-ISV-32-1056	CONTROL AIR HDR ISOL. VALVE TO 2-FCO-30-295 [ABSCE]	6-C/2	A13U/737	OPEN	
2-ISV-32-3211	CONTROL AIR ISOLATION VALVE TO 2-FCO-30-295 [test branch]	6-C/2	A13U/737	OPEN	
0-ISV-32-1072	CONTROL AIR EL 737 AB HDR ISOL	6-C/3	A13U/737	OPEN	
0-ISV-32-1053	CONTROL AIR EL 737 AB BRANCH HDR ISOL [Mixed]	6-C/3	A13U/737	OPEN	
2-ISV-32-3242	CONTROL AIR ISOLATION VALVE TO 2-FCO-30-294 [ABSCE] [test]	6-B/3	A13U/737	OPEN	
0-ISV-32-1257	CONTROL AIR ISOLATION VALVE TO 2-FCV-1-29 & Tank 594 [test]	6-B/5	A12U/737	OPEN	
2-DRV-32-594	2-FCV-1-29 CONTROL AIR ACCUMULATOR DRAIN	6-B/4	A12U/737	CLOSED	
0-ISV-32-1259	CONTROL AIR ISOLATION VALVE TO 2-FCV-1-4 & Tank 59 [test]	6-B/5	A12U/737	OPEN	
2-DRV-32-592	2-FCV-1-4 CONTROL AIR ACCUMULATOR DRAIN	6-B/4	A12U/737	CLOSED	
0-ISV-32-1261	CONTROL AIR EL 737 AB BRANCH HDR ISOL [Mixed]	6-B/5	A12U/737	OPEN	
2-ISV-32-3260	CONTROL AIR ISOLATION VALVE TO 2-FCV-3-245 [test branch]	6-B/4	A15U/729	OPEN	
0-ISV-32-1262	CONTROL AIR EL 737 AB BRANCH HDR ISOL [Mixed]	6-B/5	A12U/737	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3276	CONTROL AIR ISOLATION VALVE TO 2-FCV-3-236 [test branch]	6-B/5	A13U/729	OPEN	
0-ISV-32-1242	CNTL AIR EL 737 AB BRANCH HDR ISOL [0.5"] [U1/U2] [multiple]	6-C/4	A12U/737	OPEN	
2-ISV-32-3262	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-2 [test branch]	6-D/4	A13V/737	OPEN	
2-ISV-32-3263	CONTROL AIR ISOLATION VALVE T 2-FCV-30-5 [test branch]	6-D/4	A13V/737	OPEN	
0-ISV-32-1245	CONTROL AIR EL 737 AB BRANCH HDR ISOL [Mixed]	6-C/6	A12U/737	OPEN	
2-ISV-32-3323	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-356 [test branch]	6-C/7	A13V/737	OPEN	
2-ISV-32-3322	CONTROL AIR ISOLATION VALVE TO 2-FCV-67-354 [test branch]	6-C/7	A12V/737	OPEN	
0-ISV-32-1124	CONTROL AIR EL 757 AB HDR ISOL [1"] [U1/U2] [multiple]	7-C/4	A11V/757	OPEN	
0-ISV-32-1126	CONTROL AIR SPARE, [1 inch line]	7-B/4	A11W/782	CLOSED	
2-ISV-32-4946	CONTROL AIR HDR ISOL VLV TO 2-FCV-61-191 & 193 [multiple]	7-B/4	A12W/782	OPEN	
2-ISV-32-3359	CNTL AIR HDR ISOL VLV to 2-FCV-61-191 [4"] [ABSCE] [test branch]	7-B/5	A12V/782	OPEN	
2-ISV-32-3361	CNTL AIR HDR ISOL VLV to 2-FCV-61-193 [4"] [ABSCE] [test branch]	7-B/5	A12V/782	OPEN	
0-ISV-32-1113	CONTROL AIR EL 757 AB HDR ISOL	7-C/7	A11W/757	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3411	CONTROL AIR ISOL VALVE To 2-FCV-61-96 [2"] [ABSCE] [test]	7-D/7	A12W/768	OPEN	
2-ISV-32-3412	CONTROL AIR ISOL VALVE TO 2-FCV-61-110 [2"] [ABSCE] [test]	7-D/7	A12W/768	OPEN	
2-ISV-32-1471	CONTROL AIR EL 715 RB	9-G/1	300/715 ANN	OPEN	
2-ISV-32-1427	CONTROL AIR EL 715 RB BRANCH [multiple]	9-F/1	310/730 ANN	OPEN	
2-ISV-32-3498	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-14 [test branch]	9-F/1	313/720 ANN	OPEN	
2-ISV-32-3499	CONTROL AIR ISOLATION VALVE TO 2-FCV-68-307 [test branch]	9-F/1	307/716 ANN	OPEN	
2-ISV-32-1428	CONTROL AIR SPARE	9-F/1	319/730 ANN	CLOSED	
2-ISV-32-1429	CONTROL AIR SPARE [To Spare 2-ISV-32-3479]	9-F/1	330/715 ANN	CLOSED	
2-ISV-32-3497	CONTROL AIR SPARE	9-F/1	293/716 ANN	CLOSED	
2-ISV-32-1430	CONTROL AIR SPARE	9-F/1	340/715 ANN	CLOSED	
2-ISV-32-1431	CONTROL AIR SPARE	9-F/1	355/715 ANN	CLOSED	
2-ISV-32-1432	CONTROL AIR SPARE	9-E/1	020/715 ANN	CLOSED	
2-ISV-32-1433	CONTROL AIR EL 724 RB BRANCH [multiple]	9-E/1	030/724 ANN	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3495	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-57 [test branch]	9-E/1	033/724 ANN	OPEN	
2-ISV-32-3496	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-54 [test branch]	9-E/1	036/724 ANN	OPEN	
2-ISV-32-1434	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-19	9-E/1	045/718 ANN	OPEN	
2-ISV-32-3494	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-19 [test branch]	9-E/1	060/724 ANN	OPEN	
2-ISV-32-1435	CONTROL AIR EL 718 RB BRANCH [multiple]	9-E/1	050/718 ANN	OPEN	
2-ISV-32-3492	CONTROL AIR HDR ISOL VALVE TO 2-FCV-31-305 [test branch]	9-E/1	070/730 ANN	OPEN	
2-ISV-32-3493	CONTROL AIR HDR ISOL VALVE TO 2-FCV-31-309 [test branch]	9-E/1	063/730 ANN	OPEN	
2-ISV-32-1436	CONTROL AIR SPARE	9-E/1	050/716 ANN	CLOSED	
2-ISV-32-1331	CONTROL AIR SPARE [end of branch]	9-E/1	050/713 ANN	CLOSED	
2-ISV-32-1472	CONTROL AIR EL 715 RB [Mixed]	9-G/1	300/715 ANN	OPEN	
2-ISV-32-1438	CONTROL AIR SPARE	9-E/1	050/713 ANN	CLOSED	
2-ISV-32-1439	CONTROL AIR SPARE	9-G/3	090/715 ANN	CLOSED	
2-ISV-32-1440	CONTROL AIR EL 715 RB BRANCH [multiple]	9-G/3	288/715 ANN	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3546	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-53 [test branch]	9-F/4	250/744 ANN	OPEN	
2-ISV-32-3547	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-51 [test branch]	9-F/4	290/744 ANN	OPEN	
2-ISV-32-3548	CONTROL AIR HDR ISOL VALVE TO 2-FCV-43-58 [test branch]	9-F/4	220/716	OPEN	
2-ISV-32-3556	CONTROL AIR HDR ISOL VALVE TO 2-FCV-43-55 [test branch]	9-G/4	295/718	OPEN	
2-ISV-32-3557	CONTROL AIR HDR ISOL VLV TO 2-FCV-43-6 [SG 4][test branch]	9-G/4	295/715	OPEN	
2-ISV-32-3558	CONTROL AIR HDR ISOL VALVE TO2-FCV-43-64 [SG 4] [test branch]	9-G/4	295/715	OPEN	
2-ISV-32-1441	CONTROL AIR SPARE	9-G/4	290/715 ANN	CLOSED	
2-ISV-32-1443	CONTROL AIR SPARE	9-G/5	284/715 ANN	CLOSED	
2-ISV-32-1444	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-37	9-G/5	283/715 ANN	OPEN	
2-ISV-32-3575	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-37 [test branch]	9-G/5	280/720 ANN	OPEN	
2-ISV-32-1445	CONTROL AIR SPARE [CAP]	9-G/6	282/715 ANN	CLOSED	
2-ISV-32-1446	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-7	9-G/6	280/715 ANN	OPEN	
2-ISV-32-3576	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-7 [test branch]	9-G/6	286/790 ANN	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1447	CONTROL AIR EL 720 RB BRANCH [multiple]	9-G/6	270/720 ANN	OPEN	
2-ISV-32-3573	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-12 [test branch]	9-G/7	260/790 ANN	OPEN	
2-ISV-32-3574	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-9 [test branch]	9-G/7	263/790 ANN	OPEN	
2-ISV-32-1448	CONTROL AIR SPARE	9-G/7	240/715 ANN	CLOSED	
2-ISV-32-1449	CONTROL AIR SPARE	9-G/7	225/715 ANN	CLOSED	
2-ISV-32-1450	CNTRL AIR EL 720 RB BRAN HDR [CONTROL AIR SPARE CAP]	9-G/7	210/715 ANN	CLOSED	
2-ISV-32-1464	CONTROL AIR SPARE	9-G/8	200/715 ANN	CLOSED	
2-ISV-321465	CONTROL AIR SPARE	9-G/8	200/715 ANN	CLOSED	
2-ISV-32-1451	CONTROL AIR HDR ISOL VALVE TO 2-FCV-30-16	9-G/8	195/715 ANN	OPEN	
2-ISV-32-3663	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-16 [test branch]	9-G/8	240/737 ANN	OPEN	
2-ISV-32-1453	CONTROL AIR EL 732 NVVR BRANCH [Mixed]	9-H/8	A15X/732 NVVR	OPEN	
2-ISV-32-3578	CONTROL AIR HDR ISOL VALVE TO 2-FCV-3-239 [test branch]	9-H/7	A14X/729 NVVR	OPEN	
2-ISV-32-1462	CONTROL AIR ISOLATION VALVE TO 2-FCV-1-22 [Tank 6'10] [Mixed]	9-G/8	A14U/732 NVVR	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-DRV-32-610	2-FCV-1-22 CNTRL AIR ACCUMULATOR DRAIN [Tank Outlet 610]	9-G/7	A15X/729 NVVR	CLOSED	
2-ISV-32-1455	CONTROL AIR EL 732 NVVR BRANCH [Mixed]	9-H/9	A15X/732 NVVR	OPEN	
2-ISV-32-3674	CONTROL AIR ISOLATION VALVE TO 2-FCV-3-242 [test branch]	9-H/10	A14X/729 NVVR	OPEN	
2-ISV-32-1463	CONTROL AIR ISOLATION VALVE TO 2-FCV-1-11 [Tank 612] [test]	9-G/9	A14U/732 NVVR	OPEN	
2-DRV-32-612	2-FCV-1-11 CONTROL AIR ACCUMULATOR DRAIN [Tank 612 Outlet]	9-H/10	A14U/732	CLOSED	
2-ISV-32-1456	CONTROL AIR SPARE	9-G/9	150/715 ANN	CLOSED	
2-ISV-32-1457	CONTROL AIR SPARE	9-G/9	155/715 ANN	CLOSED	
2-ISV-32-1458	CONTROL AIR ISOL VALVE TO 2-FCV-30-59	9-G/10	140/715 ANN	OPEN	
2-ISV-32-3668	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-59 [test branch]	9-G/10	120/740 ANN	OPEN	
2-ISV-32-1459	CONTROL AIR EL 715 RB BRANCH [multiple]	9-G/10	130/715 ANN	OPEN	
2-ISV-32-3666	CONTROL AIR ISOL VALVE TO 2-FCV-31-326 [2"] [ABSCE] [test]	9-G/10	105/731	OPEN	
2-ISV-32-3667	CONTROL AIR ISOL VALVE TO 2-FCV-31-330 [2"] [ABSCE] [test]	9-G/10	102/731	OPEN	
2-ISV-32-1460	CONTROL AIR SPARE	9-G/10	115/715 ANN	CLOSED	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1330	CONTROL AIR SPARE, end of branch	9-G/10	115/715 ANN	CLOSED	
2-ISV-32-1336	CONTROL AIR RB SUPPLY HDR [Mixed]	9-A/2	298/721 ACC 4	OPEN	
2-ISV-32-1337	CONTROL AIR ISOL VALVE OFF HDR [To Purge Solenoids]	9-A/2	298/721 ACC 4	OPEN	
2-ISV-32-1339	CONTROL AIR ISOL VALVE OFF HDR [To Purge Solenoids]	9-A/2	298/721 ACC 4	OPEN	
2-ISV-32-1338	CONTROL AIR HDR ISOL VALE TO 2-FCV-30-15	9-A/2	298/721 ACC 4	OPEN	
2-ISV-32-3476	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-15 [test branch]	9-A/1	298/738 ACC 4	OPEN	
2-ISV-32-1342	CONTROL AIR EL 721 RB BRANCH [multiple]	9-B/2	298/721 ACC 4	OPEN	
2-ISV-32-3510	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-54D [test branch]	9-B/2	290/716	OPEN	
2-ISV-32-3511	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-56D [test branch]	9-B/2	290/716	OPEN	
2-ISV-32-3512	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-59D [test branch]	9-B/2	290/716 ACC 4	OPEN	
2-ISV-32-3513	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-63D [test branch]	9-B/2	285/716 ACC 4	OPEN	
2-ISV-32-1344	CONTROL AIR EL 721 RB BRANCH [Mixed]	9-B/2	298/721 ACC 4	OPEN	
2-ISV-32-3516	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-40 [test branch]	9-B/2	285/716 ACC 4	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-3517	CONTROL AIR ISOLATION VALVE TO 2-FCV-77-16 [test branch]	9-C/2	285/716 ACC 4	OPEN	
2-ISV-32-3518	CONTROL AIR ISOLATION VALVE TO 2-FCV-77-127 [test branch]	9-C/2	296/716 ACC 4	OPEN	
2-ISV-32-1346	CONTROL AIR EL 721 RB BRANCH [Mixed]	9-C/2	300/716 ACC 4	OPEN	
2-ISV-32-3491	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-50 [test branch]	9-D/2	292/744 ACC 4	OPEN	
2-ISV-32-1347	CONTROL AIR SPARE	9-C/4	302/721 ACC 4	CLOSED	
2-ISV-32-1348	CONTROL AIR SPARE	9-C/4	302/721 ACC 4	CLOSED	
2-ISV-32-1467	CONTROL AIR EL 730 RB [Mixed]	9-C/4	304/730 ACC 4	OPEN	
2-ISV-32-1362	CONTROL AIR E 730 RB BRANCH [Mixed]	9-C/4	308/730 ACC 4	OPEN	
2-ISV-32-3533	CONTROL AIR ISOLATION VALVE TO 2-FCV-68-308 [test branch]	9-C/4	318/716 ACC 4	OPEN	
2-ISV-32-1363	CONTROL AIR EL 729 RB BRANCH [To 2-ISV-32-3515 Spare]	9-B/4	310/729 ACC 4	CLOSED	
2-ISV-32-3515	CONTROL AIR SPARE	9-B/3	300/716 ACC 4	CLOSED	
2-ISV-32-1365	CONTROL AIR SPARE	9-B/4	318/716 ACC 4	CLOSED	
2-ISV-32-3523	CONTROL AIR SPARE [delete 2-FCV-43-75]	9-B/3	320/716 ACC 4	CLOSED	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1368	CONTROL AIR SPARE [Fan Room]	9-B/4	330/729	CLOSED	
2-ISV-32-1369	CONTROL AIR SPARE [Fan Room]	9-B/4	335/729	CLOSED	
2-ISV-32-1370	CONTROL AIR HDR ISOL VALVE TO 2-FCV-43-63B [test branch] [FR]	9-B/5	345/729	OPEN	
2-ISV-32-3534	CONTROL AIR ISOL VALVE TO 2-FCV-43-63B [test branch] [Fan Rm]	9-B/5	343/716	OPEN	
2-ISV-32-1371	CONTROL AIR SPARE [Fan Room]	9-B/5	349/729	CLOSED	
2-ISV-32-1374	CONTROL AIR SPARE [Fan Room]	9-B/5	007/729	CLOSED	
2-ISV-32-1375	CONTROL AIR EL 729 RB BRANCH [Mixed] [Fan Room]	9-B/6	009/729	OPEN	
2-ISV-32-3608	CONTROL AIR ISOL VALVE TO 2-FCV-43-54B [test branch] [Fan Rm]	9-A/6	215/716	OPEN	
2-ISV-32-1376	CONTROL AIR SPARE [Fan Room]	9-B/6	024/729	CLOSED	
2-ISV-32-1377	CONTROL AIR EL 729 RB BRANCH [Mixed]	9-B/6	035/729 ACC 1	OPEN	
2-ISV-32-3612	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-56 [test branch]	9-A/6	038/733 ACC 1	OPEN	
2-ISV-32-1379	CONTROL AIR SPARE	9-B/7	042/729 ACC 1	CLOSED	
2-ISV-32-1381	CONTROL AIR SPARE	9-B/7	046/729 ACC 1	CLOSED	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1382	CONTROL AIR EL 729 RB BRANCH [Mixed]	9-B/8	050/729 ACC 1	OPEN	
2-ISV-32-3632	CONTROL AIR ISOL VALVE TO 2-FCV-62-73 [test branch] [Raceway]	9-B/8	047/702	OPEN	
2-ISV-32-1383	CONTROL AIR EL 729 RB BRANCH [Mixed] [EGTS Filter]	9-B/8	060/729	OPEN	
2-ISV-32-3637	CONTROL AIR ISOLATION VALVE TO 2-FCV-31-306 [test branch]	9-B/8	063/730	OPEN	
2-ISV-32-3638	CONTROL AIR ISOL VALVE TO 2-FCV-31-308 [test branch] [11R]	9-B/8	063/730	OPEN	
2-ISV-32-1384	CONTROL AIR EL 729 RB BRANCH [Mixed] [11R]	9-B/8	065/729	OPEN	
2-ISV-32-3640	CONTROL AIR ISOL VALVE TO 2-FCV-30-20 [test branch] [11R]	9-B/9	063/716	OPEN	
2-ISV-32-1385	CONTROL AIR EL 729 RB BRANCH [Mixed] [11R]	9-B/9	067/729	OPEN	
2-ISV-32-3647	CONTROL AIR ISOL VALVE TO 2-FCV-31-329 [test branch] [11R]	9-B/9	090/731	OPEN	
2-ISV-32-3646	CONTROL AIR ISOL VALVE TO 2-FCV-31-327 [test branch] [11R]	9-B/9	090/731	OPEN	
2-ISV-32-3643	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-58 [11R]	9-B/9	118/716	OPEN	
2-ISV-32-1386	CONTROL AIR SPARE [11R]	9-B/9	070/729	CLOSED	
2-ISV-32-1335	CONTROL AIR SPARE [end of branch] [11R]	9-B/9	075/729	CLOSED	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1468	CONTROL AIR EL 730 RB [Mixed]	9-C/4	304/730 ACC 4	OPEN	
2-ISV-32-1349	CONTROL AIR EL 727 RB BRANCH [Multiple] [Inside PC Wall]	9-C/5	300/720	OPEN	
2-ISV-32-3550	CONTROL AIR ISOLATION VALVE TO 2-FCV-61-97 [test branch]	9-C/5	303/775	OPEN	
2-ISV-32-3551	CONTROL AIR ISOLATION VALVE TO 2-FCV-61-122 [test branch]	9-C/5	303/772	OPEN	
2-ISV-32-3552	CONTROL AIR ISOLATION VALVE TO 2-FCV-61-192 [test branch]	9-D/5	294/806	OPEN	
2-ISV-32-3553	CONTROL AIR ISOLATION VALVE TO 2-FCV-61-194 [test branch]	9-D/5	297/806	OPEN	
2-ISV-32-3554	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-8 [test branch]	9-D/5	290/795	OPEN	
2-ISV-32-3555	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-10 [test branch]	9-D/5	261/797	OPEN	
2-ISV-32-1352	CONTROL AIR HDR ISOL VALVE TO 2-FCV-43-63A [Inside PC Wall]	9-C/6	330/727	OPEN	
2-ISV-32-3538	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-63A [test branch]	9-C/6	343/716	OPEN	
2-ISV-32-1353	CONTROL AIR SPARE [Inside PC Wall]	9-C/6	335/727	CLOSED	
2-ISV-32-1355	CONTROL AIR EL 727 RB BRANCH [Mixed] [Inside PC Wall]	9-C/6	030/727	OPEN	
2-ISV-32-3600	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-54A [test]	9-C/6	019/702	OPEN	

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Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1356	CONTROL AIR SPARE [Inside PC Wall]	9-C/7	035/727	CLOSED	
2-ISV-32-1358	CONTROL AIR SPARE [Inside PC Wall]	9-C/7	070/727	CLOSED	
2-ISV-32-1360	CONTROL AIR SPARE [Inside PC Wall]	9-C/8	075/727	CLOSED	
2-ISV-32-1334	CONTROL AIR SPARE [2 inch, end of branch] [Inside PC Wall]	9-C/9	075/727	CLOSED	
2-ISV-32-1466	CONTROL AIR EL 721 RB [Mixed]	9-C/4	300/721 ACC 4	OPEN	
2-ISV-32-1387	CONTROL AIR EL 721 RB BRANCH [Mixed]	9-C/4	300/721 ACC 4	OPEN	
2-ISV-32-3540	CONTROL AIR ISOLATION VALVE TO 2-FCV-77-9 [test branch]	9-C/4	278/716 ACC 4	OPEN	
2-ISV-32-3539	CONTROL AIR ISOLATION VALVE TO 2-FCV-77-18 [test branch]	9-C/4	281/716 ACC 4	OPEN	
2-ISV-32-3541	CONTROL AIR SPARE	9-C/4	288/716 ACC 4	CLOSED	
2-ISV-32-1392	CONTROL AIR SPARE [Raceway]	9-E/4	260/706	CLOSED	
2-ISV-32-1393	CONTROL AIR SPARE [Raceway]	9-E/4	250/706	CLOSED	
2-ISV-32-1394	CONTROL AIR SPARE [Raceway]	9-E/4	236/710	CLOSED	
2-ISV-32-1470	CONTROL AIR EL 716 RB [Mixed]	9-E/5	222/716 ACC 3	OPEN	

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Table 4
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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1395	CONTROL AIR SPARE	9-E/5	224/726 ACC 3	CLOSED	
2-ISV-32-1397	CONTROL AIR SPARE	9-E/5	225/726 ACC 3	CLOSED	
2-ISV-32-1398	CONTROL AIR EL 726-RB BRANCH [Mixed]	9-E/5	226/726 ACC 3	OPEN	
2-ISV-32-3581	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-17 [test branch]	9-E/5	233/716 ACC 3	OPEN	
2-ISV-32-3582	CONTROL AIR SPARE	9-E/5	220/716 ACC 3	CLOSED	
2-ISV-32-3583	CONTROL AIR SPARE	9-E/5	226/716 ACC 3	CLOSED	
2-ISV-32-1400	CONTROL AIR SPARE	9-D/5	228/726 ACC 3	CLOSED	
2-ISV-32-1402	CONTROL AIR EL 726 RB BRANCH [Mixed] [Inside PC Wall]	9-D/6	210/726	OPEN	
2-ISV-32-3589	CONTROL AIR ISOLATION VALVE TO 2-FCV-30-52 [test branch]	9-E/6	249/751	OPEN	
2-ISV-32-1403	CONTROL AIR EL 726 RB BRANCH [Mixed] [Inside PC Wall]	9-D/6	201/726	OPEN	
2-ISV-32-3586	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-59A [test branch]	9-D/6	195/708 RCP 3	OPEN	
2-ISV-32-1406	CONTROL AIR HDR ISOL VALVE TO 2-FCV-43-56A [Inside PC Wall]	9-D/7	170/726	OPEN	
2-ISV-32-3594	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-56A [test]	9-E/7	187/702	OPEN	

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Table 4
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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1407	CONTROL AIR SPARE [Inside PC Wall]	9-E/7	155/726	CLOSED	
2-ISV-32-1408	CONTROL AIR EL 726 RB BRANCH [Mixed] [Inside PC Wall]	9-E/8	145/726	OPEN	
2-ISV-32-1409	CONTROL AIR HDR ISOLATION TO 2-FCV-62-70 [Inside PC Wall]	9-E/8	135/726	OPEN	
2-ISV-32-4954	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-70 [test branch]	9-E/8	122/718	OPEN	
2-ISV-32-3650	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-69 [test branch]	9-E/8	130/729	OPEN	
2-ISV-32-1333	CONTROL AIR SPARE [2 inch, end of branch] [Inside PC Wall]	9-E/8	135/702	CLOSED	
2-ISV-32-1469	CONTROL AIR EL 716 RB	9-E/4	220/716	OPEN	
2-ISV-32-1412	CONTROL AIR SPARE	9-E/5	217/726 ACC 3	CLOSED	
2-ISV-32-1413	CONTROL AIR SPARE [Fan Rm 2]	9-E/5	205/726	CLOSED	
2-ISV-32-1415	CONTROL AIR EL 726 RB BRANCH [Mixed] [Fan Rm 2]	9-E/6	180/726	OPEN	
2-ISV-32-3591	CONTROL AIR ISOLATION VALVE TO 2-FCV-43-56B [Fan Rm 2]	9-E/6	205/726	OPEN	
2-ISV-32-3592	CONTROL AIR ISOL. VALVE TO 2-FCV-43-59B [test branch] [F. Rm 2]	9-E/6	180/726	OPEN	
2-ISV-32-1417	CONTROL AIR SPARE [Fan Rm 2]	9-E/6	160/726	CLOSED	

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Table 4
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CAS Initial Valve Lineup

Date _____

Component	Description [Notes]	Sht.	Location	Position	Initial/Date
2-ISV-32-1418	CONTROL AIR SPARE [Fan Rm 2]	9-E/6	153/726	CLOSED	
2-ISV-32-1419	CONTROL AIR SPARE [Fan Rm 2]	9-F/7	150/726	CLOSED	
2-ISV-32-1420	CONTROL AIR EL 726-RB-BRANCH [Mixed]	9-F/7	142/726 ACC 2	OPEN	
2-ISV-32-3572	CONTROL AIR ISOL VALVE TO 2-FCV-62-59 [test branch] [Raceway]	9-F/7	110/702	OPEN	
2-ISV-32-1422	CONTROL AIR EL 726 RB BRANCH [Mixed]	9-F/8	137/726	OPEN	
2-ISV-32-3656	CONTROL AIR ISOLATION VALVE TO 2-FCV-62-86 [test branch]	9-F/8	129/716 ACC 2	OPEN	
2-ISV-32-3658	CONTROL AIR SPARE [Cap]	9-F/8	133/716	CLOSED	
2-ISV-32-1423	CONTROL AIR SPARE	9-F/8	120/726	CLOSED	
2-ISV-32-1424	CONTROL AIR SPARE [Excess LDHX]	9-F/9	120/726	CLOSED	
2-ISV-32-1426	CONTROL AIR SPARE [Excess LDHX]	9-F/9	120/726	CLOSED	
2-ISV-32-1332	CONTROL AIR SPARE [2 inch end of branch]	9-F/9	120/728	CLOSED	

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**Table 5
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ACAS Train A Component Pre-Failsafe Positioning

Date _____

COMPONENT OPERATOR	OPERATOR LOCATION	ASSOCIATED COMPONENT ID	PRETEST POSITION	VERIFIED BY INITIAL/DATE
2-PIC-1-6A	2-M-4	2-PCV-1-5	OPEN	
2-PIC-1-24A	2-M-4	2-PCV-1-23	OPEN	
2-PDIC-3-122A	2-M-4	2-PCV-3-122	OPEN	
2-LIC-3-156A	2-M-4	2-LCV-3-156A	OPEN	
2-LIC-3-156A	2-M-4	2-LCV-3-156	CLOSED	
2-LIC-3-164A	2-M-4	2-LCV-3-164A	OPEN	
2-LIC-3-164A	2-M-4	2-LCV-3-164	CLOSED	
2-LIC-3-172A	2-M-4	2-LCV-3-172	OPEN	
2-LIC-3-175A	2-M-4	2-LCV-3-175	OPEN	
2-HS-65-46	0-M-27B	2-FCO-65-46	OPEN	
2-HS-65-50	0-M-27B	2-FCV-65-50	OPEN	
2-HS-32-81A Red Light ON Only	2-M-15	2-FCV-32-81	OPEN	
2-HS-65-9	0-M-27B	2-FCV-65-9	OPEN	
2-HS-65-5	0-M-27B	2-FCV-65-5	OPEN	
2-HS-65-81/86	0-M-27B	2-PCV-65-81	OPEN	
2-HS-65-81/86	0-M-27B	2-PCV-65-86	OPEN	
2-PDIC-65-80	0-M-27B	2-PCO-65-80	CLOSED	
2-PDIC-65-80	0-M-27B	2-PCO-65-88	OPEN	
2-PIC-68-340D	2-M-4	2-PCV-68-340D	OPEN	
2-HS-90-107	0-M-12	2-FCV-90-107	OPEN	
2-HS-90-111	0-M-12	2-FCV-90-111	OPEN	

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**Table 5
(Page 2 of 2)**

ACAS Train A Component Pre-Failsafe Positioning

Date _____

COMPONENT OPERATOR	OPERATOR LOCATION	ASSOCIATED COMPONENT ID	PRETEST POSITION	VERIFIED BY INITIAL/DATE
2-HS-90-113	0-M-12	2-FCV-90-113	OPEN	
2-HS-90-117	0-M-12	2-FCV-90-117	OPEN	

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**Table 6
(Page 1 of 2)**

ACAS Train B Component Pre-Failsafe Positioning

Date _____

COMPONENT OPERATOR	OPERATOR LOCATION	ASSOCIATED COMPONENT ID	PRETEST POSITION	VERIFIED BY INITIAL/DATE
2-PIC-1-13A	2-M-4	2-PCV-1-12	OPEN	
2-PIC-1-31A	2-M-4	2-PCV-1-30	OPEN	
2-PDIC-3-132A	2-M-4	2-PCV-3-132	OPEN	
2-LIC-3-148A	2-M-4	2-LCV-3-148	CLOSED	
2-LIC-3-148A	2-M-4	2-LCV-3-148A	OPEN	
2-LIC-3-171A	2-M-4	2-LCV-3-171	CLOSED	
2-LIC-3-171A	2-M-4	2-LCV-3-171A	OPEN	
2-LIC-3-173A	2-M-4	2-LCV-3-173	OPEN	
2-LIC-3-174A	2-M-4	2-LCV-3-174	OPEN	
2-HS-32-103A Red Light ON Only	2-M-15	2-FCV-32-103	OPEN	
2-HS-65-7	0-M-27B	2-FCV-65-7	OPEN	
0-HS-65-45	0-M-27B	2-FCO-65-45	OPEN	
2-HS-65-29	0-M-27B	2-FCV-65-29	OPEN	
2-HS-65-4	0-M-27B	2-FCV-65-4	OPEN	
2-PDIC-65-82	0-M-27B	2-PCO-65-82	CLOSED	
2-PDIC-65-82	0-M-27B	2-PCO-65-89	OPEN	
2-HS-65-83/87	0-M-27B	2-PCV-65-83	OPEN	
2-HS-65-83/87	0-M-27B	2-PCV-65-87	OPEN	
2-PIC-68-340B	2-M-4	2-PCV-68-340B	OPEN	
2-HS-90-109	0-M-12	2-FCV-90-109	OPEN	
2-HS-90-108	0-M-12	2-FCV-90-108	OPEN	

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**Table 6
(Page 2 of 2)**

ACAS Train B Component Pre-Failsafe Positioning

Date _____

COMPONENT OPERATOR	OPERATOR LOCATION	ASSOCIATED COMPONENT ID	PRETEST POSITION	VERIFIED BY INITIAL/DATE
2-HS-90-110	0-M-12	2-FCV-90-110	OPEN	
2-HS-90-114	0-M-12	2-FCV-90-114	OPEN	
2-HS-90-115	0-M-12	2-FCV-90-115	OPEN	
2-HS-90-116	0-M-12	2-FCV-90-116	OPEN	

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**Table 7
(Page 1 of 2)**

ACAS Train A Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	VERIFIED BY INITIAL/DATE
2-PCV-1-5	CLOSED	
2-PCV-1-23	CLOSED	
2-PCV-3-122	CLOSED	
2-LCV-3-156A	CLOSED	
2-LCV-3-156	OPEN	
2-LCV-3-164A	CLOSED	
2-LCV-3-164	OPEN	
2-LCV-3-172	CLOSED	
2-LCV-3-175	CLOSED	
2-FCV-32-81 [2-HS-32-81A Green Light ON Only]	CLOSED	
2-FCV-65-5	CLOSED	
2-FCV-65-9	CLOSED	
2-FCO-65-46	CLOSED	
2-FCV-65-50	CLOSED	
2-PCO-65-80 [DRIVEN]	OPEN	
2-PCO-65-88 [DRIVER]	CLOSED	
2-PCV-65-81	CLOSED	
2-PCV-65-86	CLOSED	
2-PCV-68-340D	CLOSED	
2-FCV-90-107	CLOSED	
2-FCV-90-111	CLOSED	

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**Table 7
(Page 2 of 2)**

ACAS Train A Failsafe Position Verification

Date _____

2-FCV-90-113	CLOSED	
2-FCV-90-117	CLOSED	

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**Table 8
(Page 1 of 2)**

ACAS Train B Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	VERIFIED BY INITIAL/DATE
2-PCV-1-12	CLOSED	
2-PCV-1-30	CLOSED	
2-PCV-3-132	CLOSED	
2-LCV-3-148	OPEN	
2-LCV-3-148A	CLOSED	
2-LCV-3-171	OPEN	
2-LCV-3-171A	CLOSED	
2-LCV-3-173	CLOSED	
2-LCV-3-174	CLOSED	
2-FCV-32-103 [2-HS-321-103A Green Light ON Only]	CLOSED	
2-FCV-65-4	CLOSED	
2-FCV-65-7	CLOSED	
2-FCO-65-45	CLOSED	
2-FCV-65-29	CLOSED	
2-PCO-65-89 [DRIVER]	CLOSED	
2-PCO-65-82 [DRIVEN]	OPEN	
2-PCV-65-83	CLOSED	
2-PCV-65-87	CLOSED	
2-PCV-68-340B	CLOSED	
2-FCV-90-109	CLOSED	
2-FCV-90-108	CLOSED	

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**Table 8
(Page 2 of 2)**

ACAS Train B Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	VERIFIED BY INITIAL/DATE
2-FCV-90-110	CLOSED	
2-FCV-90-114	CLOSED	
2-FCV-90-115	CLOSED	
2-FCV-90-116	CLOSED	

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Table 9
(Page 1 of 30)
CAS Gradual Loss of Air Component Pre-Positioning

Date _____

NOTES

- 1) Individual positioning may be performed in any order in conjunction with the performance of branch testing via Table 11. Components vented will be restored first.
- 2) For MFW listed valve positioning of 2-FCV-3-236, -239, -242, & 245: first go to RESET using both selector switch and pushbutton 2-HS-99A1 & A2 at 2-M-3, then take 2-HS-3-945A to the ON position inside 2-JB-292-8205 [125 VDC Battery Room III, A10Q/757]. Valve position may be verified at 2-M-3 status lights [2-XI-3-236, 239, 242 & 245] or locally at North or South Valve Rooms [A15X/729 or A15U/729].
- 3) The tracking of the adjustment of Pressure Controllers (PC's, PIC) within this Table will be accomplished using Appendix B, Temporary Condition Log for recording the As Found, As Adjusted, and As Left (restored to As Found) positions. The pressure setting knob inside the controller assembly is to be rotated clockwise (CW) to increase and counterclockwise to decrease the set point.
- 4) Some components listed in this Table are under Unit 1 control and required coordination with Unit 1 Operations.

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-1-4A OPEN 2-M-4	MSIV SG 1	2-FCV-1-4 [A15U/729 SVVR]	MAIN STEAM ISOL VALVE LOOP 1	OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-1-11A OPEN 2-M-4	MSIV SG 2	2-FCV-1-11 [A15X/729 NVR]	MAIN STEAM ISOL VALVE LOOP 2	OPEN	
2-HS-1-22A OPEN 2-M-4	MSIV SG 3	2-FCV-1-22 [A15X/729 NVR]	MAIN STEAM ISOL VALVE LOOP 3	OPEN	
2-HS-1-29A OPEN 2-M-4	MSIV SG 4	2-FCV-1-29 [A15U/729 SVWR]	MAIN STEAM ISOL VALVE LOOP 4	OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-99A1 [switch], RESET and 2-HS-99A2 [push], RESET 2-M-3 and 2-HS-3- 945A [switch] 2-JB-292-8205 Note 2 Applies	MFW ISOL ACT RESET TR A and RESET TR A MFW ISOL and [SG 1-2-3-4 MFW Bypass Isolation]	2-FCV-3-236 [A15U/729 SVWR] 2-FCV-3-239 [A15X/729 NVWR] 2-FCV-3-242 [A15X/729 NVWR] 2-FCV-3-245 [A15U/729 SVWR]	S.G. 1 MFW Bypass Line Isol S.G. 2 MFW Bypass Line Isol S.G. 3 MFW Bypass Line Isol S.G. 4 MFW Bypass Line Isol	OPEN OPEN OPEN OPEN	
2-FIC-3-35 MAN RAMP OPEN 2-M-3	SG 1 MFW REG VLV	2-FCV-3-35 [T15P/729]	STEAM GENERATOR 1 MFW REG VALVE	OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-FIC-3-48, MAN RAMP OPEN 2-M-3	SG 2 MFW REG VLV	FCV-3-48 [T15P/729]	STEAM GENERATOR 2 MFW REG VALVE	OPEN	
2-FIC-3-90 MAN RAMP OPEN 2-M-3	SG 3 MFW REG VLV	2-FCV-3-90 [T15N/740]	STEAM GENERATOR 3 MFW REG VALVE	OPEN	
2-FIC-3-103 MAN RAMP OPEN 2-M-3	SG 4 MFW REG VLV	2-FCV-3-103 [T15P/740]	STEAM GENERATOR 4 MFW REG VALVE	OPEN	
2-HS-30-294B OPEN [A13U/737]	PURGE AIR SUPPLY ISOLATION DAMPER	2-FCO-30-294 [A12T/737]	CNTMT PURGE AIR SUPPLY ISOLATION	OPEN	
2-HS-30-295B OPEN [A13U/737]	PURGE AIR SUPPLY ISOLATION DAMPER	2-FCO-30-295 [A13U/737]	CNTMT PURGE AIR SUPPLY ISOLATION	OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-19 OPEN 2-M-9	INSTR RM PURGE 2-FCV-30-19 & 58	2-FCV-30-19 [060/702 ANN] and 2-FCV-30-58 [116/716]	CNTMT INCORE INSTR ROOM PURGE SUPPLY and CNTMT INSTRUMENT ROOM PURGE EXHAUST ISOLATION	OPEN and OPEN	
2-HS-30-20 OPEN 2-M-9	INSTR RM PURGE 2-FCV-30-20 & 59	2-FCV-30-20 [060/716] and 2-FCV-30-59 [120/720]	CNTMT INCORE INSTR ROOM PURGE SUPP and CNTMT INSTRUMENT ROOM EXHAUST ISOLATION	OPEN and OPEN	
2-HS-30-2 OPEN 2-M-9	PURGE SUPPLY FAN 2A DISCH	2-FCV-30-2 [A12V/737]	CONTAINMENT PURGE AIR SUPPLY FAN 2A DISCHARGE	OPEN	
2-HS-30-37 OPEN 2-M-9	LWR CNTMT PURGE EXH PRESS RLF	2-FCV-30-37 [286/716 ANN]	CNTMT LOWER COMPARTMENT PURGE EXH PRESS RELIEF	OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-5 OPEN 2-M-9	PURGE SUPPLY FAN 2B DISCH	2-FCV-30-5 [A13V/737]	PURGE AIR SUPPLY FAN B ISOL VALVE	OPEN	
2-HS-30-40 OPEN 2-M-9	LWR CNTMT PURGE EXH PRESS RLF	2-FCV-30-40 [286/716]	CNTMT COMPARTMENT PURGE EXH PRESS RELIEF	OPEN	
2-HS-30-7 OPEN 2-M-9	UPR CNTMT PURGE 2-FCV-30-7 & 51	2-FCV-30-7 [286/702 ANN] and 2-FCV-30-51 [290/756 ANN]	CNTMT UPPER COMPARTMENT PURGE SUPPLY and CNTMT UPPER COMPARTMENT EXHAUST ISOLATION	OPEN and OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-8 OPEN 2-M-9	UPR CNTMT PURGE 2-FCV-30-8 & 50	2-FCV-30-8 [285/756] and 2-FCV-30-50 [293/716]	CNTMT UPPER COMPARTMENT PURGE SUPPLY and CNTMT UPPER COMPARTMENT EXHAUST ISOLATION	OPEN and OPEN	
2-HS-30-10 OPEN 2-M-9	UPR CNTMT PURGE 2-FCV-30-10 & 52	2-FCV-30-10 [261/756] and 2-FCV-30-52 [250/756]	CNTMT UPPER COMPARTMENT PURGE SUPPLY and CNTMT UPPER COMPARTMENT EXHAUST ISOLATION	OPEN and OPEN	
2-HS-30-9 OPEN 2-M-9	UPR CNTMT PURGE 2-FCV-30-9 & 53	2-FCV-30-9 [263/756 ANN] and 2-FCV-30-53 [252/756 ANN]	CNTMT UPPER COMPARTMENT PURGE SUPPLY and CNTMT UPPER COMPARTMENT EXHAUST ISOLATION	OPEN and OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-54 OPEN 2-M-9	ANNULUS PURGE EXH	2-FCV-30-54 [042/716 ANN]	CNTMT ANNULUS PURGE EXHAUST	OPEN	
2-HS-30-12 OPEN 2-M-9	ANNULUS PURGE SUPPLY	2-FCV-30-12 [265/756 ANN]	CNTMT ANNULUS PURGE SUPPLY	OPEN	
2-HS-30-14 OPEN 2-M-9	LWR CNTMT PURGE 2-FCV-30-14 & 56	2-FCV-30-14 [300/716 ANN] and 2-FCV-30-56 [036/716]	CNTMT LOWER COMPARTMENT PURGE SUPPLY and CNTMT LOWER COMPARTMENT EXHAUST ISOL	OPEN and OPEN	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-15 OPEN 2-M-9	LWR CNTMT PURGE 2-FCV-30-15 & 57	2-FCV-30-15 [301/716] and 2-FCV-30-57 [035/716 ANN]	CNTMT LOWER COMPARTMENT PURGE SUPPLY and CNTMT LOWER COMPARTMENT EXHAUST ISOLATION	OPEN and OPEN	
2-HS-30-16 OPEN 2-M-9	LWR CNTMT PURGE SUP	2-FCV-30-16 [240/702 ANN]	CNTMT LOWER COMPARTMENT PURGE SUPPLY	OPEN	
2-HS-30-17 OPEN 2-M-9	LWR CNTMT PURGE SUP	2-FCV-30-17 [236/756]	CNTMT LOWER COMPARTMENT PURGE SUPPLY	OPEN	
2-HS-30-61 OPEN 2-M-9	PURGE EXH FAN A SUCTION	2-FCV-30-61 [A15V/713]	CNTMT PURGE AIR EXHAUST FAN 2A SUCTION	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-62 OPEN 2-M-9	PURGE EXH FAN B SUCTION	2-FCV-30-62 [A15V/713]	CNTMT PURGE AIR EXHAUST FAN 2B SUCTION	OPEN	
2-HS-30-213 OPEN 2-M-9	PURGE EXH FAN 2A TO SHIELD BLDG VNT	2-FCV-30-213 [A14V/713]	CNTMT PURGE EXHAUST FAN 2A DISCH	OPEN	
2-HS-30-216 OPEN 2-M-9	PURGE EXH FAN 2B BLDG VNT	2-FCV-30-216 [A16V/713]	CNTMT PURGE EXHAUST FAN B DISCH	OPEN	
2-HS-31-305 OPEN 2-M-9	CIRC PMP A SUCTION CIV ØA	2-FCV-31-305 [067/735 ANN]	INCORE INST RM CHILL A CWR ISOL VLV	OPEN	
2-HS-31-306 OPEN 2-M-9	CIRC PMP A SUCTION CIV ØA	2-FCV-31-306 [060/716]	INCORE INSTR RM AHU 2A CWR ISOL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-31-308 OPEN 2-M-9	CIRC PMP A DISCH CIV ØA	2-FCV-31-308 [060/716]	INCORE INSTR RM AHU 2A CWS ISOL	OPEN	
2-HS-31-309 OPEN 2-M-9	CIRC PMP A DISCH CIV ØA	2-FCV-31-309 [070/724 ANN]	INCORE INSTR RM CHILL A CWS ISOL [ABSCE]	OPEN	
2-HS-31-326 OPEN 2-M-9	CIRC PMP B SUCT CIV ØA	2-FCV-31-326 [107/734 ANN]	INCORE INSTR RM CHILL B CWR ISOL [ABSCE]	OPEN	
2-HS-31-327 OPEN 2-M-9	CIRC PMP B SUCT CIV ØA	2-FCV-31-327 [100/716]	INCORE INSTR RM CHILL B AHU 1B CWR ISOL	OPEN	
2-HS-31-329 OPEN 2-M-9	CIRC PMP B DISCH CIV ØA	2-FCV-31-329 [120/716]	INCORE INSTR RM AHU 1B CWS ISOL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-31-330 OPEN 2-M-9	CIRC PMP B DISCH CIV ØA	2-FCV-31-330 [107/734 ANN]	INCORE INST RM CHILL B CWS ISOL [ABSCE]	OPEN	
2-HS-32-111A OPEN 2-M-15 [Red Light ON Only]	NON-ESS AUX AIR TO RX BLDG CIV-Ø/70 PSI D/S CLOSES	2-FCV-32-111 [290/702]	CONTROL AIR CNTMT ISOLATION	OPEN	
2-PC-43-42 ADJUST [A12V/713] Note 3 Applies	VCT TO GAS ANALYZER SAMPLE PCV CONTROLLER	2-PCV-43-42 [A4V/713]	VCT TO GAS ANALYZER SAMPLE PRESS CONTROL	OPEN	
2-PC-43-43 ADJUST [A4V/713] Note 3 Applies	PRESSURIZER RELIEF TANK SAMPLE PCV CONTROLLER	2-PCV-43-43 [A4W/713]	PRESSURIZER RELIEF TANK U1 SAMPLE PRESS CNTL	OPEN	
2-HS-43-61 OPEN [A8W/713]	STEAM GEN 3 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-61 [278/702]	STEAM GEN 3 DRUM/BLDN SAMPLE ISOL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-43-54 OPEN [A7W/713]	STEAM GEN 1 DRUM SAMPLE ISOL VLV	2-FCV-43-54A [019/702]	STEAM GEN 1 DRUM SAMPLE ISOL	OPEN	
2-HS-43-54 OPEN [A7W/713]	STEAM GEN 1 BLDN SAMPLE ISOL VLV	2-FCV-43-54B [017/716]	STEAM GEN 1 BLDN SAMPLE ISOL	OPEN	
2-HS-43-54D OPEN [A7V/713]	STEAM GEN 1 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-54D [092/716]	STEAM GEN 1 DRUM/BLDN SAMPLE ISOL	OPEN	
2-HS-43-56 OPEN [A7W/713]	STEAM GEN 2 DRUM SAMPLE ISOL VLV	2-FCV-43-56A [185/702]	STEAM GEN 2 DRUM SAMPLE ISOL	OPEN	
2-HS-43-56B OPEN [A7W/713]	STEAM GEN 2 BLDN SAMPLE ISOL VLV	2-FCV-43-56B [174/716]	STEAM GEN 2 BLDN SAMPLE ISOL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-43-56D OPEN [A7V/713]	STEAM GEN 2 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-56D [292/716]	STEAM GEN DRUM/BLDN SAMPLE ISOL	OPEN	
2-HS-43-59A OPEN [A7W/713]	STEAM GEN 3 DRUM SAMPLE ISOL VLV	2-FCV-43-59A [190/702]	STEAM GEN 3 DRUM SAMPLE ISOL	OPEN	
2-HS-43-59B OPEN [A7W/713]	STEAM GEN 3 BLDN SAMPLE ISOL VLV	2-FCV-43-59B 185/702	STEAM GEN 3 BLDN SAMPLE ISOL	OPEN	
2-HS-43-59D OPEN [A7V/713]	STEAM GEN 3 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-59D [292/746]	STEAM GEN 3 DRUM/BLDN SAMPLE ISOL	OPEN	
2-HS-43-63A OPEN [A7W/713]	STEAM GEN 4 DRUM SAMPLE ISOL VLV	2-FCV-43-63A [343/716]	STEAM GEN 4 DRUM SAMPLE ISOL VLV	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-43-63B OPEN [A7W/713]	STEAM GEN 4 BLDN SAMPLE ISOL VLV	2-FCV-43-63B [343/716]	STEAM GEN 4 BLDN SAMPLE ISOL	OPEN	
2-HS-43-63D OPEN [A7V/713]	STEAM GEN 4 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-63D [292/716]	STEAM GEN 4 DRUM/BLDN SAMPLE ISOL	OPEN	
2-HS-43-55 OPEN [A8W/71]	STEAM GEN 1 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-55 [298/716]	STEAM GEN 1 DRUM/BLDN SAMPLE ISOL	OPEN	
2-HS-43-67 CLOSE [A7W/713]	RHR LOOP A AFTER HT EXCH 2A SAMP ISOL VLV	2-FCV-43-67 [A11W/713]	RHR LOOP A AFTER HT EXCH 2A SAMP ISOL VLV	CLOSE	
2-HS-43-69 CLOSE [A7W/713]	RHR LOOP A AFTER HT EXCH 2B SAMP ISOL VLV	2-FCV-43-69 [A11W/713]	RHR LOOP A AFTER HT EXCH 2B SAMP ISOL VLV	CLOSE	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-43-58 OPEN [A7W/713]	STEAM GEN 2 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-58 [278/716]	STEAM GEN 2 DRUM/BLDN SAMPLE ISOL VLV	OPEN	
2-HS-43-64 OPEN [A7W/713]	STEAM GEN 4 DRUM/BLDN SAMPLE ISOL VLV	2-FCV-43-64 [278/721]	STEAM GEN 4 DRUM/BLDN SAMPLE ISOL VLV	OPEN	
2-HS-61-96 OPEN 2-M-9	FLOOR CLG SUP OUTSIDE CIV ØA	2-FCV-61-96 [A12W/770]	INLET ISOLATION VALVE AUX BLDG [ABSCE]	OPEN	
2-HS-61-97 OPEN 2-M-9	FLOOR CLG SUP INSIDE CIV ØA	2-FCV-61-97 [203/756]	GLYCOL COOLED FLOOR SUPPLY HEADER ISOL	OPEN	
2-HS-61-110 OPEN 2-M-9	FLOOR CLG RET OUTSIDE CIV ØA	2-FCV-61-110 [A10W/768]	GLYCOL COOLED FLOOR SUPPLY HEADER ISOL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-61-122 OPEN 2-M-9	FLOOR CLG RET INSIDE CIV ØA	2-FCV-61-122 [300756]	GLYCOL COOLED FLOOR RETURN HEADER ISOL	OPEN	
2-HS-61-192 OPEN 2-M-9	GLYCOL TO AHU INSIDE CIV ØA	2-FCV-61-192 [295/756]	GLYCOL SUPPLY TO AHUS CONTAINMENT ISOLATION	OPEN	
2-HS-61-194 OPEN 2-M-9	GLYCOL FRM AHU INSIDE CIV ØA.	2-FCV-61-194 [295/756]	GLYCOL RETURN CONTAINMENT ISOLATION	OPEN	
2-HS-61-191A OPEN 2-M-9	GLYCOL TO AHU OUTSIDE CIV ØA	2-FCV-61-191 [A12V/782]	GLYCOL SUPPLY ISOLATION VALVE [ABSCE]	OPEN	
2-HS-61-193A OPEN 2-M-9	GLYCOL FRM AHU OUTSIDE CIV ØA	2-FCV-61-193 [A12W/782]	GLYCOL RETURN ISOLATION VALVE [ABSCE]	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning**

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-62-59 NOR 2-L-11B and 2-HS-62-59A, DIVERT 2-M-5	EXCESS LTDN DIVERT 2-FCV-62-59 and EXCESS LTDN DIVERT	2-FCV-62-59 [120/716]	CVCS EXCESS LETDOWN DIVERT FLOW CNTL	DIVERT	
2-XS-62-79 AUX 2-L-11A and 2-HS-62-79C DIMIN 2-L-10	LETDOWN HI TEMP DIVERT TCV and LETDOWN HI TEMP DIVERT	2-TCV-62-79 [A1T/713]	CVCS LETDOWN HIGH TEM DIVERT	TO DEMIN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-62-69B, NOR 2-JB-292-8016A [A10R/757] and 2-XS-62-69 AUX 2-L-11A and 2-HS-62-69C, OPEN 2-L-10	RC LOOP 3 LETDOWN FLOW and RCS LETDOWN CIV FROM LOOP 3 and RCS LETDOWN ISOL FROM LOOP 3 CIV-ØA	2-FCV-62-69 [188/702]	RC LOOP 3 LETDOWN FLOW	OPEN	
2-XS-62-70, AUX 2-L-11A and 2-HS-62-70C OPEN 2-L-10	RCS LETDOWN CIV FROM LOOP 3 and RCS LETDOWN FROM LOOP 3 CIV-ØA	2-FCV-62-70 [130/716]	REGENT HT EXCH LETDOWN ISO VLV	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-62-73 AUX 2-L-11A and 2-HS-62-73C OPEN 2-L-10	LETDOWN ORIFICE B 75 GPM and LET DOWN ORIFICE B 75 GPM	2-FCV-62-73 [044/702]	REGENT HT EXCH LETDOWN ISO VLV B	OPEN	
2-XS-62-77 AUX 2-L-11B and 2-HS-62-77C OPEN 2-L-10	LP LETDOWN LINE ISOL 2-FCV-62-77 and LP LETDOWN ISOL	2-FCV-62-77 [A11W/713]	LETDOWN LINE ISO VLV FLOW CONTROL	OPEN	
2-XS-62-86 AUX 2-L-11B and 2-HS-62-86C CLOSE 2-L-10	CHARGING FLOW RCS CL LOOP and ALT CHARGING TO LOOP 4	2-FCV-62-86 [130/716]	CVCS ALT CHARGING FLOW CONTROL	CLOSED	

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Table 9
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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-62-140D CLOSE 2-M-6	BA TO BLENDER	2-FCV-62-140 [A19V/713]	BORIC ACID BLENDER ACID SUP FLOW CNTL	CLOSED	
2-XS-62-132, NOR and 2-HS-62-132A, OPEN (permissive) 2-M-5 and 2-HS-62-1228 ON 2-JB-292-8025-A [A11Q/757]	VCT OUTLET ISO VLV XFER SWITCH and VCT TO CHARGING PMPS SUCTION and FIRE SAFE SHUTDOWN ISOL VCT VENT	2-LCV-62-132 [A12U/713] and 2-FCV-62-1228 [A13U/713]	VOL CONTROL TANK OUTLET ISOL and FIRE SAFE SHUTDOWN ISOL VALVE FOR VOL CONTROL TANK	OPEN and OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-62-133 NOR and 2-HS-62-133A OPEN (permissive) 2-M-5 and 2-HS-62-1229 ON 2-JB-292-8026-B [A12Q/757]	VCT OUTLET ISO VLV XFER SWITCH and VCT TO CHARGING PMPS SUCTION and FIRE SAFE SHUTDOWN ISOL VCT VENT	2-LCV-62-133 [A12U/713] and 2-FCV-62-1229 [A13U/713]	VOLUME CONTROL TANK OUTLET ISOL and FIRE SAFE SHUTDOWN ISOL VALVE CONTROL TANK	OPEN and OPEN	
2-PIC-62-126 ADJUST [A11U/713] Note 3 Applies	VCT PRESS CNTL TO VH	2-PCV-62-126 [A12U/713]	VCT WASTE GAS VENT PRESSURE CONTROL	OPEN	
2-HS-30-180 STOP [A13V/692]	SI PUMP 2A-A ROOM COOLER FAN	2-FCV-67-176 [A13V/692]	SIP ROOM COOLER 2A-A ERCW SUP FLOW CNTL	CLOSED	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-179 STOP [A10U/692]	SAFETY INJ PUMP 2B-B RM CLR FAN	2-FCV-67-182 [A9U/692]	SIP ROOM COOLER 2B ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-177 STOP [A9U/692]	CS PUMP 2A-A ROOM COOLER	2-FCV-67-184 [A10U/676]	CSP ROOM COOLER 2A-A ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-178 STOP [A6T/676]	CS PUMP 2B-B ROOM COOLER	2-FCV-67-186 [A9U/676]	CSP ROOM COOLER 2B-B ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-202 STOP [A14U/692]	AB EL 692 PIPE CHASE COOLER 2B-B	2-FCV-67-344 [A14V/692]	PIPE CHASE COOLER 2B ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-201 STOP [A15V/692]	AB EL 692 PIPE CHASE COOLER 2A-A	2-FCV-67-342 [A14V/692]	PIPE CHASE COOLER 2A ERCW SUP FLOW CNTL	CLOSED	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-186 STOP [A12U/692]	PENETRATION ROOM EL 692 COOLER 2A-A	2-FCV-67-346 [A12V/692]	PENT ROOM COOLER 2A1 ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-196 STOP [A12V/692]]	PENETRATION ROOM EL 713 COOLER 2A-A	2-FCV-67-350 [A14V/713]	PENT ROOM COOLER 2A2 ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-187 STOP A12V/692	PENETRATION ROOM EL 692 COOLER 2B-B	2-FCV-67-348 [A14U/692]	PENT ROOM COOLER 2B1 ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-197 STOP [A14V/713]	PENETRATION ROOM EL 713 COOLER 2B-B	2-FCV-67-352 [A14V/713]	PENT ROOM COOLER 2A ERCW SUP FLOW CNTL	CLOSED	
2-HS-30-194 STOP [A12V/737] Note 4 Applies	PENETRATION ROOM EL 737 COOLER 2A-A	2-FCV-67-354 [A12V/737]	PENT ROOM COOLER 2A-A ERCW SUP FLOW CNTL	CLOSED	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-30-195 STOP Note 4 Applies	PENETRATION ROOM EL 737 COOLER 2B-B	2-FCV-67-356 [A13V/737]	PENT ROOM COOLER 2B-B ERCW SUP FLOW CNTL	CLOSED	
2-XS-68-305 NOR 2-L-11A and 2-HS-68-305A OPEN 2-M-5	N2 SUPPLY TO PRT and N2 TO PRT CIV ØA	2-FCV-68-305 [A11W/713]	RCS FLOW CNTL VLV WDS N2 MAN TO PRT [ABSCE]	OPEN	
2-XS-68-307 NOR 2-L-11A and 2-HS-68-307A OPEN 2-M-4	PRT TO GAS ANALYZER and PRT TO GAS ANALYZER	2-FCV-68-307 [312/724 ANN]	PRESSURIZER RELIEF TANK GAS ANALYZER SUPPLY	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-2-XS-68-308 NOR 2-L-11B and 2-HS-68-308A OPEN 2-M-4	PRT TO GAS ANALYZER and PRT TO GAS ANALYZER	2-FCV-68-308 [318/716]	PRESS RELIEF TANK GAS ANALYZER SUPPLY	OPEN	
2-XS-74-16 NOR 2-L-11A and 2-HIC-74-16A RAMP OPEN 2-M-6	RHR A OUTLET FCV CONTROLLER and RHR HX A FLOW CONTROL	2-FCV-74-16 [A9W/713]	RHR HEAT EXCHANGER A OUTLET FLOW CONTROL	CLOSED	
2-XS-74-28 NOR 2-L-11B and 2-HIC-74-28A OPEN 2-M-6	RHR HX B OUTLET FCV CONTROLLER and RH HX B FLOW CONTROL	2-FCV-74-28 [A9V/713]	RHR HEAT EXCHANGER B OUTLET FLOW CONTROL	CLOSED	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-74-32 NOR 2-L-11A and 2-HIC-74-32A OPEN 2-M-6	RHR HX BYPASS FCV CONTROLLER and RHR HX BYP FLOW CONTROL	2-FCV-74-32 [A8W/713]	RHT HAT EXCHANGER A/B BYPASS FLOW CONTROL	CLOSED	
2-XS-77-16 NOR 2-L-11B and 2-HS-77-16A OPEN 2-M-15	RCDT TO GAS ANALYZER IN CNTM and RCDT TO GAS ANAL CIV-ØA IN CNTMT	2-FCV-77-16 [290/716]	RCDT TO GAS ANALYZER FLOW CONTROL	OPEN	
2-HS-77-17 OPEN 2-M15	RCDT TO GAS ANAL CIV-ØA OUT CNTMT	2-FCV-77-17 [A12W/713]	RCDT TO VENT GA FLOW CONTROL [ABSCE]	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-77-18 NOR 2-L-11B and 2-HS-77-18A OPEN 2-M-15	RCDT VENT TO WDS VENT HDR and RCDT TO WDS VENT HDR CIV ØA IN CNTMT	2-FCV-77-18 [278/716]	RCDT TO VENT HDR FLOW CONTROL	OPEN	
2-HS-77-19 OPEN 2-M-15	RCDT TO WDS VENT HDR CIV ØA OUT CNTMT	2-FCV-77-19 [A11W/722]	RCDT TO VENT HDR FLOW CONTROL	OPEN	
2-XS-77-9 NOR 2-L-11B and 2-HS-77-9A OPEN 2-M-15	RCDT PUMPS DISCH TO TDCT IN CNTMT and RCDT PMPS TO TDCT CIV ØA IN CNTMT	2-FCV-77-9 [278/716]	RCDT PUMP DISCHARGE FLOW CONTROL	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-HS-77-10A OPEN 2-M-15	RCDT PMPS TO TDCT CIV Ø OUT CNTMT	2-FCV-77-10 [279/713]	RCDT PUMP DISCH VALVE FLOW CONTROL	OPEN	
2-XS-77-127 NOR 2-L-11B and 2-HS-77-127A OPEN 2-M-15	RX BLDG F & EQ SUMP TO TDCT and RB F & EQ SUMP PMPS TO TDCT CIV ØA IN CNTMT	2-FCV-77-127 [293/716]	REAC BLDG SUMP DISCHARGE FLOW CONTROL	OPEN	
2-HS-77-128A OPEN 2-M-15	RB F & EQ SUMP PMPS TO TDCT CIV ØA OUT CNTMT	2-FCV-77-128 [A12W/713]	REAC BLDG B SUMP DISCH FLOW CONTROL [ABSCE]	OPEN	

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CAS Gradual Loss of Air Component Pre-Positioning

Date _____

Controller Position Location	Controller Description	Associated Component Location	Component Description	Pre-Failsafe Position	Initial/Date
2-XS-81-12 NOR 2-L-11A and 2-HS-81-12A OPEN 2-M-5	PRI WATER FCV TO PRT & RCP STANDPIPES and PRIMARY WATER TO PRT & STANDPIPES	2-FCV-81-12 [A12W/713]	PW RCS PRESS RELF TNK & RCP STANDPIPES	OPEN	

**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-1-4	CLOSED	
2-FCV-1-11	CLOSED	
2-FCV-1-22	CLOSED	
2-FCV-1-29	CLOSED	
2-FCV-3-236	CLOSED	
2-FCV-3-239	CLOSED	
2-FCV-3-242	CLOSED	
2-FCV-3-245	CLOSED	
2-FCV-3-103	CLOSED	
2-FCV-3-90	CLOSED	
2-FCV-3-48	CLOSED	
2-FCV-3-35	CLOSED	
2-FCO-30-294	CLOSED	
2-FCO-30-295	CLOSED	
2-FCV-30-19	CLOSED	
2-FCV-30-20	CLOSED	
2-FCV-30-2	CLOSED	
2-FCV-30-37	CLOSED	
2-FCV-30-5	CLOSED	
2-FCV-30-40	CLOSED	
2-FCV-30-7	CLOSED	
2-FCV-30-50	CLOSED	

**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-30-8	CLOSED	
2-FCV-30-51	CLOSED	
2-FCV-30-52	CLOSED	
2-FCV-30-9	CLOSED	
2-FCV-30-53	CLOSED	
2-FCV-30-10	CLOSED	
2-FCV-30-54	CLOSED	
2-FCV-30-12	CLOSED	
2-FCV-30-56	CLOSED	
2-FCV-30-57	CLOSED	
2-FCV-30-59	CLOSED	
2-FCV-30-14	CLOSED	
2-FCV-30-15	CLOSED	
2-FCV-30-16	CLOSED	
2-FCV-30-17	CLOSED	
2-FCV-30-58	CLOSED	
2-FCV-30-61	CLOSED	
2-FCV-30-62	CLOSED	
2-FCV-30-213	CLOSED	
2-FCV-30-216	CLOSED	
2-FCV-31-305	CLOSED	
2-FCV-31-306	CLOSED	

**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-31-308	CLOSED	
2-FCV-31-309	CLOSED	
2-FCV-31-326	CLOSED	
2-FCV-31-327	CLOSED	
2-FCV-31-329	CLOSED	
-FCV-31-330	CLOSED	
2-FCV-32-111 [2-HS-32-111A Green Light ON Only]	CLOSED	
2-PCV-43-42	CLOSED	
2-PCV-43-43	CLOSED	
2-FCV-43-61	CLOSED	
2-FCV-43-54A	CLOSED	
2-FCV-43-54B	CLOSED	
2-FCV-43-54D	CLOSED	
2-FCV-43-56A	CLOSED	
2-FCV-43-56B	CLOSED	
2-FCV-43-56D	CLOSED	
2-FCV-43-59A	CLOSED	
2-FCV-43-59B	CLOSED	
2-FCV-43-59D	CLOSED	
2-FCV-43-63A	CLOSED	
2-FCV-43-63B	CLOSED	
2-FCV-43-63D	CLOSED	

**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-43-55	CLOSED	
2-FCV-43-58	CLOSED	
2-FCV-43-64	CLOSED	
2-FCV-43-67	OPEN	
2-FCV-43-69	OPEN	
2-FCV-61-96	CLOSED	
2-FCV-61-97	CLOSED	
2-FCV-61-110	CLOSED	
2-FCV-61-122	CLOSED	
2-FCV-61-192	CLOSED	
2-FCV-61-194	CLOSED	
2-FCV-61-191	CLOSED	
2-FCV-61-193	CLOSED	
2-FCV-62-59	TO VCT FLOW PATH	
2-TCV-62-79	TO VCT FLOW PATH	
2-FCV-62-69	CLOSED	
2-FCV-62-70	CLOSED	
2-FCV-62-73	CLOSED	
2-FCV-62-77	CLOSED	
2-FCV-62-1228	CLOSED	
2-FCV-62-1229	CLOSED	
2-PCV-62-126	CLOSED	

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**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-62-86	OPEN	
2-FCV-62-140	OPEN	
2-FCV-67-176	OPEN	
2-FCV-67-182	OPEN	
2-FCV-67-342	OPEN	
2-FCV-67-348	OPEN	
2-FCV-67-184	OPEN	
2-FCV-67-186	OPEN	
2-FCV-67-344	OPEN	
2-FCV-67-346	OPEN	
2-FCV-67-350	OPEN	
2-FCV-67-352	OPEN	
2-FCV-67-354	OPEN	
2-FCV-67-356	OPEN	
2-FCV-68-305	CLOSED	
2-FCV-68-307	CLOSED	
2-FCV-68-308	CLOSED	
2-FCV-74-16	OPEN	
2-FCV-74-28	OPEN	
2-FCV-74-32	OPEN	
2-FCV-77-9	CLOSED	
2-FCV-77-10	CLOSED	

**Table 10
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CAS Gradual Loss of Air Failsafe Position Verification

Date _____

COMPONENT	FAILSAFE POSITION	BY INITIAL/DATE
2-FCV-77-16	CLOSED	
2-FCV-77-17	CLOSED	
2-FCV-77-18	CLOSED	
2-FCV-77-19	CLOSED	
2-FCV-77-127	CLOSED	
2-FCV-77-128	CLOSED	
2-FCV-81-12	CLOSED	

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Table 11
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CAS Gradual Loss of Air Test Branch Lineups

Date _____

NOTES

- 1) Initial system 32 related isolation valve open position verified in Table 4. The repositioning of multiple system control valves is initially verified using Table 9. Some of the valves are listed below again for test control, consistency, and clarity purposes. Bold lines between table rows indicate a particular test branch for gradual loss of or air testing.
- 2) Position component as indicated to vent and test branch line. Acceptance Criteria position in bold indicates sign off in Table 10.
- 3) Restoration to the As Left position will be by manual positioning or using controllers listed in Table 9. A site approved air leakage indicator shall be used to ensure no leakage of control air supply after restoration of pressure regulator or tubing.
- 4) Initial restoration for this procedure's purposes will be to the As Left position will be by manual positioning or using controllers listed in Table 9. Startup Engineering and/or Operations may elect to re-position any component after the As Left position is obtained as listed such as ABSCE boundary, U1/U2 interface, or individual system operation/isolation. The Bypass Isolation valve 2-BYP-32-338 should be Closed when 2-FCV-32-111 is Open [may be documented at 7.0 step [8] C. The Final Restoration for all systems tested is addressed in section 7.0.
- 5) Before starting a test branch iteration, ensure that the component being tested for failsafe positioning may be adjusted to the preposition plus allowing it to go to its failsafe position as not to impact any current plant condition by coordination with startup and/or operations. For example all of the system 30 valves listed below are part of the Unit 2 containment purge supply and exhaust system [drawings 2-47W610-30-1 & 1A] and may be needed in part or full to support plant purge operations.
- 6) Drawing Reference is from applicable 2-47W848-series. [e.g., 9-F/8 denotes sheet 9 drawing coordination F and 8.]
- 7) A Fire Impairment Permit may be required when Supervisory Air is isolated to 2-FCV-26-219 and 2-FCV-26-223 when in service.

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-338	Bypass 2-FCV-32-111 [ANN]	716/297	1-H/8	CLOSED		OPEN		NA	CLOSED		
2-ISV-32-337	Containment Isolation Inlet	720/295	1-H/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-341	Containment Isolation Outlet	716/300	1-H/9	OPEN		CLOSED		NA	OPEN		
2-PREG-32-111	Press Reg 2-FCV-32-111	716/300	1-H/9	CLOSED		VENT		NA	CLOSED		
2-FCV-32-111 [2-HS-32-111A]	CAS Containment Isolation	702/290	1-H/9	OPEN		OPEN		CLOSED	OPEN Note 4		
0-ISV-32-862	EI 729 TB Branch Header [4"]	729/T14P	3-H/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-2583	Isolation 2-L-87 [Sys 3 FM's]	729/T14N	3-H/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-2668	Isolation 2-FCV-3-103	729/T15N	3-H/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-2587	Isolation 2-FCV-3-35	729/T15N	3-H/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-2584	Isolation 2-FCV-3-48	729/T15N	3-H/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-2586	Isolation 2-FCV-3-90	740/T15N	3-C/2	OPEN		OPEN		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PREG-3-90-A1	Press Reg 2-FCV-3-90	740/T15N	3-C/2	CLOSE		VENT		NA	CLOSED		
2-FCV-3-103	SG 4 MFW Reg Valve	740/T15P	3-C/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-3-35	SG 1 MFW Reg Valve	729/T15P	3-H/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-3-48	SG 2 MFW Reg Valve	729/T15P	3-H/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-3-90	SG 3 MFW Reg Valve	740/T15N	3-H/2	OPEN		OPEN		CLOSED	OPEN		
0-32-ISV-948	EI 692 AB Header Isolation	692/A14U	4-A/5	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3806	Fire Protection 2-FCV-26-219	692/A13V	4-A/5	OPEN		CLOSED (Note 7)		NA	OPEN		
2-ISV-32-3807	Fire Protection 2-FCV-26-223	692/A12V	4-A/5	OPEN		CLOSED (Note 7)		NA	OPEN		
2-ISV-32-3804	Isolation 2-FCV-67-342	692/A15U	4-A/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3805	Isolation 2-FCV-67-344	692/A14U	4-A/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-2963	Isolation 2-FCV-67-346	692/A12V	4-A/5	OPEN		OPEN		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-2964	Isolation 2-FCV-67-348	692/A12V	4-A/5	OPEN		OPEN		NA	OPEN		
2-PREG-67-346	Press Reg 2-FCV-67-348	692/A12V	4-A/5	CLOSED		VENT		NA	CLOSED		
2-FCV-67-342	Pipe Chase Cooler 2A ERCW	692/A14V	4-A/5	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-344	Pipe Chase Cooler 2B ERCW	692/A14V	4-A/5	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-346	Pent Room Cooler 2A ERCW	692/A12V	4-A/5	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-348	Pent Room Cooler 2B ERCW	696/A14U	4-A/5	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-939	EL 692 Branch Header Isol	692/A11T	4-C/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-2880	Isolation 2-FCV-67-182	692/A9U	4-C/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-2881	Isolation 2-FCV-67-176	692/A9V	4-C/2	OPEN		OPEN		NA	OPEN		
2-PREG-67-176	Press Reg 2-FCV-67-176	692/A9V	4-C/2	CLOSED		VENT		NA	CLOSED		
2-FCV-67-182	SIP Room Cooler 2B ERCW	692/A7V	4-C/2	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-176	SIP Room Cooler 2A ERCW	692/A7V	4-C/2	CLOSED		CLOSE		OPEN	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
0-ISV-32-1295	EL 676 AB Branch Header	676/A8U	4-E/9	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3028	Isolation 2-FCV-67-186	676/A9U	4-E/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3029	Isolation 2-FCV-67-184	676/A9U	4-E/9	OPEN		OPEN		NA	OPEN		
2-PREG-67-184	Press Reg 2-FCV-67-184	676/A9U	4-E/9	CLOSED		VENT		NA	CLOSED		
2-FCV-67-186	CSP Room Cir 2B-B ERCW	676/A9U	4-E/9	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-184	CSP Room Cir 2A-A ERCW	676/A10U	4-E/9	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-1003	EL 713 AB Branch Hdr Isol	713/A13U	5-A/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3102	Isolation 2-PCV-62-126	702/A13U	5-A/6	OPEN		CLOSED		NA	OPEN		
2-PREG-62-126	Press Reg 2-PCV-62-126	713/A12U	5-A/6	CLOSED		VENT		NA	CLOSED		
2-PCV-62-126	VCT Waste Gas Vent Pr Ctl	713/A12U	5-A/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3111	Isolation 2-PCV-43-42	713/A13U	5-A/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-42	Press Reg 2-PCV-43-42	713/A13U	5-A/6	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PCV-43-42	CVCS Vol. Cntl. Tk. Pr. Cntl.	713/A13U	5-A/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3110	Isolation 2-FCV-62-140	713/A12V	5-A/6	OPEN		CLOSED		NA	OPEN		
2-PREG-62-140	Press Reg 2-FCV-62-140	713/A12V	5-A/6	CLOSED		VENT		NA	CLOSED		
2-FCV-62-140	Boric Acid Blend Acid Supply	713/A12V	5-A/6	CLOSED		CLOSED		OPEN	CLOSED		
2-ISV-32-3106	Isolation 2-PCV-43-43	713/A12V	5-A/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-43	Press Reg 2-PCV-43-43	713/A12V	5-A/6	CLOSED		VENT		NA	CLOSED		
2-PCV-43-43	RCS Press Relief Tk Control	713/A12V	5-A/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-4957	Isolation 2-FCV-62-1229	713/A13U	5-A/5	OPEN		CLOSED		NA	OPEN		
2-PREG-62-1229	Press Reg 2-FCV-62-1229	713/A13U	5-A/5	CLOSED		VENT		NA	CLOSED		
2-FCV-62-1229	Fire Safe Shut. from VC Tank	713/A13U	5-A/5	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-4956	Isolation 2-FCV-62-1228	713/A13U	5-A/5	OPEN		CLOSED		NA	OPEN		
2-PREG-62-1228	Press Reg 2-FCV-62-1228	713/A13U	5-A/5	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-62-1228	Fire Safe Shut. from VC Tank	713/A13U	5-A/5	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1023	EL 713 AB Branch Hdr Isol	713/A13U	5-B/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3167	Isolation 2-FCV-67-352	713/A13U	5-B/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3166	Isolation 2-FCV-67-351	713/A14V	5-B/8	OPEN		OPEN		NA	OPEN		
2-PREG-67-350	Press Reg 2-FCV-67-350	713/A14V	5-B/8	CLOSED		VENT		NA	CLOSED		
2-FCV-67-352	Pent Rm Cooler 2B ERCW	713/A14V	5-B/8	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-67-350	Pent Rm Cooler 2A ERCW	713/A14V	5-B/8	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-1005	EL 713 Branch Header	713/A14U	5-A/9	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3169	U2 Air Lock Door	713/A15W	5-A/9	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3168	Isolation 2-L-487 [U-2 Door]	713/061	5-A/9	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3170	Isolation 2-FCV-30-213	713/A15V	5-A/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3165	Isolation 2-FCV-30-61	713/A15U	5-A/9	OPEN		OPEN		NA	OPEN		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3164	Isolation 2-FCV-30-62	713/A14U	5-A/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3163	Isolation 2-FCV-30-216	713/A14V	5-A/9	OPEN		OPEN		NA	OPEN		
Test Vent Valve	Test Conn. at 2-FCV-30-216	713/A14V	5-A/9	CLOSED		VENT		NA	OPEN		
2-FCV-30-213	Purge Exhaust Fan 2A Disch	713/A14V	5-A/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-61	Purge Exhaust Fan 2A Intake	713/A15V	5-A/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-62	Purge Exhaust Fan 2B Intake	713/A15V	5-A/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-216	Purge Exhaust Fan 2B Disch	713/A16V	5-A/9	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-997	EL 713 AB Branch Hdr Isol	713/A12S	5-C/3	OPEN		OPEN		NA	OPEN		
2-ISV-32-3066	Isolation 2-TCV-62-79	713/A11T	5-C/3	OPEN		CLOSED		NA	OPEN		
2-PREG-62-79	Press Reg 2-TCV-62-79	713/A12T	5-C/3	CLOSED		VENT		NA	CLOSED		
2-TCV-62-79	CVCS Letdown High Temp	713/A11T	5-C/3	DEMINT		DEMINT		To VCT	DEMINT		
0-ISV-32-981	EL 713 AB Branch Hdr Isol	713/A7V	5-E/5	OPEN		OPEN		NA	OPEN		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3089	Isolation 2-FCV-74-28	713/A8V	5-E/5	OPEN		CLOSED		NA	OPEN		
2-PREG-74-28-A1	Press Reg 2-FCV-74-28	713/A9V	5-E/5	CLOSED		VENT		NA	CLOSED		
2-FCV-74-28	RHR HX B Out Flow Cntl	713/A9V	5-E/5	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-987	EL 713 AB Branch Hdr Isol	713/A7V	5-E/6	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3136	Isolation 2-FCV-74-16	713/A9W	5-E/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3135	Isolation 2-FCV-74-32	713/A9W	5-E/6	OPEN		OPEN		NA	OPEN		
2-PREG-74-32-A1	Press Reg 2-FCV-74-32	713/A8W	5-E/6	CLOSED		VENT		NA	CLOSED		
2-FCV-74-16	RHR HX A Out Flow Cntl	713/A9W	5-E/6	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-74-32	RHR HX A/B Byp Flow Cntl	713/A8W	5-E/6	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-982	EL 713 AB Branch Hdr Isol	713/A5W	5-C/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3172	Isolation 2-FCV-43-69	713/A11W	5-C/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3171	Isolation 2-FCV-43-67	713/A11W	5-C/8	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PREG-43-67	Press Reg 2-FCV-43-67	713/A11W	5-C/8	CLOSED		VENT		NA	CLOSED		
2-FCV-43-69	RHR Loop HT 2B Samp	713/A11W	5-C/8	CLOSED		CLOSED		OPEN	CLOSED		
2-FCV-43-67	RHR Loop After HX 2A Samp	713/A11W	5-C/8	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-973	EL 713 AB Branch Hdr Isol	713/A11W	5-D/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3175	Isolation 2-FCV-77-10	713/A11W	5-D/9	OPEN		CLOSED		NA	OPEN		
2-PREG-77-10	Press Reg 2-FCV-77-10	713/A11W	5-D/9	CLOSED		VENT		NA	CLOSED		
2-FCV-77-10	RCDT Pump Disch Viv Flow	713/A11W	5-D/9	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-3187	Isolation 2-FCV-62-19	713/A11W	5-D/9	OPEN		CLOSED		NA	OPEN		
2-PREG-77-19	Press Reg 2-FCV-77-19	713/A11W	5-D/9	CLOSED		VENT		NA	CLOSED		
2-FCV-77-19	RCDT To Vent Hdr Flow Cntl	713/A11W	5-D/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3186	Isolation 2-FCV-68-305	713/A11W	5-D/9	OPEN		CLOSED		NA	OPEN		
2-PREG-68-305	Press Reg 2-FCV-68-305	713/A11W	5-D/9	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-68-305	RCS Flow Cntl WDS N2 Man	713/A11W	5-D/9	OPEN		OPEN		CLOSED	OPEN		
02-ISV-32-3183	Isolation 2-FCV-77-17	713/A11W	5-D/9	OPEN		CLOSED		NA	OPEN		
2-PREG-77-17	Press Reg 2-FCV-77-17	713/A11W	5-D/9	CLOSED		VENT		NA	CLOSED		
2-FCV-77-17	RCDT To Vent GA Flow Cntl	713/A12W	5-D/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3180	Isolation 2-FCV-77-128	713/A11W	5-C/9	OPEN		CLOSED		NA	OPEN		
2-PREG-77-128	Press Reg 2-FCV-77-128	713/A12W	5-C/9	CLOSED		VENT		NA	CLOSED		
2-FCV-77-128	RB Sump Disch Flow Cntl	713/A12W	5-C/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3179	Isolation 2-FCV-62-77	713/A12W	5-C/9	OPEN		CLOSED		NA	OPEN		
2-PREG-62-77	Press Reg 2-FCV-62-77	713/A11W	5-C/9	CLOSED		VENT		NA	CLOSED		
2-FCV-62-77	Letdown Line Isol Vlv Flow	713/A11W	5-C/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3177	Isolation 2-FCV-81-12	713/A12W	5-C/9	OPEN		CLOSED		NA	OPEN		
2-PREG-81-12	Press Reg 2-FCV-81-12	713/A12W	5-C/9	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-81-12	PW RCS Pres Relief	713/A12W	5-C/9	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1065	EL 737 AB Hdr Isol From TB	737/A14Q	6-A/2	OPEN		OPEN		NA	OPEN		
0-ISV-32-1073	EL 737 AB HDR Sect Isol	737/A14Q	6-A/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-1056	Isolation 2-FCO-30-295	737/A13U	6-C/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3211	Isolation 2-FCO-30-295	737/A13U	6-C/2	OPEN		OPEN		NA	OPEN		
2-PREG-30-295	Press Reg 2-FCO-30-295	737/A12U	6-C/2	CLOSED		VENT		NA	CLOSED		
2-FCO-30-295	Purge Air Supply Sup Intake	737/A12T	6-C/2	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1072	EL 737 AB Hdr Isol	737/A13U	6-C/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-1053	EL 737 AB Branch Hdr Isol	737/A13U	6-C/3	OPEN		OPEN		NA	OPEN		
2-ISV-32-3242	Isolation 2-FCO-30-294	737/A13U	6-B/3	OPEN		CLOSED		NA	OPEN		
2-PREG-30-294	Press Reg 2-FCO-30-294	750/A13U	6-B/3	CLOSED		VENT		NA	CLOSED		
2-FCO-30-294	Entmt Purge Air Sup Intake	747/A12T	6-B/3	OPEN		OPEN		CLOSED	OPEN		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
0-ISV-32-1257	Isol 2-FCV-1-29 & Tank 594	737/A12U	6-B/4	OPEN		CLOSED		NA	OPEN		
2-PREG-1-29	Press Reg 2-FCV-1-29	729/SVVR	6-B/4	CLOSED		VENT		NA	CLOSED		
2-FCV-1-29	Main Steam Isol Vlv Loop 4	729/SVVR	6-B/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1259	Isolation 2-FCV-1-4	737/A12U	6-B/4	OPEN		CLOSED		NA	OPEN		
2-PREG-1-4	Press Reg 2-FCV-1-4	729/SVVR	6-B/4	CLOSED		VENT		NA	CLOSED		
2-FCV-1-4	Main Steam Isol Valve Loop 1	729/SVVR	6-B/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1261	EL 737 AB Branch Header	737/A12U	6-A/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3260	Isolation 2-FCV-3-245	729/A15U	6-A/4	OPEN		CLOSED		NA	OPEN		
2-PREG-3-245	Press Reg 2-FCV-3-245	729/A15U	6-A/4	CLOSED		VENT		NA	CLOSED		
2-FCV-3-245	SG 4 MFW Bypass Line Isol	729/A15U	6-A/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1262	EL 737 AB Branch Header	737/A12U	6-A/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3276	Isolation 2-FCV-3-236	729/A13U	6-A/5	OPEN		CLOSED		NA	OPEN		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PREG-3-236	Press Reg 2-FCV-3-236	729/A15U	6-A/5	CLOSED		VENT		NA	CLOSED		
2-FCV-3-236	SG 1 MFW Bypass Line Isol	729/A15U	6-A/5	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1213	EL 737 AB Header Isolation	737/A12U	6-C/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-1242	EL 737 AB Branch Header	737/A12U	6-C/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3262	Isolation 2-FCV-30-2	737/A13V	6-D/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3263	Isolation 2-FCV-30-5	737/A13V	6-D/4	OPEN		OPEN		NA	OPEN		
Test Vent Valve	Test Conn. at 2-FCV-30-2	737/A12V	6-D/4	CLOSED		VENT		NA	CLOSED		
2-FCV-30-2	Purge Sup Fan A Disch	737/A12V	6-D/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-5	Purge Sup Fan B Disch	737/A13V	6-D/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1245	EL 737AB Branch Header	737/A12U	6-C/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3323	Isolation 2-FCV-67-356	737/A13V	6-C/6	OPEN		CLOSED		NA	OPEN		
2-PREG-67-356	Press Reg 2-FCV-67-356	737/A13V	6-C/6	CLOSED		VENT		NA	CLOSED		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-67-356	Pent Rm Clr 2-B-B ERCW	737/A13V	6-C/6	CLOSED		CLOSED		OPEN	CLOSED		
2-ISV-32-3322	Isolation 2-FCV-67-354	737/A12V	6-C/6	OPEN		CLOSED		NA	OPEN		
2-PREG-67-354	Press Reg 2-Ffcv-67354	737/A12v	6-c/6	CLOSED		VENT		NA	CLOSED		
2-FCV-67-354	Pent Rm Clr 2A-A ERCW	737/A12V	6-C/6	CLOSED		CLOSED		OPEN	CLOSED		
0-ISV-32-1129	EL 757 AB Hdr Section Isol	757/A14Q	7-A/2	OPEN		OPEN		NA	OPEN		
0-ISV-32-1124	EL 757 AB Branch Header	757/A11V	7-C/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-4946	Hdr Isol 2-FCV-61-191 & 193	782/A12W	7-B/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3359	Isolation 2-FCV-61-191	782/A12V	7-B/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3361	Isolation 2-FCV-61-193	782/A12V	7-B/5	OPEN		OPEN		NA	OPEN		
2-PREG-61-193	Press Reg 2-FCV-61-193	782/A12W	7-B/5	CLOSED		VENT		NA	CLOSED		
2-FCV-61-191	Glycol Supply Isolation	782/A12V	7-B/5	OPEN		OPEN		CLOSED	OPEN		
2-FCV-61-193	Glycol Return Isolation	782/A12W	7-B/5	OPEN		OPEN		CLOSED	OPEN		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
0-ISV-32-1113	EL 757 AB Header Isolation	757/A11W	7-C/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3411	Isolation 2-FCV-61-96	768/A12W	7-D/7	OPEN		CLOSED		NA	OPEN		
2-PREG-61-96	Press Reg 2-FCV-61-96	770/A12W	7-D/7	CLOSED		VENT		NA	CLOSED		
2-FCV-61-96	Inlet Isol Vlv for Aux Bldg	770/A12W	7-D/7	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3412	Isolation 2-FCV-61-110	768/A12W	7-D/7	OPEN		CLOSED		NA	OPEN		
2-PREG-61-110	Press Reg 2-FCV-61-110	757/A10W	7-D/7	CLOSED		VENT		NA	CLOSED		
2-FCV-61-110	Glycol Cooled Floor Sup Hdr	757/A10W	7-D/7	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1471	EL 715 RB	715/300	9-G/1	OPEN		OPEN		NA	OPEN		
2-ISV-32-1427	EL 715 RB Branch	723/310	9-F/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3498	Isolation 2-FCV-30-14	720/313	9-F/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3499	Isolation 2-FCV-68-307	716/307	9-F/2	OPEN		OPEN		NA	OPEN		
2-PREG-68-307	Press Reg 2-FCV-68-307	724/312	9-F/2	CLOSED		VENT		NA	CLOSED		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-30-14	Purge Lower Compt Supply	735/300	9-F/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-68-307	Press Relief Tk Gas Anal Sup	724/312	9-F/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1433	EL 724 RB Branch	724/030	9-E/1	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3495	Isolation 2-FCV-30-57	724/033	9-E/1	OPEN		OPEN		NA	OPEN		
2-ISV-32-3496	Isolation 2-FCV-30-54	724/036	9-E/1	OPEN		OPEN		NA	OPEN		
2-PREG-30-57	Press Reg 2-FCV-30-57	730/035	9-E/1	CLOSED		VENT		NA	CLOSED		
2-FCV-30-57	Purge Lower Compt Exhaust	733/035	9-E/1	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-54	Purge Cntrmt Ann Exhaust	730/042	9-E/1	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1434	Header Isol 2-FCV-30-19	718/045	9-E/1	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3494	Isolation 2-FCV-30-19	724/060	9-E/1	OPEN		OPEN		NA	OPEN		
2-PREG-30-19	Press Reg 2-FCV-30-19	730/057	9-E/1	CLOSED		VENT		NA	CLOSED		
2-FCV-30-19	Purge Incore Instr Rm Supply	724/060	9-E/1	OPEN		OPEN		CLOSED	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-1435	EL 718 RB Branch	718/050	9-D/1	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3492	Isolation 2-FCV-30-305	730/070	9-D/1	OPEN		OPEN		NA	OPEN		
2-ISV-32-3493	Isolation 2-FCV-30-309	730/063	9-D/1	OPEN		OPEN		NA	OPEN		
2-PREG-31-309	Press Reg 2-FCV-31-309	737/070	9-D/1	CLOSED		VENT		NA	CLOSED		
2-FCV-31-305	Incore Instr Rm Chill A CWR	735/067	9-D/1	OPEN		OPEN		CLOSED	OPEN		
2-FCV-31-309	Incore Instr Rm Chill A CWR	737/070	9-D/1	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1472	EL 715 RB	715/300	9-G/1	OPEN		OPEN		NA	OPEN		
2-ISV-32-1440	EL 718 RB Branch	716/288	9-G/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3558	Isolation 2-FCV-43-64	715/295	9-G/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3557	Isolation 2-FCV-43-61	716/295	9-G/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3556	Isolation 2-FCV-43-55	718/295	9-G/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3548	Isolation 2-FCV-43-58	716/220	9-F/4	OPEN		OPEN		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3547	Isolation 2-FCV-30-51	744/290	9-F/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3546	Isolation 2-FCV-30-53	744/250	9-F/4	OPEN		OPEN		NA	OPEN		
2-PREG-30-53	Press Reg 2-FCV-30-53	744/250	9-F/4	CLOSED		VENT		NA	CLOSED		
2-FCV-43-64	SG 4 Drum/Bldg Sample	724/278	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-61	SG 3 Drum/Bldg Sample	724/278	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-55	SG 1 Drum/Bldg Sample	716/298	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-58	SG 2 Drum/Bldg Sample	716/278	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-51	Purge Upper Compt Exhaust	790/290	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-53	Purge Upper Compt Exhaust	744/250	9-F/4	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1444	Header Isol to 2-FCV-30-37	715/283	9-G/5	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3575	Isolation 2-FCV-30-37	720/280	9-G/5	OPEN		OPEN		NA	OPEN		
2-PREG-30-37	Press Reg 2-FCV-30-37	702/286	9-G/5	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-30-37	Purge Low Comp Press Rel.	720/294	9-G/5	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1446	Isolation to 2-FCV-30-7	715/280	9-G/6	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3576	Isolation 2-FCV-30-7	790/286	9-G/6	OPEN		OPEN		NA	OPEN		
2-PREG-30-7	Press Reg 2-FCV-30-7	798/287	9-G/6	CLOSED		VENT		NA	CLOSED		
2-FCV-30-7	Purge Upper Compt Supply	798/287	9-G/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1447	EL 720 RB Branch	720/270	9-G/6	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3573	Isolation 2-FCV-30-12	780/260	9-G/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3574	Isolation 2-FCV-30-9	790/263	9-G/6	OPEN		OPEN		NA	OPEN		
2-PREG-30-9	Press Reg 2-FCV-30-9	790/264	9-G/6	CLOSED		VENT		NA	CLOSED		
2-FCV-30-12	Purge Upper Compt Supply	790/265	9-G/6	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-9	Purge Upper Compt Supply	801/265	9-G/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1451	Isolation Vlv to 2-FCV-30-16	715/195	9-G/8	OPEN		CLOSED		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3663	Isolation 2-FCV-30-16	737/240	9-G/8	OPEN		OPEN		NA	OPEN		
2-PREG-30-16	Press Reg 2-FCV-30-16	737/239	9-G/8	CLOSED		VENT		NA	CLOSED		
2-FCV-30-16	Purge Lower Compt Supply	737/240	9G/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1462	Isol 2-FCV-1-22 & Tank 610	732/A14U	9-G/8	OPEN		CLOSED		NA	OPEN		
2-PREG-1-22	Press Reg 2-FCV-1-22	727/NVVR	9-G/8	CLOSED		VENT		NA	CLOSED		
2-FCV-1-22	Main Steam Isol Vlv Loop 3	727/NVVR	9-G/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1453	EL 732 NVVR Branch	732/A15X	9-H/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3578	Isolation 2-FCV-3-239	729/A14X	9-H/8	OPEN		CLOSED		NA	OPEN		
2-PREG-3-239	Press Reg 2-FCV-3-239	729/A15X	9-H/8	CLOSED		VENT		NA	CLOSED		
2-FCV-3-239	SG 2 MFW Bypass Line Isol	729/A15X	9-H/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1463	Isol 2-FCV-1-11 & Tank 612	732/A14U	9-H/9	OPEN		CLOSED		NA	OPEN		
2-PREG-1-11	Press Reg 2-FCV-1-11	729/NVVR	9-H/9	CLOSED		VENT		NA	CLOSED		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-1-11	Main Steam Isol Vlv Loop 2	727/NVVR	9-H/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1455	EL 732 NVVR Branch	732/A15X	9-H/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3674	Isolation 2-FV-3-242	729/A14X	9-H/9	OPEN		CLOSED		NA	OPEN		
2-PREG-3-242	Press Reg 2-FCV-3-242	729/A15X	9-H/9	CLOSED		VENT		NA	CLOSED		
2-FCV-3-242	SG 3 MFW Bypass Line	729/A15X	9-H/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1458	Hdr Isol to 2-FCV-30-59	715/140	9-G/10	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3668	Isolation 2-FCV-30-59	740/120	9-G/10	OPEN		OPEN		NA	OPEN		
2-PREG-30-59	Press Reg 2-FCV-30-59	740/20	9-G/10	CLOSED		VENT		NA	CLOSED		
2-FCV-30-59	Purge Instr Rm Exhaust Isol	740/120	9-G/10	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1459	EL 715 RB Branch	715/130	9-G/10	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3666	Isolation 2-FCV-31-326	731/105	9-G/10	OPEN		OPEN		NA	OPEN		
2-ISV-32-3667	Isolation 2-FCV-31-330	731/102	9-G/10	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PREG-31-326	Press Reg 2-FCV-31-326	734/107	9-G/10	CLOSED		VENT		NA	CLOSED		
2-FCV-31-326	Incore Instr Rm Chill B CWR	734/107	9-G/10	OPEN		OPEN		CLOSED	OPEN		
2-FCV-31-330	Incore Instr Rm Chill B CWR	734/107	9-G/10	OPEN		OPEN		CLOSED	'OPEN		
2-ISV-32-1336	RB Supply Header Isolation	721/298	9-A/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-1338	Header Isol 2-FCV-30-15	721/298	9-A/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3476	Isolation 2-FCV-30-15	738/298	9-A/2	OPEN		OPEN		NA	OPEN		
2-PREG-30-15	Press Reg 2-FCV-30-15	737/301	9-A/2	CLOSED		VENT		NA	CLOSED		
2-FCV-30-15	Purge Lower Compt Supply	737/301	9-A/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1342	EL 721 RB Branch	721/298	9-B/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3510	Isolation 2-FCV-43-54D	716/290	9-B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3511	Isolation 2-FCV-43-56D	716/290	9-B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3512	Isolation 2-FCV-43-59D	716/290	9-B/2	OPEN		OPEN		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3513	Isolation 2-FCV-43-63D	716/285	9-B/2	OPEN		OPEN		NA	OPEN		
2-PREG-43-63D	Press Reg 2-FCV-43-63D	716/292	9-B/2	CLOSED		VENT		NA	CLOSED		
2-FCV-43-54D	SG 1 Drum Bldg Sample Isol	716/292	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-56D	SG 2 Drum Bldg Sample Isol	716/292	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-59D	SG 3 Drum Bldg Sample Isol	716/292	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-FCV-43-63D	SG 4 Drum Bldg Sample Isol	716/292	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1344	EL 721 RB Branch	721/298	9-B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3516	Isolation 2-FCV-30-40	716/285	9-B/2	OPEN		CLOSED		NA	OPEN		
2-PREG-30-40	Press Reg 2-FCV-30-40	720/286	9-B/2	CLOSED		VENT		NA	CLOSED		
2-FCV-30-40	Purge Lower Compt Pr Relief	720/286	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3517	Isolation 2-FCV-77-16	716/285	9-B/2	OPEN		CLOSED		NA	OPEN		
2-PREG-77-16	Press Reg 2-FCV-77-16	718/287	9-B/2	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-77-16	RCDT Gas Anal Flow Cntl	716/286	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3518	Isolation 2-FCV-77-127	716/296	9-B/2	OPEN		CLOSED		NA	OPEN		
2-PREG-77-127	Press Reg 2-FCV-77-127	716/293	9-B/2	OPEN		CLOSED		NA	OPEN		
2-FCV-77-127	RB Sump Disch Flow Ctl	716/294	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1346	EL 721 RB Branch	716/300	9-B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3491	Isolation 2-FCV-30-50	744/292	9-B/2	OPEN		CLOSED		NA	OPEN		
2-PREG-30-50	Press Reg 2-FCV-30-50	749/293	9-B/2	CLOSED		VENT		NA	OPEN		
2-FCV-30-50	Purge Upper Compt Exhaust	750/295	9-B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1467	EL 730 RB	730/304	9-B/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-1362	Isolation Off Header	430/708	9-B/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3533	Isolation 2-FCV-68-308	716/318	9-B/4	OPEN		CLOSED		NA	OPEN		
2-PREG-68-308	Press Reg 2-FCV-68-308	716/318	9-B/4	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-68-308	Pres Relief Tk Gas Anal Sup	716/318	9-B/4	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1370	Header to Isol 2-FCV-43-63B	729/345	9-B/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3534	Isolation 2-FCV-43-63B	716/343	9-B/5	OPEN		CLOSED		NA	OPEN		
2-PREG-43-63B	Press Reg 2-FCV-43-63B	731/343	9-B/5	CLOSED		VENT		NA	CLOSED		
2-FCV-43-63B	SG 4 Bldg Sample Isolation	734/343	9-B/5	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1375	EL729 RB Branch	729/009	9-B/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3608	Isolation 2-FCV-43-54B	716/215	9-B/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-54B	Press Reg 2-FCV-43-54B	716/017	9-B/6	CLOSED		VENT		NA	CLOSED		
2-FCV-43-54B	SG1 Bldg Sample Isolation	716/017	9-B/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1377	EL 729 RB Branch	729/038	9-B/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3612	Isolation 2-FCV-30-56	733/038	9-B/6	OPEN		CLOSED		NA	OPEN		
2-PREG-30-56	Press Reg 2-FCV-30-56	735/036	9-B/6	CLOSED		VENT		NA	CLOSED		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-30-56	Purge Lower Compt Exhaust	735/036	9-B/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1384	EL 729 RB Branch	729/065	9-B/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3640	Isol 2-TCV-30-20	716/063	9-B/9	OPEN		CLOSED		NA	OPEN		
2-PREG-30-20	Press Reg 2-FCV-30-20	724/060	9-B/9	CLOSED		VENT		NA	CLOSED		
2-FCV-30-20	Purge Incore Instr Rm Supply	724/060	9-B/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1385	EL 729 RB Branch	729/067	9-A/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3647	Isolation 2-FCV-31-329	731/090	9-A/10	OPEN		CLOSED		NA	OPEN		
2-PREG-31-329	Press Reg 2-FCV-31-329	731/120	9-A/10	CLOSED		VENT		NA	CLOSED		
2-FCV-31-329	Incore Instr Rm Chill B CWR	731/120	9-A/10	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3646	Isolation 2-FCV-31-327	731/090	9-A/10	OPEN		CLOSED		NA	OPEN		
2-PREG-31-327	Press Reg 2-FCV-31-327	731/060	9-A/10	CLOSED		VENT		NA	CLOSED		
2-FCV-31-327	Incore Instr Rm Chill B CWR	731/060	9-A/10	OPEN		OPEN		CLOSED	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-3643	Isolation 2-FCV-30-58	716/118	9-A/10	OPEN		CLOSED		NA	OPEN		
2-PREG-30-58	Press Reg 2-FCV-30-59	740/118	9-A/10	CLOSED		VENT		NA	CLOSED		
2-FCV-30-58	Purge Instr Room Exhaust	740/716	9-A/10	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1382	EL 729 RB Branch	716/050	9-B/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3632	Isolation 2-FCV-62-73	702/050	9-B/8	OPEN		CLOSED		NA	OPEN		
2-PREG-62-73	Press Reg 2-FCV-62-73	702/047	9-B/8	CLOSED		VENT		NA	CLOSED		
2-FCV-62-73	CVCS Letdown Orifice B	702/047	9-B/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1383	EL 729 RB Branch	729/060	9-B/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3637	Isolation 2-FCV-31-306	730/063	9-B/9	OPEN		CLOSED		NA	OPEN		
2-PREG-31-306	Press Reg 2-FCV-31-306	716/060	9-B/9	CLOSED		VENT		NA	CLOSED		
2-FCV-31-306	Incore Instr Rm Chill A CWR	716/060	9-B/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3638	Isolation 2-FCV-31-308	730/063	9-B/9	OPEN		CLOSED		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-PREG-31-308	Press Reg 2-FCV-31-308	716/060	9-B/9	CLOSED		VENT		NA	CLOSED		
2-FCV-31-308	Incore Instr Rm Chill A CWR	716/060	9-B/9	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1349	EL 727 RB Branch	720/300	9-C/5	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3550	Isolation 2-FCV-61-97	775/300	9-C/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3551	Isolation 2-FCV-61-122	772/303	9-C/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3552	Isolation 2-FCV-61-192	806/294	9-C/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3553	Isolation 2-FCV-61-194	756/297	9-C/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3554	Isolation 2-FCV-30-8	795/290	9-C/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3555	Isolation 2-FCV-30-10	797/261	9-C/5	OPEN		OPEN		NA	OPEN		
2-PREG-30-10	Press Reg 2-FCV-30-10	756/261	9-C/5	CLOSED		VENT		NA	CLOSED		
2-FCV-61-97	Glycol Cooler Flr Supply Hdr	775/303	9-C/5	OPEN		OPEN		CLOSED	OPEN		
2-FCV-61-122	Glycol Cooler Flr Return Hdr	756/300	9-C/5	OPEN		OPEN		CLOSED	OPEN		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-61-192	Glycol Supply Isolation valve	806/295	9-C/5	OPEN		OPEN		CLOSED	OPEN		
2-FCV-61-194	Glycol Return Header	806/295	9-C/5	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-8	Purge Upper Compt Supply	790/285	9-C/5	OPEN		OPEN		CLOSED	OPEN		
2-FCV-30-10	Purge Upper Compt Supply	790/261	9-C/5	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1352	Isolation 2-FCV-43-63A	727/330	9-C/6	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3538	Isolation 2-FCV-43-63A	716/343	9-C/6	OPEN		OPEN		NA	OPEN		
2-PREG-43-63A	Press Reg 43-63A	716/343	9-C/6	CLOSED		VENT		NA	CLOSED		
2-FCV-43-63A	SG 4 Drum Sample Isolation	716/343	9-C/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1355	EL RB Branch	727/030	9-C/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3600	Isolation 2-FCV-43-54A	702/019	9-C/9	OPEN		CLOSED		NA	OPEN		
2-PREG-43-54A	Press Reg 2-FCV-43-54A	702/019	9-C/9	CLOSED		VENT		NA	CLOSED		
2-FCV-43-54A	SG 1 Drum Sample	702-019	9-C/9	OPEN		OPEN		CLOSED	OPEN		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-ISV-32-1466	EL 721 RB	721/300	9-C/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-1387	EL 721 RB Branch	721/300	9-C/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3539	Isolation 2-FCV-77-18	716/281	9-C/4	OPEN		CLOSED		NA	OPEN		
2-PREG-77-18	Press Reg 77-18	716/280	9-C/4	CLOSED		VENT		NA	CLOSED		
2-FCV-77-18	RCDT to Vent Hdr Floor Cntl	716/280	9-C/4	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3540	Isolation 2-FCV-77-9	716/278	9-C/4	OPEN		CLOSED		NA	OPEN		
2-PREG-77-9	Press Reg 2-FCV-77-9	716/277	9-C/4	CLOSED		VENT		NA	CLOSED		
2-FCV-77-9	RCDT Pump Disch Flow Ctl	716/277	9-C/4	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1470	EL 716 RB	716/222	9-E/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-1398	EL 716 RB Branch	726/226	9-E/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-3581	Isolation 2-FCV-30-17	716/233	9-E/5	OPEN		CLOSED		NA	OPEN		
2-PREG-30-17	Press Reg 2-FCV-30-17	737/236	9-E/5	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-30-17	Purge Lower Compt Supply	737/236	9-E/5	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1402	EL 726 RB Branch	726/210	9-E/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3589	Isolation 2-FCV-30-52	751/249	9-E/6	OPEN		CLOSED		NA	OPEN		
2-PREG-30-52	Press Reg 2-FCV-30-52	751/249	9-E/6	CLOSED		VENT		NA	CLOSED		
2-FCV-30-52	Purge Upper Compt Exhaust	751/250	9-E/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1403	EL 726 RB Branch	726/201	9-E/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3586	Isolation 2-FCV-43-59A	708/195	9-E/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-59A	Press Reg 2-FCV-43-59A	702/190	9-E/6	CLOSED		OPEN		NA	CLOSED		
2-FCV-43-59A	SG 3 Drum Sample Isolation	702/190	9-E/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1406	Hdr Isol to 2-FCV-43-56A	726/170	9-E/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3594	Isolation 2-FCV-43-56A	702/187	9-E/7	OPEN		CLOSED		NA	OPEN		
2-PREG-43-56A	Press Reg 2-FCV-43-56A	702/185	9-E/7	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-43-56A	SG 2 Drum Sample Isolation	702/185	9-E/7	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1408	EL 726 RB Branch	726/145	9-E/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3650	Isolation 2-FCV-62-69	729/130	9-E/8	OPEN		CLOSED		NA	OPEN		
2-PREG-62-69	Press Reg 2-FCV-62-69	716/126	9-E/8	CLOSED		VENT		NA	CLOSED		
2-FCV-62-69	CVCS Letdown Isolation	716/126	9-E/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1409	Header Isol to 2-FCV-62-70	726/135	9-D/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-4954	Isolation 2-FCV-62-70	718/122	9-D/8	OPEN		OPEN		NA	OPEN		
2-PREG-62-70	Press Reg 2-FCV-62-70	716/130	9-D/8	CLOSED		VENT		NA	CLOSED		
2-FCV-62-70	CVCS Letdown Isolation	716/130	9-D/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1415	EL 726 RB Branch	726/180	9-E/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3592	Isolation 2-FCV-43-59B	726/180	9-E/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-59B	Press Reg 2-FCV-43-59B	716/185	9-E/6	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-43-59B	SG 3 Bldg Sample Isolation	716/185	9-E/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3591	Isolation 2-FCV-43-56B	726/205	9-E/6	OPEN		CLOSED		NA	OPEN		
2-PREG-43-56B	Press Reg 2-FCV-43-56B	716/174	9-E/6	CLOSED		VENT		NA	CLOSED		
2-FCV-43-56B	SG 2 Bldg Sample Isolation	716/174	9-E/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1420	EL 729 RB Branch	726/140	9-F/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3572	Isolation 2-FCV-62-59	702/110	9-F/7	OPEN		CLOSED		NA	OPEN		
2-PREG-62-59	Press Reg 2-FCV-62-59	702/120	9-F/7	CLOSED		VENT		NA	CLOSED		
2-FCV-62-59	CVCS Excess Letdown Divert	702/120	9-F/7	DIVERT		DIVERT		VCT	DIVERT		
2-ISV-32-1422	EL 726 RB Branch	726/137	9-F/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3656	Isolation 2-FCV-62-86	716/129	9-F/8	OPEN		CLOSED		NA	OPEN		
2-PREG-62-86	Press Reg 2-FCV-62-86	716/130	9-F/8	CLOSED		VENT		NA	CLOSED		

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CAS Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Note]	Location	Coor.	Initial Position Note 1	By Date	Test Position Note 2	By Date	Failsafe Position Note 2	As Left Position Note 3	By Date	CV By Date
2-FCV-62-86	CVCS Alt Charging Flow	716/130	9-F/8	CLOSED		CLOSED		OPEN	CLOSED		

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Table 12
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ACAS Train A Gradual Loss of Air Test Branch Lineups

Date _____

NOTES

- 1) Initial isolation valve open position and with related pressure regulator vent closed is verified in Table 2. Some of the valves are listed below again for test control, consistency, and clarity purposes. The repositioning of control valves verified using Table 5. Turned over Unit 1 and common components are normally open for flow.
- 2) Portions of Unit 2 System 65, EGTS, will temporarily NOT be available during portions of this test subsection.
- 3) Position component[s] as indicated to gradually vent test branch line for a total air lost. Acceptance Criteria position in **bold** indicates sign off in Table 7.
- 4) Initial restoration for this procedure's purposes will be to the As Left position by manual positioning or using controllers listed in Table 5. Bypass Valve 2-BYP-32-328 should be positioned Closed when 2-FCV-32-81 is Open. This may be documented in 7.0 Step [8]A. Startup Engineering and/or Operations may elect to re-position any component after the As Left position is obtained as listed such as ABSCE boundary, U1/U2 interface, or individual system operation/isolation. Final Restoration for all systems tested is addressed in Section 7.0.
- 5) Drawing reference is from 2-47W848-sheet 10. [e.g., F/8 denotes sheet 10 drawing coordinates F & 8].
- 6) Essential Air EL 757 AB Hdr Isolation Valve 0-ISV-32-385 will need to remain OPEN as positioned in Table 2 to support Unit 1 operation and to restore the Unit 2 System 65 valves tested individually below.

Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-3702	Isolation 2-FCV-65-9 [ABSCE]	757/A13U	E/2	OPEN		CLOSED		NA	OPEN		

Table 12
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ACAS Train A Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-PREG-65-9	Press Reg 2-FCV-65-9	757/A13U	E/2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-9	EGTS Tr A Unit 2 Suction Isol	757/A13U	E/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3705	Isolation 2-FCO-65-46 [ABSCE]	757/A13V	E/2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-46	Press Reg 2-FCO-65-46	757/A13U	E/2	CLOSED		VENT		NA	CLOSED		
2-FCO-65-46	EGTS To U-2	757/A11U	E/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3708	Isolation 2-FCV-65-5 [ABSCE]	757/A13U	E/2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-5	Press Reg 2-FCV-65-5	757/A12V	E/2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-5	Cntmt Ann Vac Fan Suct	757/A12V	E/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3706	Isolation 2-FCV-65-50 [ABSCE]	757/A13V	E/2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-50	Press Reg 2-FCV-65-50	757/A13U	E/2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-50	EGTS Tr A Unit 2 Suct Isol	757/A13U	E/2	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-389	EL 737 AB Sect Hdr [U1/U2]	757/A12T	E/3	OPEN		OPEN		NA	OPEN		

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Date _____

Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
0-ISV-32-384	Branch Hdr Isol	765/SVVR	E/3	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3750	Isolation 2-L-423 [2-PM-1-6]	725/145	E/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3749	Isolation 2-PCV-1-5	737/A13V	E/4	OPEN		CLOSED		NA	OPEN		
2-PREG-1-5	Press Reg 2-PCV-1-5	729/A12U	E/4	CLOSED		VENT		NA	CLOSED		
2-PCV-1-5	SG 1 Main Stm Hdr Relf Cntl	729/A12U	E/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-383	EL 713 RB Branch Hdr	737/A13T	F/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3751	Isolation 2-LCV-3-156	737/A13T	F/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3752	Isolation 2-LCV-3-156A	737/A13T	F/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3753	Isolation 2-LCV-3-164	737/A13T	F/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3754	Isolation 2-LCV-3-164A	737/A13T	F/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3763	2-L-218A [2 LM-3-156A/164A]	737/A13T	F/4	OPEN		CLOSED		NA	OPEN		
2-PREG-3-164	Press Reg 2-LCV-3-164	737/A13T	F/4	CLOSED		VENT		NA	CLOSED		
2-LCV-3-156	MD AFW Pump 2A-A SG 2 LVI	737/A13S	F/4	CLOSED		CLOSED		OPEN	CLOSED		

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Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-LCV-3-156A	Strm Gen # 2 Bypass Cntl Vlv	737/A13S	F/4	OPEN		OPEN		CLOSED	OPEN		
2-LCV-3-164	MD AFW Pump 2A-A SG 1 Lvl	737/A13S	F/4	CLOSED		CLOSED		OPEN	CLOSED		
2-LCV-3-164A	Strm Gen # 1 Bypass Cntl Vlv	737/A13S	F/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1486	Hdr Isolation	713/A12S	F/3	OPEN		OPEN		NA	OPEN		
2-ISV-32-3755	Isol 2-L-214B [2-PM-3-122]	713/A12S	F/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3756	Isolation 2-PCV-3-122	713/A12S	F/4	OPEN		CLOSED		NA	OPEN		
2-PREG-3-122/A1	Press Reg 2-PCV-3-122	713/A13T	F/4	CLOSED		VENT		NA	CLOSED		
2-PCV-3-122	AUX FW Pump A-A Out Press	713/A13T	F/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-390	Sect Branch Header to RB [U1/U2]	757/A12U	E/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-388	U-2 RB Supply Header [ABSCE]	737/A12W	E/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-327	[U/S] IN Isol 2-FCV-32-81	724/290	1-E/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-331	[D/S] OUT Isol 2-FCV-32-81	702/293	1-E/8	OPEN		CLOSED		NA	OPEN		
2-RTV-32-346	Root Isolation 2-PREG-32-81	719/280	1-E/8	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-RTV-32-330	Root Isolation 2-PIC-32-81	724/285	1-E/9	OPEN		OPEN		NA	OPEN		
2-BYV-32-328	Bypass 2-FCV-32-81	7189/290	1-E/8	CLOSED		OPEN		Na	CLOSED		
2-PREG-32-81	Press Reg 2-FCV-32-81	718/287	1-E/8	CLOSED		VENT		NA	CLOSED		
2-FCV-32-81 [2-HS-32-81A]	ACAS Train A Cntrmt Isol	719/300	1-E/8	OPEN		OPEN		CLOSED	OPEN Note 4		
0-ISV-32-1485	Branch Vlv to 2-LCV-3-172/175	737/A11V	F/4	OPEN		OPEN		NA	OPEN		
0-ISV-32-387	Isol Vlv to 2-LCV-3-175/172	737/A11V	F/5	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3767	Isol Vlv to 2-LCV-3-175	755/A16V	F/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3768	Isol Vlv to 2-LCV-3-172	737/A13U	F/6	OPEN		OPEN		NA	OPEN		
2-PREG-3-175	Press Reg 3-LCV-3-175	729/A13U	F/6	CLOSED		VENT		NA	CLOSED		
2-LCV-3-175	[TD AFW Pump] SG 4 Level	737/A16V	F/6	OPEN		OPEN		CLOSED	OPEN		
2-LCV-3-172	[TD AFW Pump] SG 4 Level	737/A16V	F/6	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-450	Header Isolation	730/298	E/7	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-451	EL 725 RB Branch Header	728/095	E/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3791	Isolation 2-PCV-68-340D	736/091	E/8	OPEN		OPEN		NA	OPEN		
2-ISV-32-3790	Isol 2-L-351B [2-PM-68-340H]	702/068	E/7	OPEN		CLOSED		NA	OPEN		
2-PREG-68-340D	Press Reg 2-PCV-68-340D	716/097	E/7	CLOSED		VENT		NA	CLOSED		
2-PCV-68-340D	RCS PRZ R Press	716/097	E/7	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-456	Hdr Isol to 2-PCV-1-23 [NVVR]	765/A14X	F/8	OPEN		CLOSED		NA	OPEN		
2-PREG-1-23	Press Reg 2-PCV-1-23	729/NVVR	F/8	CLOSED		VENT		NA	CLOSED		
2-PCV-1-23	SG Main Stm Press Relief	729/NVVR	F/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-1572	Header Isolation	760/229	F/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3990	Isolation 2-FCV-90-107	741/226	F/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3991	Isolation 2-FCV-90-111	741/293	F/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3992	Isolation 2-FCV-90-113	741/293	F/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3993	Isolation 2-FCV-90-117	741/292	F/7	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description [Notes]	Location	Coord.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-PREG-90-107	Press Reg 2-FCV-90-107	741/294	F/7	CLOSED		VENT		NA	CLOSED		
2-FCV-90-107	Cntrmt Bldg Lwr Compt Mon [S]	741/293	F/7	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-111	Cntrmt Bldg Lwr Compt Mon [R]	741/293	F/7	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-113	Cnt Bldg Upper Compt Mon [S]	741/293	F/7	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-117	Cnt Bldg Upper Compt Mon [R]	741/293	F/7	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-453	Header Isolation EL 811 RB	835/360	F/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3794	Isol 2-L-44 [2-PDM-65-80]	782/A16W	F/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3793	Isolation 2-PCO-65-80	811/360	F/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-3792	Isolation 2-PCV-65-81 & -86	756/359	F/7	OPEN		OPEN		NA	OPEN		
2-PREG-65-80	Press Reg 2-PCO-65-80	756/350	F/7	CLOSED		VENT		NA	CLOSED		
2-PCO-65-80	EGTS Shield Bldg Mod Dmpr	756/350	F/7	CLOSED		CLOSED		OPEN	CLOSED		
2-PCO-65-88	EGTS Cntrmt Annulus Mod	834/360	F/7	OPEN		OPEN		CLOSED	OPEN		
2-PCV-65-81	EGTS Shield Bldg Exhaust	834/360	F/7	OPEN		OPEN		CLOSED	OPEN		

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ACAS Train A Gradual Loss of Air Test Branch Lineups

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Isolation Refer.	Generic Description [Notes]	Location	Coor.	Initial Position. Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-PCV-65-86	EGTS Cntmt Annulus Isol	834/360	F/7	OPEN		OPEN		CLOSED	OPEN		

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ACAS Train B Gradual Loss of Air Test Branch Lineups

Date _____

NOTES

- 1) Initial isolation valve open position and position with related pressure regulator vent closed is verified in Table 3. Some of the valves are listed below again for test control, consistency, and clarity purposes. The repositioning of control valves verified using Table 6. Turned over Unit 1 and common components are normally open for flow.
- 2) Portion of Unit 2 System 65, EGTS, will temporarily NOT be available during portions of this test subsection.
- 3) Position component as indicated to gradually vent test branch line for total loss of air. Acceptance Criteria position in **bold** indicates sign off in Table 8.
- 4) Initial restoration for this procedure's purposes will be to the As Left position by manual positioning or using controllers listed in Table 6. Bypass Valve 2-BYP-32-318 should be positioned to Closed when 2-FCV-32-103 is Open. This may be documented in 7.0 Step [8] B Startup Engineering and/or Operations may elect to re-position any component after the As Left position is obtained as listed such as ABSCE boundary, U1/U2 interface, or individual system operation/isolation. Final Restoration for all systems tested is addressed in Section 7.0.
- 5) Drawing reference is from applicable 2-47W848 sheet 10. [e.g., F/8 denotes sheet 10 drawing coordination F and 8.]
- 6) Essential Air EL 757 AB Branch Header Isolation Valve 0-ISV-32-413 will remain OPEN as positioned in Table 3 to support Unit 1 operation and to restore the Unit 2 system 65 valves tested individually below.

Isolation Refer.	Generic Description	Location	Coor.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-3683	Isolation 2-FCV-65-29	757/A12V	A-2	OPEN		CLOSED		NA	OPEN		

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ACAS Train B Gradual Loss of Air Test Branch Lineups

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Isolation Refer.	Generic Description	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-PREG-65-29	Press Reg 2-FCV-65-29	757/A12V	A-2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-29	EGTS Train B Unit 2 Suct	757/A13V	A-2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3690	Isolation 2-FCV-65-7	757/A13U	A-2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-7	Press Reg 2-FCV-65-7	757/A12V	A-2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-7	EGTS Train B Unit 2 Suct	757/A13U	A-2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3680	Isolation 2-FCV-65-4	757/A12V	B/2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-4	Press Reg 2-FCV-65-4	757/A12V	B/2	CLOSED		VENT		NA	CLOSED		
2-FCV-65-4	Cntmt Annulus Vac Fans	757/A12V	B/2	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-3678	Isolation 2-FCO-65-45	757/A11U	A-2	OPEN		CLOSED		NA	OPEN		
2-PREG-65-45	Press Reg 2-FCO-65-45	757/A11U	B/2	CLOSED		VENT		NA	CLOSED		
2-FCO-65-45	EGTS, Tr B Shield Bldg Exh	771/A11U	B/2	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-419	EL 737 AB Header Sect	737/A11U	B/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-1484	EL 737 AB Header	737/A12U	B/3	OPEN		OPEN		NA	OPEN		
0-ISV-32-411	EL 757 Branch Header	737/A13S	B/2	OPEN		CLOSED		NA	OPEN		

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Isolation Refer.	Generic Description	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-3692	2-L-929 [2-LM-3-148A/171A]	739/A13S	B/2	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3687	Isolation 2-LCV-3-148	737/A13S	B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3688	Isolation 2-LCV-3-148A	737/A13S	B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3689	Isolation 2-LCV-3-171	737/A13S	B/2	OPEN		OPEN		NA	OPEN		
2-ISV-32-3691	Isolation 2-LCV-3-171A	737/A13S	B/2	OPEN		OPEN		NA	OPEN		
2-PREG-3-171	Press Reg 2-LCV-3-171	737/A13S	B/2	CLOSED		VENT		NA	CLOSED		
2-LCV-3-148	MDAFW Pmp B-B SG 3 Lvl	737/A13T	B/2	CLOSED		CLOSED		OPEN	CLOSED		
2-LCV-3-148A	Stm Gen # 3 Lvl Bypass	737/A13T	B/2	OPEN		OPEN		CLOSED	OPEN		
2-LCV-3-171	MDAFW Pmp B-B SG 4 Lvl	737/A13T	B/2	CLOSED		CLOSED		OPEN	CLOSED		
2-LCV-3-171A	Stm Gen # 4 Lvl Bypass	737/A13T	B/2	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-1487	Branch Hdr to 2-L-222B	713/A13S	A/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3725	Isol 2-L-222B [2-PM-3-132]	713/A13S	A/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3724	Isolation 2-PCV-3-132	713/A13S	A/4	OPEN		OPEN		NA	OPEN		
2-PREG-3-132	Press Reg 2-PCV-3-132	713/A13S	A/4	CLOSED		VENT		NA	CLOSED		
2-PCV-3-132	AFW Pump B-B	713/A13S	A/4	OPEN		OPEN		CLOSED	OPEN		

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Isolation Refer.	Generic Description	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
0-ISV-32-412	Branch Header [SVVR]	765/A11X	A/3	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3727	Isol 2-L-422 [2-PM-1-31]	765/A15U	A/3	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3726	Isolation 2-PCV-1-30	737/A13U	A/3	OPEN		OPEN		NA	OPEN		
2-PREG-1-30	Press Reg 2-PCV-1-30	729/A11U	A/3	CLOSED		VENT		NA	CLOSED		
2-PCV-1-30	SG 4 Main Stm Press Relief	729/A11U	A/3	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-415	To 2-LCV-173/174 [SVVR]	737/A13U	B/4	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3728	Isolation 2-LCV-3-173	737/A13U	B/4	OPEN		OPEN		NA	OPEN		
2-ISV-32-3729	Isolation 2-LCV-3-174	737/A13V	B/4	OPEN		OPEN		NA	OPEN		
2-PREG-3-173	Press Reg 2-LCV-3-173	737/A13U	B/4	CLOSED		VENT		NA	CLOSED		
2-LCV-3-173	SG 2 Level Control Valve	737/A13U	B/4	OPEN		OPEN		CLOSED	OPEN		
2-LCV-3-174	TDAFW Pump SG 1 Level	737/A13U	B/4	OPEN		OPEN		CLOSED	OPEN		
0-ISV-32-418	Unit 2 RB Supply Header	737/A12W	B/5	OPEN		OPEN		NA	OPEN		
2-ISV-32-317	U/S 2-FCV-32-103 [IN]	724/278	1-E/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-321	D/S 2-FCV-32-103 [OUT]	724/282	1-E/9	OPEN		CLOSED		NA	OPEN		
2-RTV-32-348	Root to 2-PREG-32-103	724/280	1-E/8	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-RTV-32-320	Root to 2-PIC-32-103	724/280	1-E/9	OPEN		OPEN		NA	OPEN		
2-BYV-32-318	Bypass 2-FCV-32-103	724/280	1-E/9	CLOSED		OPEN		NA	CLOSED		
2-PREG-32-103	Press Reg 2-FCV-32-103	735/280	1-E/9	CLOSED		VENT		NA	CLOSED		
2-FCV-32-103 [2-HS-32-103A]	Train B Cntrmt Isolation	730/280	1-E/9	OPEN		OPEN		CLOSED	OPEN Note 4		
2-ISV-32-463	Header Isolation [Annulus]	811/360	B/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3780	Isol 2-L-45 [2-PDM-65-82]	782/323	B/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3778	Isolation 2-PCV-65-83 / 87	713/A13S	B/6	OPEN		OPEN		NA	OPEN		
2-ISV-32-3777	Isolation 2-PCO-65-89 [82]	713/A13S	A/6	OPEN		OPEN		NA	OPEN		
2-PREG-65-89	Press Reg 2-PCO-65-89	713/A13S	A/6	CLOSED		VENT		NA	CLOSED		
2-PCV-65-83	EGTS U 2 Shield Bldg Exh	713/A13S	B/6	OPEN		OPEN		CLOSED	OPEN		
2-PCV-65-87	EGTS Cntrmt Annulus Isol	713/A13S	B/6	OPEN		OPEN		CLOSED	OPEN		
2-PCO-65-89	EGTS Cntrmt Annulus Mod	713/A13S	A/6	OPEN		OPEN		CLOSED	OPEN		
2-PCO-65-82	Shield Bldg Mod Dmpr	713/A13S	A/6	CLOSED		CLOSED		OPEN	CLOSED		
2-ISV-32-464	Hdr to 2-L-421 [NVVR]	765/A14X	B/8	OPEN		OPEN		NA	OPEN		

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Isolation Refer.	Generic Description	Location	Coord.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-3781	Isol 2-L-421 [2-PM-1-13]	765/A14X	B/8	OPEN		CLOSED		NA	OPEN		
2-ISV-32-465	Isolation 2-PCV-1-12	765/A14X	B/8	OPEN		CLOSED		NA	OPEN		
2-PREG-1-12	Press Reg 2-PCV-1-12	765/A14X	B/8	CLOSED		VENT		NA	CLOSED		
2-PCV-1-12	SG 2 Main Stm Press Relief	764A14X	B/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32-460	RB Header Isolation	708/290	A/7	OPEN		OPEN		NA	OPEN		
2-ISV-32-461	Off Header Isolation	726/116	A/8	OPEN		OPEN		NA	OPEN		
2-ISV-32 3775	Isol 2-L-180 [2-PM-68-340G]	726/113	A/7	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3776	Isolation 2-PCV-68-340B	736/117	A/8	OPEN		CLOSED		NA	OPEN		
2-PREG-68-340B	Press Reg 2-PCV-68-340B	733/110	A/8	CLOSED		VENT		NA	CLOSED		
2-PCV-68-340B	RCS PRZ R Press	733/110	A/8	OPEN		OPEN		CLOSED	OPEN		
2-ISV-32 1573	Train B Off Header	716/110	C/9	OPEN		CLOSED		NA	OPEN		
2-ISV-32-3994	Isolation 2-FCV-90-114	715/237	C/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3995	Isolation 2-FCV-90-115	716/297	C/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3996	Isolation 2-FCV-90-116	716/297	C/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3997	Isolation 2-FCV-90-108	716/297	C/9	OPEN		OPEN		NA	OPEN		

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Table 13
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ACAS Train B Gradual Loss of Air Test Branch Lineups

Date _____

Isolation Refer.	Generic Description	Location	Coor.	Initial Position Note 1	By Date	Test Position Note 3	By Date	Failsafe Position Note 3	As Left Position Note 4	By Date	CV By Date
2-ISV-32-3998	Isolation 2-FCV-90-109	716/297	C/9	OPEN		OPEN		NA	OPEN		
2-ISV-32-3999	Isolation 2-FCV-90-110	716/297	C/9	OPEN		OPEN		NA	OPEN		
2-PREG-90-114	Press Reg 2-FCV-90-114	716/297	C/9	CLOSED		VENT		NA	CLOSED		
2-FCV-90-114	Cntmt Upper Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-115	Cntmt Upper Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-116	Cntmt Upper Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-108	Cntmt Lower Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-109	Cntmt Lower Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		
2-FCV-90-110	Cntmt Lower Compt Monit	716/297	C/9	OPEN		OPEN		CLOSED	OPEN		

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**Table 14
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CAS U2 RB Header Purge Initial System 32 Lineups

Date _____

NOTES

- 1) This lineup is to ensure air charging and bleed off purging of valves listed on Table 16 for failsafe verification.
- 2) Before the performance of purge failsafe testing, coordination with Startup Engineering and/or Operations to ensure that purging will NOT adversely impact other system's operation NOT to be tested by this procedure [Ref steps 6.3[14], [15], [16].
- 3) Drawing 2-47W848-9 Coordinates listed below may be reviewed for coordination purposes.

Valve	Generic Description [notes]	Coor.	Location	Position	Initial/Date
2-ISV-32-1336	RB Hdr Isolation from Cntmt Isolation 2-FCV-32-111	A/1	716/298	OPEN	
2-ISV-32-1337	Isolation Purge Solenoids 2-XSV-32-112A1 & -112A2	A/2	716/298	OPEN	
2-ISV-32-1339	Isolation Purge Solenoids 2-XSV-32-112B1 & -112B2	A/2	716/298	OPEN	
2-ISV-32-1467	EL 730 RB	C/4	730/304	OPEN	
2-ISV-32-1372	EL RB Branch [mixed]	B/5	716/353	OPEN	
2-ISV-32-3605	Isolation 2-TCV-67-108	A/5	716/298	OPEN	
2-ISV-32-3606	Isolation 2-TCV-67-109	A/5	716/355	OPEN	
2-ISV-32-1375	EL 729 RB Branch [mixed]	B/6	716/089	OPEN	
2-ISV-32-3609	Isolation 2-TCV-67-84	A/6	723/012	OPEN	

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**Table 14
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CAS U2 RB Header Purge Initial System 32 Lineups

Date _____

Valve	Generic Description [notes]	Coor.	Location	Position	Initial/Date
2-ISV-32-3610	Isolation 2-TCV-67-85	A/6	725/008	OPEN	
2-ISV-32-1382	EL 729 RB Branch [mixed]	B/8	716/050	OPEN	
2-ISV-32-3631	Isolation 2-FCV-62-72	B/8	702/042	OPEN	
2-ISV-32-3632	Isolation 2-FCV-62-73	B/8	702/047	OPEN	
2-ISV-32-3633	Isolation 3-FCV-62-74	B/8	702/050	OPEN	
2-ISV-32-1468	EL 730 RB	C/4	716/304	OPEN	
2-ISV-32-1351	EL 727 RB Branch [mixed]	C/5	727/327	OPEN	
2-ISV-32-3536	Isolation 2-FCV-62-48	C/5	703/322	OPEN	
2-ISV-32-1354	EL 727 RB Branch [mixed]	C/6	727/350	OPEN	
2-ISV-32-3619	Isolation 2-TCO-30-82	C/6	702/345	OPEN	
2-ISV-32-3621	Isolation 2-TCO-30-85	C/6	702/345	OPEN	
2-ISV-32-1357	EL727 RB Branch [mixed]	C/7	716/046	OPEN	
2-ISV-32-3629	Isolation 2-FCV-62-9	C/7	720/050	OPEN	

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Table 14
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CAS U2 RB Header Purge Initial System 32 Lineups

Date _____

Valve	Generic Description [notes]	Coor.	Location	Position	Initial/Date
2-ISV-32-1466	EL 721 RB	C/4	716/300	OPEN	
2-ISV-32-1470	EL 716 RB	E/5	716/222	OPEN	
2-ISV-32-1401	EL 726 RB Branch [mixed]	D/5	716/230	OPEN	
2-ISV-32-3597	Isolation 2-FCV-62-35	D/6	716/229	OPEN	
2-ISV-32-1404	EL 726 RB branch [mixed]	D/6	726/180	OPEN	
2-ISV-32-3602	Isolation 2-TCO-30-90	D6	712/198	OPEN	
2-ISV-32-3604	Isolation 2-TCO-30-94	D/6	702/165	OPEN	
2-ISV-32-1408	EL 726 RB Branch [mixed]	D/8	726/15	OPEN	
2-ISV-32-3650	Isolation 2-FCV-62-69	E/8	729/130	OPEN	
2-ISV-32-3652	Isolation 2-FCV-62-22	E/8	720/130	OPEN	
2-ISV-32-1409	Header Isolation to 2-FCV-62-70 [mixed]	D/8	726/135	OPEN	
2-ISV-32-4954	Isolation 2-FCV-62-70	D/8	716/122	OPEN	
2-ISV-32-1469	EL 716 RB	E/5	716/220	OPEN	

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Table 14
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CAS U2 RB Header Purge Initial System 32 Lineups

Date _____

Valve	Generic Description [notes]	Coor.	Location	Position	Initial/Date
2-ISV-32-1414	EL 726 RB Branch [mixed]	F/5	716/195	OPEN	
2-ISV-32-3560	Isolation 2-TCV-67-93	F/5	725/185	OPEN	
2-ISV-32-3561	Isolation 2-TCV-67-92	F/5	723/185	OPEN	
2-ISV-32-1416	EL 726 RB Branch [mixed]	F/6	726/170	OPEN	
2-ISV-32-3563	Isolation 2-TCV-67-100	F/6	716/172	OPEN	
2-ISV-32-3565	Isolation 2-TCV-67-101	F/6	716/170	OPEN	

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**Table 15
(Page 1 of 10)
CAS U2 RB Header Purge Pre-Positioning Lineups**

Date _____

NOTES

1) Before the performance of purge failsafe testing, ensure by coordination with Startup Engineering and/or Operations that purging will NOT adversely impact other system's operation NOT to be tested by this procedure [Ref. Steps 6.3[14], [15], [16].

2) This lineup uses only auxiliary control room panel's switches for test control purposes which bypasses the alternate automatic permissive control loops. Restoration Step 6.3[32] should NOT be delayed after purge verification results. Operations may reposition switches after performance of Step 6.3[32] to support plant operations and maintain configuration control.

3) The locations delineated in this Table support the failsafe verification for Table 16.

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-HS-62-69B NOR 2-JB-292-8016A [A10R/757] and 2-XS-62-69 AUX 2-L-11A and 2-HS-62-69C OPEN 2-L-10	RC LOOP 3 LETDOWN FLOW and RCS LETDOWN CIV FROM LOOP 3 and RCS LETDOWN ISOL FROM LOOP 3 CIV-ØA	2-FCV-62-69 [702/188]	RC Loop 3 Letdown Flow	OPEN	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-62-70 AUX 2-L-11A and 2-HS-62-70C OPEN 2-L-10	RCS LETDOWN CIV FROM LOOP 3 and RCS LETDOWN ISOL FROM LOOP 3 CIV-ØA	2-FCV-62-70 [716/130]	RC Loop 3 Letdown Flow	OPEN	
2-XS-62-72 AUX 2-L-11A and 2-HS-62-72C OPEN 2-L-10	LETDOWN ORIFICE A 45 GPM and LETDOWN ORIFICE A 45 GPM	2-FCV-62-72 [702/045]	Regent Ht Exch Letdown Isol Viv A	OPEN	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-62-73 AUX 2-L-11A and 2-HS-62-73C OPEN 2-L-10	LETDOWN ORIFICE B 75 GPM and LETDOWN ORIFICE B 75 GPM	2-FCV-62-73 [702/044]	Regent Ht Exch Letdown Isol Viv B	OPEN	
2-XS-62-74 AUX 2-L-11A and 2-HS-62-74C 2-L-10	LETDOWN ORIFICE C 75 GPM and LETDOWN ORIFICE C 75 GPM	2-FCV-62-74 [702/051]	Regent Ht Exch Letdown Isol Viv C	OPEN	
2-XS-62-9 AUX 2-L-11A and 2-HS-62-9 CLOSE 2-L-10	RCP 1 SEAL RETURN FCV and RCP 1 SEAL RETURN	2-FCV-62-9 [702/052]	RCP 1 Seal Leakoff Flow Control	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-62-22 AUX 2-L-11B and 2-HS-62-22 CLOSE 2-L-10	RCP 2 SEAL RETURN FCV and RCP 2 SEAL RETURN	2-FCV-62-22 [702/138]	RCP 2 Seal Leakoff Flow Control	CLOSED	
2-XS-62-35 AUX 2-L-11A and 2-HS-62-35 CLOSE 2-L-10	RCP 3 SEAL RETURN FCV and RCP 3 SEAL RETURN	2-FCV-62-35 [702/229]	RCP 3 Seal Leakoff Flow Control	CLOSED	
2-XS-62-48 AUX 2-L-11B and 2-HS-62-48 CLOSE 2-L-10	RCP 4 SEAL RETURN FCV and RCP 4 SEAL RETURN	2-FCV-62-48 [702/321]	RCP 4 Seal Leakoff Flow Control	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-67-84 AUX 2-L-11A and 2-HS-67-84C CLOSE 2-L-10	LWR CNTMT CLR A-A ERCW OUTLET TCV and LOWER CNTMT CLR A-A ERCW OUTLET TCV	2-TCV-67-84 [716/010]	Lower Cntrmt Vent Clr 2A Temp Cntl	CLOSED	
2-XS-67-85 AUX 2-L-11A and 2-HS-67-85C CLOSE 2-L-10	CRDM CLR A-A ERCW OUTLET TCV and CRDM CLR A-A ERCW OUTLET TCV	2-TCV-67-85 [716/008]	Control Rod Drive Vent Cooler A Cntl	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-67-92 AUX 2-L-11A and 2-HS-67-92C CLOSE 2-L-10	LWR CNTMT CLR C-A ERCW OUTLET TCV and LOWER CNTMT CLR C-A ERCW OUTLET TCV	2-TCV-67-92 [716/187]	Lower Cntmt Vent Clr 2C Temp Cntl	CLOSED	
2-XS-67-93 AUX 2-L-11A and 2-HS-67-93C CLOSE 2-L-10	CRDM CLR C-A ERCW OUTLET TCV and CRDM CLR C-A ERCW OUTLET TCV	2-TCV-67-93 [716/190]	Control Rod Drive Vent Clr C Temp Cntl	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-67-100 AUX 2-L-11B and 2-HS-67-100C CLOSE 2-L-10	LWR CNTMT CLR B-B ERCW OUTLET TCV and LOWER CNTMT CLR B-B ERCW OUTLET TCV	2-TCV-67-100 [716/168]	Lower Cntrmt Vent Clr 2B Temp Cntl	CLOSED	
2-XS-67-101 AUX 2-L-11AB and 2-HS-67-101C CLOSE 2-L-10	CRDM CLR B-B ERCW OUTLET TCV and CRDM CLR B-B ERCW OUTLET TCV	2-TCV-67-101 [716/171]	Control Rod Drive Vent Clr B Temp Cntl	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-67-108 AUX 2-L-11B and 2-HS-67-108C CLOSE 2-L-10	LWR CNTMT CLR D-B ERCW OUTLET TCV and LOWER CNTMT CLR D-B ERCW OUTLET TCV	2-TCV-67-108 [716/350]	Lower Cntrmt Vent Clr 2D Temp Cntl	CLOSED	
2-XS-67-109 AUX 2-L-11B and 2-HS-67-109C CLOSE 2-L-10	CRDM CLR D-B ERCW OUTLET TCV and CRDM CLR D-B ERCW OUTLET TCV	2-TCV-67-109 [716/351]	Control Rod Drive Vent Clr D Temp Cntl	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-30-82 AUX 2-L-11B and 2-HS-30-82C CLOSE 2-L-10	CRDM COOLER D-B LWR CNTMT SUCT DMPR and CRDM CLR D-B LOWER CNTMT SUCT	2-TCO-30-82 [702/343]	CRDM Clr 2D-B Lower Compt Suction	CLOSED	
2-XS-30-85 AUX 2-L-11A and 2-HS-30-85C CLOSE 2-L-10	CRDM CLR A-A LWR CNTMT SUCT DMPR and CRDM CLR A-A LWR CNTMT SUCT	2-TCO-30-85 [702/017]	CRDM Clr 2A-A Lower Compt Suction	CLOSED	

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Table 15
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CAS U2 RB Header Purge Pre-Positioning Lineups

Date _____

Controller Position Location	Controller Description	Associated Component Location	Generic Description	Pretest Position	Initial/Date
2-XS-30-90 AUX 2-L-11A and 2-HS-30-90C CLOSE 2-L-10	CRDM COOLER C-A LWR CNTMT SUCT DMPR and CRDM CLR C-A LOWER CNTMT SUCTION	2-TCO-30-90 702/195]	CRDM Clr 2C-A Lower Compt Suction	CLOSED	
2-XS-30-94 AUX 2-L-11B and 2-HS-30-94C CLOSE 2-L-10	CRDM COOLER B-B LWR CNTM SUCT DMPR and CRDM COOLER B-B LOWER CNTM SUCT	2-TCO-30-94 [702/163]	CRDM Clr 2B-B Lower Compt Suction	CLOSED	

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Table 16
(Page 1 of 2)
CAS U2 RB Header Purge Failsafe & Timing Verification

Date _____

NOTE

Tables 14 & 15 delineate the initial valve lineup & pre-positioning of the controller locations needed to support this table.

Valve/Operator	M&TE ID Number	Generic Description	Designed FAILSAFE	Actual FAILSAFE	Desired TIME	Actual TIME	Initial/Date
2-FCV-62-69		RC Loop 3 Letdown Flow	CLOSED		≤ 1 min.		
2-FCV-62-70		RC Loop 3 Letdown Flow	CLOSED		≤ 1 min.		
2-FCV-62-72		Regent Ht Exch Letdown Isol Vlv A	CLOSED		≤ 1 min.		
2-FCV-62-73		Regent Ht Exch Letdown Isol Vlv B	CLOSED		≤ 1 min.		
2-FCV-62-74		Regent Ht Exch Letdown Isol Vlv C	CLOSED		≤ 1 min.		
2-FCV-62-9		RCP 1 Seal Leakoff Flow Control	OPEN		≤ 1 min.		
2-FCV-62-22		RCP 2 Seal Leakoff Flow Control	OPEN		≤ 1 min.		
2-FCV-62-35		RCP 3 Seal Leakoff Flow Control	OPEN		≤ 1 min.		
2-FCV-62-48		RCP 4 Seal Leakoff Flow Control	OPEN		≤ 1 min.		
2-TCV-67-84		Lower Cntrmt Vent Clr 2A Temp Cntl	OPEN		≤ 120 Min.		
2-TCV-67-85		Control Rod Drive Vent Cooler A	OPEN		≤ 120 Min.		
2-TCV-67-92		Lower Cntrmt Vent Clr 2C Temp Cntl	OPEN		≤ 120 Min.		
2-TCV-67-93		Control Rod Drive Vent Clr C Temp	OPEN		≤ 120 Min.		
2-TCV-67-100		Lower Cntrmt Vent Clr 2B Temp Cntl	OPEN		≤ 120 Min.		
2-TCV-67-101		Control Rod Drive Vent Clr B Temp	OPEN		≤ 120 Min.		

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Table 16
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CAS U2 RB Header Purge Failsafe & Timing Verification

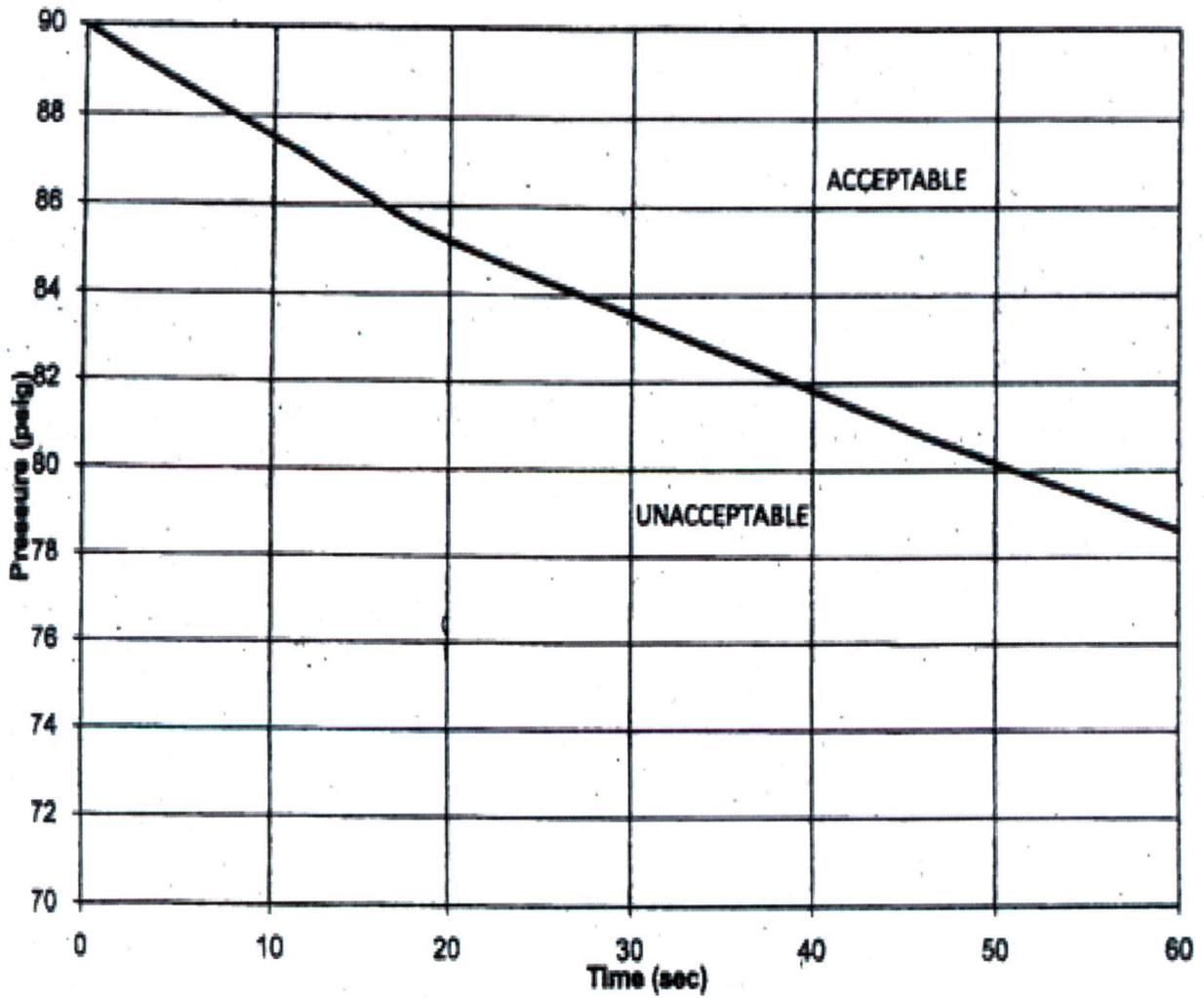
Date _____

8.2 Non-QA Records (continued)

Valve/Operator	M&TE ID Number	Generic Description	Designed FAILSAFE	Actual FAILSAFE	Desired TIME	Actual TIME	Initial/Date
2-TCV-67-108		Lower Cntmt Vent Clr 2D Temp Cntl	OPEN		≤ 120 Min.		
2-TCV-67-109		Control Rod Drive Vent Clr D Temp	OPEN		≤ 120 Min.		
2-TCO-30-82		CRDM Clr 2D-B Lower Compt Suct	OPEN		≤ 120 Min.		
2-TCO-30-85		CRDM Clr 2A-A Lower Compt Suct	OPEN		≤ 120 Min.		
2-TCO-30-90		CRDM Clr 2C-A Lower Compt Suct	OPEN		≤ 120 Min.		
2-TCO-30-94		CRDM Clr 2B-B Lower Compt Suct	OPEN		≤ 120 Min.		

Figure 1
(Page 1 of 1)

ACAS Train A Receiver Pressure / Time Curve [From 2-TSD-032-02, Table H-2]



<p>WBN Unit 2</p>	<p>LOSS OF AIR TEST</p>	<p>2-PTI-032-02 Rev. 0000 Page 222 of 222</p>
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Figure 2
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ACAS Train B Receiver Pressure / Time Curve [From 2-TSD-032-02 Table H-2]

