

Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

April 19, 2011

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

> Watts Bar Nuclear Plant, Unit 2 NRC Docket No. 50-391

#### Subject: Watts Bar Nuclear Plant (WBN) Unit 2 – Submittal of Pre-op Test Instruction

The following approved WBN Unit 2 Pre-op Test Instruction (PTI) is enclosed:

PTI NUMBER	Rev.	TITLE
2-PTI-030H-01	0	Lower Compartment Coolers

If you have any questions, please contact Pete Olson at (423) 365-3294.

Respectfully,

David Stinson Watts Bar Unit 2 Vice President

Enclosure cc (Enclosure):

> U. S. Nuclear Regulatory Commission Region II Marquis One Tower 245 Peachtree Center Ave., NE Suite 1200 Atlanta, Georgia 30303-1257

NRC Resident Inspector Unit 2 Watts Bar Nuclear Plant 1260 Nuclear Plant Road Spring City, Tennessee 37381



WATTS BAR NUCLEAR PLANT UNIT 2 PREOPERATIONAL TEST				
TITLE: _Lower Compartment Coolers				
Instruction No: <u>2-PTI-030H-01</u> Revision No: <u>0000</u>				
PREPARED BY: <u>Keith Jones</u> Conthe Journal PRINT NAME / SIGNATURE	DATE: <u>2-10-11</u>			
REVIEWED BY: <u>Bethany Merriman</u> PRINT NAME / SIGNATURE	<u></u> DATE: <u>2-14-11</u>			
INSTRUCTION APPROVAL				
JTG MEETING No: 2-11-008	Щ ,			
JTG CHAIRMAN	DATE: (1)+) 11			
APPROVED BY : DET EVE PREOPERATIONAL STARTUP MANAGER	DATE:			
TEST RESULTS APPROVAL				
JTG CHAIRMAN:	DATE:			
	DATE:			
PREOPERATIONAL STARTUP MANAGER				

SMP-8.0 R7 Administration of Preoperational Test instructions, Appendix B

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# **Revision Log**

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	D4/14/Z011	ALL	This procedure is written using the Unit 1 PTI-030J-01 Rev 0 as a guide.

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#### 1.0 INTRODUCTION

#### 1.1 Test Objectives

- A. Demonstrate the proper operation of the Reactor Building Lower Compartment Cooling Units.
- B. Demonstrate the proper operation of the Essential Raw Cooling Water (ERCW) control valves associated with each Lower Compartment Cooler (LCC).

#### 1.2 Scope

#### NOTES

- 1) 2-PTI-030L-01, HFT Containment Temperature Survey, will demonstrate the Lower Compartment Coolers' ability to maintain design temperatures.
- 2) ERCW flowrates are verified during performance of 2-PTI-067-02-A and 2-PTI-067-02-B, ERCW System Flow Balance Train A and Train B.
- 3) ERCW Temperature Control Valves' logic is tested during performance of 2-PTI-067-03, ERCW Valve Logic Test.
- 4) System vibration testing will be performed during performance of GTM-05, HVAC Air Balance for this system.

This test demonstrates the operability of the Unit 2 Lower Compartment Coolers to ensure the following:

- A. The LCC Units operate correctly from their respective handswitches in the Main Control Room and on the 480V Shutdown Boards, and their indicating lights indicate correct status.
- B. Each LCC Unit stops on a simulated Phase B Containment Isolation Signal, and remains off when the signal is reset
- C. Each LCC Unit stops on a simulated Bus Undervoltage condition (Loss of Offsite Power).
- D. The air inlet and outlet temperatures for each LCC can be monitored on the Plant Computer System.
- E. LCC Units' backdraft dampers open and close upon start and stop of their respective LCC.

Date \_\_\_\_\_

#### 1.2 Scope (continued)

- F. The LCC Units maintain design air flows.
- G. The LCC Units will operate correctly during accident conditions.
- H. Each ERCW control valve modulates open upon start and closes upon stop of its associated LCC.
- I. The following features function only when the LCC Units' Transfer Switch is in AUX:
  - 1. Each LCC Unit can be started manually while a simulated Phase B Containment Isolation Signal is present.
  - 2. Each LCC Unit restarts after a time delay when a simulated Loss of Offsite Power (LOOP) is restored.
  - 3. Each LCC unit starts on low flow condition from any other LCC to maintain 3 of 4 coolers in operation.

Date \_\_\_\_\_

#### 2.0 **REFERENCES**

#### 2.1 Performance References

- A. SMP-9.0, Conduct of Test
- B. GTM-05, HVAC Air Balance
- C. 0-SOI-67.01, Essential Raw Cooling Water System
- D. 2-SOI-30.03, Containment HVAC and Pressure Control

#### 2.2 Developmental References

- A. Final Safety Analysis Report, Amendment 102
  - 1. Section 9.2.1, Essential Raw Cooling Water (ERCW)
  - 2. Section 9.4.7, Containment Air Cooling System
  - 3. Table 14.2-1, Sheets 4 & 5, Essential Raw Cooling Water System Test Summary
  - 4. Table 14.2-1, Sheets 38 & 39, Containment Ventilation System Test Summary
- B. Drawings
  - 1. Flow Diagrams
    - a. 2-47W866-1, Rev 2, HEATING AND VENTILATION AIR FLOW DRA 52861-06, Rev 0 DRA 52861-15, Rev 0 DRA 52861-16, Rev 0 DRA 52861-17, Rev 0 DRA 54923-42, Rev 0 DRA 54923-43, Rev 0
    - b. 2-47W845-3, Rev 1, ESSENTIAL RAW COOLING WATER

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- 2. Electrical
  - a. 2-45W760-30-9, Rev 1, VENTILATING SYSTEM SCHEMATIC DIAGRAMS
  - b. 2-45W760-30-10, Rev 1, VENTILATING SYSTEM SCHEMATIC DIAGRAMS
  - c. 45W760-30-21, Rev 11, VENTILATING SYSTEM SCHEMATIC DIAGRAMS
  - d. 45W760-55-1, Rev 6, ANNUNCIATOR SYSTEM SCHEMATIC DIAGRAMS
  - e. 45W760-55-2, Rev 7, ANNUNCIATOR SYSTEM SCHEMATIC DIAGRAMS DRA 52639-76, Rev 0
  - f. 2-45W600-57-9, Rev 0, SEPARATION & MISC AUX RELAYS SCHEMATIC DIAGRAMS
  - g. 2-45W600-57-18, Rev 1, SEPARATION & MISC AUX RELAYS SCHEMATIC DIAGRAMS
  - h. 2-45W600-57-20, Rev 0, SEPARATION MISC AUX RELAYS SCHEMATIC DIAGRAMS
  - i. 2-45W600-57-21, Rev 0, SEPARATION & MISC AUX RELAYS SCHEMATIC DIAGRAMS
  - j. 2-45W600-67-1, Rev 0, ESSENTIAL RAW COOLING WATER SYS SCHEMATIC DIAGRAM
  - k. 2-45W600-67-2, Rev 0, ESSENTIAL RAW COOLING WATER SCHEMATIC DIAGRAM
  - I. 1-45W760-212-4, Rev 16, 480V SHUTDOWN POWER SCHEMATIC DIAGRAMS
  - m. 2-45W749-1, Rev 1, 480V SHUTDOWN BD 2A1-A SINGLE LINE DRA 54172-01, Rev 0
  - n. 2-45W749-2, Rev 1, 480V SHUTDOWN BD 2A2-A SINGLE LINE DRA 54172-02, Rev 0

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- o. 2-45W749-3, Rev 1, 480V SHUTDOWN BD 2B1-B SINGLE LINE DRA 54172-03, Rev 0
- p. 2-45W749-4, Rev 2, 480V SHUTDOWN BD 2B2-B SINGLE LINE DRA 54172-04, Rev 0
- q. 45N2676-4, Rev 16, SOLID STATE PROTECTION SYS TRAIN A CONNECTION DIAGRAM
- r. 45N2677-4, Rev 18, SOLID STATE PROTECTION SYS TRAIN B CONNECTION DIAGRAM
- s. 6947D02 (AC), Rev G, LVME 'DS' SWGR 480V 3PH 60HZ SUBSTATION INTERNALS
- t. 618F938, Rev 913, LVME 'DS' SWGR 480V SHUTDOWN BD 2A1-A 480V 3PH 60HZ SUBSTATION CONN DIAG UNIT 6
- u. 6947D67, Rev 915, LVME 'DS' SWGR 480V SHUTDOWN BD 2A2-A 480V 3PH 60HZ SUBSTATION CONN DIAG UNIT 6
- v. 618F941, Rev 913 LVME 'DS' SWGR 480V SHUTDOWN BD 2B1-B 480V 3Ø 60HZ SUBSTATION CONN DIAG UNIT 6
- w. 6947D85, Rev 915, LVME 'DS' SWGR 480V SHUTDOWN BD 2B2-B 480V 3Ø 60HZ SUBSTATION CONN DIAG UNIT 6
- 3. Logic/Control
  - a. 2-47W610-30-2, Rev 1, CONTROL DIAGRAM VENTILATION SYSTEM DRA 54172-283, Rev 0 DRA 54172-284, Rev 0 DRA 54172-285, Rev 0 DRA 54172-286, Rev 0
  - b. 2-47W611-30-4, Rev 1, LOGIC DIAGRAM VENTILATION SYSTEM DRA 53788-032, Rev 0 DRA 54172-281, Rev 0
  - c. 2-47W610-67-2, Rev 1, CONTROL DIAGRAM ERCW SYSTEM
  - d. 2-47W611-67-3, Rev 1, LOGIC DIAGRAM ESSENTIAL RAW COOLING WATER

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- 4. Other
  - a. 2-47W600-171, Rev 0, ELECTRICAL INSTRUMENTS AND CONTROLS DRA 53630-04, Rev 0 DRA 53630-46, Rev 1
  - b. 2-47B601-55-1, ELECTRICAL INSTRUMENT TABULATION, [Later] DRA 52453-04, Rev 0
  - c. 2-47B601-55-2, ELECTRICAL INSTRUMENT TABULATION, [Later] DRA 52453-05, Rev 0
  - d. 2-47B601-55-3, ELECTRICAL INSTRUMENT TABULATION, [Later] DRA 52453-06, Rev 0
  - e. 2-47B601-55-4, ELECTRICAL INSTRUMENT TABULATION, [Later] DRA 52453-07, Rev 0
  - f. 2-45B655-5C, Rev 0, ANNUNCIATOR INPUTS WINDOW BOX XA-55-5C
  - g. 2-45B655-E5C, Rev 0. ANNUNCIATOR WINDOW BOX XA-55-5C ENGRAVING
  - h. 2-45B655-6E, Rev 0, ANNUNCIATOR INPUTS WINDOW BOX XA-55-6E DCA 52630-91, Rev 0
  - i. 2-45B655-E6E, Rev 0. ANNUNCIATOR WINDOW BOX XA-55-6E ENGRAVING
  - j. 2-45B655-6F, Rev 0, ANNUNCIATOR INPUTS WINDOW BOX XA-55-6F DCA 52630-92, Rev 0
  - k. 2-45B655-E6F, Rev 0. ANNUNCIATOR WINDOW BOX XA-55-6F ENGRAVING
- 5. Vendor Manuals
  - a. VM-F180-3066, Rev 0, Foxboro Instruction Book 3473 743CB Field Station Micro Controller

Date \_\_\_\_\_

- C. Documents
  - 1. GTM-05, HVAC Air Balance (Draft)
  - 2. WBN2-30RB-4002, Rev 1, Reactor Building Ventilation System
  - 3. G-37, Rev 4, Testing and Balancing of HVAC Systems During Installation, Modification, and Maintenance
  - 4. 2-TSD-30H-1, Rev 1, Containment Air Cooling System -Lower Compartment Coolers
  - 5. 2-PTI-030L-01, HFT Containment Temperature Survey (Draft)
  - 6. 2-PTI-067-02-A, Rev 0, ERCW System Flow Balance Train A
  - 7. 2-PTI-067-02-B, Rev 0, ERCW System Flow Balance Train B
  - 8. 2-PTI-067-03, ERCW Valve Logic Test (Draft)
  - 9. MI-57.002, Rev 39, Westinghouse DS Circuit Breaker Routine Maintenance, Inspection and Testing
  - 10. SSD-2-LPT-67-84, Rev 0, Lower Cntmt Vent Cooler A Temp
  - 11. SSD-2-LPT-67-100, Rev 0, Lower Cntmt Vent Cooler B Temp
  - 12. SSD-2-LPT-67-92, Rev 0, Lower Cntmt Vent Cooler C Temp
  - 13. SSD-2-LPT-67-108, Rev 0, Lower Cntmt Vent Cooler D Temp

Date \_\_\_\_\_

#### 3.0 PRECAUTIONS AND LIMITATIONS

- A. Standard precautions shall be followed for working around energized electrical equipment in accordance with TVA Safety 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 if the UNIDs match, exclusive of place keeping zeros and train designators (e.g.; 2-HS-31-468 vs. 2-HS-031-0468) and the noun description is sufficient to identify the component. This condition does not require a TDN in accordance SMP-14.0. 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. IF/THEN steps may be marked N/A if stated condition does not exist.
- E. 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.
- F. All terminal points and connections are to be considered energized. Instrumentation must be used to determine if the circuits are de-energized.
- G. Retermination of lifted leads requires that their restored bend radius is equal to or greater than the as-found condition.
- H. LCC Circuit Breakers have Overload Trip Switch (OTS) reset coils. Placing the Handswitch to STOP will energize the OTS Reset Coil and reset the OTS. The OTS Reset Coil should only be energized momentarily; the OTS contact in series with the coil should open to de-energize the coil. To avoid overheating the coil, do not hold Handswitch in STOP if the coil does not de-energize.
- I. When installing fuses with actuators, ensure that the actuating rod is oriented correctly to provide for proper alarm initiation and visual indication.
- J. All open problems are to be tracked by a corrective action document and entered on the appropriate system punchlist.

Date \_\_\_\_\_

#### 3.0 PRECAUTIONS AND LIMITATIONS (continued)

- K. Problems identified during the test shall be annotated on the Chronological Test Log 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.
- L. Observe all Radiation Protection requirements when working in or near radiological areas.
- M. Ensure there are no adverse effects to the operation of Unit 1 structures, systems, or components.
- N. Vibration testing of this system is performed during the GTM-05, HVAC Air Balance for this system.
- O. During the performance of this procedure, visual observation of fans and ductwork is required. This includes steady-state and transient operations (fan starts and stops) with visual confirmation that vibration is not excessive.
- P. To verify that transient conditions are not causing excessive vibration, observe components (duct, dampers, fans, etc) during the transient, to the extent practical. If not practical to observe during the transient, verify after the transient that no damage has occurred.
- Q. If the vibration is determined to be excessive, the Test Engineer shall initiate a Test Deficiency Notice.
- R. LCC control switches in the Main Control Room may NOT be placed in PULL A-P AUTO. Auto-start features enabled by this switch position are disabled and are not tested in this instruction.
- S. The Setpoint and Scaling Documents for the Time Delay Relays that cause the LCCs to automatically start after bus voltage is restored (after a Loss of Offsite Power) have been voided and these relays are no longer calibrated. Therefore, their response times will be described as approximately 1 minute in this instruction. Reference EDC 50345 and EDC 50330 for further information.

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#### 4.0 PREREQUISITE ACTIONS

NOTE

Prerequisite steps may be performed in any order, unless otherwise stated, and should be completed as close in time as practicable to the start of the instruction subsection to which they apply.

#### 4.1 **Preliminary Actions**

- [1] **VERIFY** the test/performance copy of this Preoperational Test Instruction (PTI) is the current revision and as needed, each test person assisting in this test has the current revision.
- [2] **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.

- [3] **ENSURE** changes to the references listed on Appendix A have been reviewed and determined NOT to adversely affect the test performance.
- [4] **VERIFY** current revisions and change paper for referenced drawings have been reviewed and determined NOT to adversely affect the test performance, **AND**

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

[5] **ENSURE** components contained within the boundaries of this test are under the jurisdictional control of Preoperational Startup Engineering (PSE) and/or Plant Operations.

	WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 15 of 144
	Data	Package: Page of	Date
4.1	Prelin	inary Actions (continued)	
	[6]	<b>EVALUATE</b> open items in Watts Bar Integra Equipment List (WITEL), <b>AND</b>	ated Task
		<b>ENSURE</b> that they will NOT adversely affec performance.	t the test
		A. SubSection 6.1	
		B. SubSection 6.2	
		C. SubSection 6.3	
		D. SubSection 6.4	
		E. SubSection 6.5	
	[7]	<b>ENSURE</b> required Component Testing has prior to start of test.	been completed
		A. SubSection 6.1	
		B. SubSection 6.2	
		C. SubSection 6.3	
		D. SubSection 6.4	
		E. SubSection 6.5	
	[8]	<b>ENSURE</b> outstanding Design Change Notic Engineering Document Construction Releas Temporary Alterations (TAs) do NOT advers <b>AND</b>	es (DCNs), ses (EDCRs), or sely impact testing,
		<b>ATTACH</b> documentation of DCNs, EDCRs, reviewed to the data package.	and TAs that were
	[9]	<b>ENSURE</b> GTM-05, HVAC Air Balance, has the JTG for concurrence that it adequately s requirements of this instruction.	been submitted to satisfies the
	1401		
	[10]	system 30H to this instruction.	lance package for

	Data	Package: Page of	Date
4.1	Preli	minary Actions (continued)	
	[11]	<b>ENSURE</b> a review of outstanding Clearances has been coordinated with Unit 2 Operations for impact to the test performance, <b>AND</b>	
		RECORD in Appendix B, Temporary Condition Log if required	
	[12]	<b>VERIFY</b> plant instruments required for test performance have been placed in service and are within their calibration interval, <b>AND</b>	
		<b>RECORD</b> on Appendix C, Permanent Plant Instrumentation Log.	
		A. SubSection 6.1	
		B. SubSection 6.4	
	[13]	<b>REVIEW</b> preventive maintenance records for equipment within the scope of this test, <b>AND</b>	ı
		VERIFY no conditions exist that will impact test performance.	
		A. SubSection 6.1	
		B. SubSection 6.2	
		C. SubSection 6.3	
		D. SubSection 6.4	
	[14]	<b>PERFORM</b> a pretest walkdown 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	
		D. SubSection 6.4	
	[15]	<b>CONDUCT</b> a pretest briefing with Test and Operations personnel in accordance with SMP-9.0.	
	[16]	<b>ENSURE</b> that communications are available for areas where testing is to be conducted.	

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

- [1] **ENSURE** the following are available:
  - A. Switched jumpers [2]
  - B. Handheld jumper [1]

Date \_\_\_\_

#### 4.3 Field Preparations

- [1] **ENSURE** the following systems are operable and have been placed in service to the extent necessary to support this test:
  - A. System 32, Control Air System \_\_\_\_\_\_
    B. System 55, Annunciator and Sequential Events Recording System \_\_\_\_\_\_
    C. System 67, Essential Raw Cooling Water System \_\_\_\_\_\_
    D. System 99, Reactor Protection System \_\_\_\_\_\_
    E. System 212, 480V Shutdown Power \_\_\_\_\_\_
    - F. System 235, 120V AC Vital Power System
    - G. System 236, 125V DC Vital Power System
    - H. System 261, Integrated Computer System (ICS)

#### NOTES

- 1) Any Annunciator points associated with 2-MUX-55-12 and 2-MUX-55-13 ONLY have master switches at the bottom of each terminal strip.
- 2) All points associated with 2-TBK-55-25, 2-TBK-55-26, 2-TBK-55-27, and 2-TBK-55-28 will not have individual switches or a master switch.
  - [2] **ENSURE** System 55, Annunciator and Sequential Events Recording System, applicable TBK Switches are ON, the applicable Master Switches are ON, and window software input(s) are ENABLED for the following Annunciator Windows:
    - A. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO
    - B. 2-XA-55-6E-138E, PANEL M-9 MOTOR TRIPOUT
    - C. 2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2A1-A
    - D. 2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD 2B1-B

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	Data	Pack	age: Page of	Date
4.3	Field Preparations (continued)			
	[3]	<b>EN</b> Val are	<b>SURE</b> Essential Raw Cooling Water Tempe ves (TCVs) and Temperature Indicating Cor available to support test activities.	rature Control ntrollers (TICs)
		A.	2-TCV-67-84, LWR CNTMT VENT CLR 2/ OUT TEMP CNTL (SubSection 6.1.1)	4-A
	B. 2-TIC-67-84, LOWER CNTMT VENT CLR 2A TEMP CNTL (SubSection 6.1.1)		2A	
	C. 2-TCV-67-100, LWR CNTMT VENT CLR 2B-B OUT TEMP CNTL (SubSection 6.1.2)		2B-B 	
		D. 2-TIC-67-100, LOWER CNTMT VENT CLR 2B TEMP CNTL (SubSection 6.1.2)		R 2B
		E.	2-TCV-60-92, LWR CNTMT VENT CLR 20 OUT TEMP CNTL (SubSection 6.1.3)	C-A
		F.	2-TIC-67-92, LOWER CNTMT VENT CLR TEMP CNTL (SubSection 6.1.3)	2C
		G.	2-TCV-67-108, LWR CNTMT VENT CLR 2 OUT TEMP CNTL (SubSection 6.1.4)	2D-В 
		H.	2-TIC-67-108, LOWER CNTMT VENT CLI TEMP CNTL (SubSection 6.1.4)	R 2D
·	[4]	EN 2-S (Su	<b>SURE</b> ERCW system is aligned per 0-SOI-6 OI-30.03, as applicable to support test perfo bSection 6.1).	67.01 and/or ormance

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l.3	Field	Preparations (continued)	
	[5]	<b>RECORD</b> the As-Found position of the follo Temperature Indicating Controllers' Auto/Ma Setpoints and Outputs on Panel 2-L-26, [A15U/692 (Pent Rm)]:	wing ERCW anual (A/M) Status,
		A. 2-TIC-67-84, LOWER CNTMT VENT C TEMP CNTL (SubSection 6.1.1)	CLR 2A

Auto/Manual Status: \_\_\_\_\_\_
Indicated Controller Setpoint: \_\_\_\_\_

Indicated Controller Output:

B. 2-TIC-67-100, LOWER CNTMT VENT CLR 2B TEMP CNTL (SubSection 6.1.2)

Auto/Manual Status:	

Indicated (	Controller	Setpoint:	 

Indicated Controller Output:

C. 2-TIC-67-92, LOWER CNTMT VENT CLR 2C TEMP CNTL (SubSection 6.1.3)

Auto/Manual Status:

Indicated Controller Setpoint:

Indicated Controller	Output:	

D. 2-TIC-67-108, LOWER CNTMT VENT CLR 2D TEMP CNTL (SubSection 6.1.4)

Auto/Manual Status: \_\_\_\_\_

Indicated Controller Setpoint:

Indicated Controller Output:

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	Data	Pacl	kage: Page of	Date	•
5	Field	Prep	parations (continued)		
	[6]	EN Indi in N (val	<b>SURE</b> the following system 67, ERCW Tem icating Controllers on Panel 2-L-26, Auto/Ma Manual (M) and outputs are adjusted for ma Ive full open):	perature anual Status is ximum cooling	
		A.	2-TIC-67-84, LOWER CNTMT VENT CLR TEMP CNTL (SubSection 6.1.1)	2A	
		В.	2-TIC-67-100, LOWER CNTMT VENT CL TEMP CNTL (SubSection 6.1.2)	R 2B	
	<ul> <li>C. 2-TIC-67-92, LOWER CNTMT VEI TEMP CNTL (SubSection 6.1.3)</li> <li>D. 2-TIC-67-108, LOWER CNTMT VE TEMP CNTL (SubSection 6.1.4)</li> </ul>		2-TIC-67-92, LOWER CNTMT VENT CLR TEMP CNTL (SubSection 6.1.3)	2C	
			2-TIC-67-108, LOWER CNTMT VENT CL TEMP CNTL (SubSection 6.1.4)	R 2D	
	[7]	EN	SURE the following ICS points are in scan:		
		A.	HD2030, VENT SYS HS-38A, 88A, 74A, 7	77A, 83A	
		В.	HD2064, VENT SYS HS-39A, 78A, 75A, 9	92A, 80A	
		C.	T1110A, LOWR COMPT COOL UNIT A-A	EXHAUST	<u></u> ,
		D.	T1111A, LOWR COMPT COOL UNIT B-B	EXHAUST	
		E.	T1112A, LOWR COMPT COOL UNIT C-A	EXHAUST	
		F.	T1113A, LOWR COMPT COOL UNIT D-E	B EXHAUST	
		G.	T1114A, LOWER COMPT COOL UNIT A-	A INTAKE	
		H.	T1115A, LOWER COMPT COOL UNIT B-	B INTAKE	
		I.	T1116A, LOWER COMPT COOL UNIT C-	-A INTAKE	
		J.	T1117A, LOWER COMPT COOL UNIT D	-B INTAKE	

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4.3	Field	Prepa	rations (	contir	nued)	
	[8]	VERI Signa or TF 2-XX	FY there als preser R-B MAST -55-6C ar	are no it by th ER IS id 2-X	o Unit 2 Phase B Containment Isolation he ØB window NOT LIT on either the TR- SOL SIGNAL STATUS PNL (Window 3 or (X-55-6D) on 2-M-6.	A 1
	[9]	ENSI Appe	<b>JRE</b> systendix D, E	em is ( lectric	configured in accordance with al Lineup.	
	[10]	VERI and v	FY that the the state of the st	ne Rea subSec	actor Coolant System (RCS) is NOT filled ction 6.4)	
	[11]	INST	ALL swite	ched j	umpers at the following locations, AND	
		ENS	JRE that	the ju	mper test switches are OPEN (OFF).	
	. [11	1.1]	Labeled In SSPS Pt. 11 (V (Drawing	TS-1: Train Vire 2: 9 45N2	i-A Output Cabinet 2-R-48, at TB615, betv 340VL) and Pt. 12 (Wire CNA1). 2676-4)	ween
			Α.	Jum	per Installed	
						1St
						CV
			В.	Test	Switch OPEN (OFF)	
	[11	.2]	Labeled In SSPS Pt. 11 (V (Drawing	TS-2: Train Vire 24 3 45N2	-B Output Cabinet 2-R-51, at TB615, betv 435VL) and Pt. 12 (Wire CNB1). 2677-4)	ween
			Α.	Jum	per Installed	
						1st
						CV
			В.	Test	Switch OPEN (OFF)	

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#### 4.3 Field Preparations (continued)

NOTE

The following step will disable the Train A LCCs' Auto-start on Low Flow function.

[12] **LIFT** Wire A17C2 from point 8 of Terminal Block 65B5, inside the front panel of 480V SHUTDOWN BOARD 2A1-A, Compartment 6A. (Drawing 618F938)

1st

CV

#### NOTE

The following step will disable the Train B LCCs' Auto-start on Low Flow function.

[13] LIFT Wire B17D2 from point 5 of Terminal Block 65B2, inside the front panel of 480V SHUTDOWN BOARD 2B1-B Compartment 6A. (Drawing 618F941)

1st

CV

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## 4.4 Approvals and Notifications

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

	Preoperational Startup Manager Signature	Date
[2]	<b>OBTAIN</b> the Unit 2 Supervisor's (US/SRO) or Shift Manager's (SM) authorization.	
	Unit 2 US/SRO/SM Signature	Date
[3]	<b>OBTAIN</b> the Unit 1 Supervisor's (US/SRO) or Shift Manager's (SM) authorization.	

Unit 1 US/SRO/SM Signature

Date

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## 5.0 ACCEPTANCE CRITERIA

Acceptance Criteria values have been adjusted as necessary to account for instrument inaccuracies. See Appendix E for calculation bases.

NOTE

A. The Lower Compartment Coolers' manual and automatic controls, interlocks, annunciations, alarms, and indications operate correctly.

LCC	Controls and Indications (Main Control Room)	Controls and Indications (remote)
LCC 2A-A (2-CCU-30-74)	SubSection 6.1.1	SubSection 6.1.1
LCC 2B-B (2-CCU-30-75)	SubSection 6.1.2	SubSection 6.1.2
LCC 2C-A (2-CCU-30-77)	SubSection 6.1.3	SubSection 6.1.3
LCC 2D-B (2-CCU-30-78)	SubSection 6.1.4	SubSection 6.1.4

B. The Backdraft Dampers associated with each Lower Compartment Cooler operate correctly.

Damper	Opens/Closes when associated LCC Unit starts/stops
2-BKD-30-514	6.1.1[9]F
(LCC 2A-A)	6.1.1[12]E
2-BKD-30-507	6.1.2[9]F
(LCC 2B-B)	6.1.2[12]E
2-BKD-30-503	6.1.3[9]F
(LCC 2C-A)	6.1.3[12]E
2-BKD-30-518	6.1.4[9]F
(LCC 2D-B)	6.1.4[12]E

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## 5.0 ACCEPTANCE CRITERIA (continued)

C. Lower Compartment Cooler intake and exhaust air temperatures output to the Plant Computer (ICS) properly.

ICS Points	ICS Point Qualities are GOOD
LCC 2A-A: T1114A T1110A	6.1.1[10]
LCC 2B-B: T1115A T1111A	6.1.2[10]
LCC 2C-A: T1116A T1112A	6.1.3[10]
LCC 2D-B: T1117A T1113A	6.1.4[10]

D. The ERCW Control Valves associated with each Lower Compartment Cooler operate correctly.

Valve	Valve modulates open/closes when LCC Unit starts/stops		
	XS in NOR	XS in AUX	
2-TCV-67-84	6.1.1[9]F	6.1.1[16]C	
(LCC 2A-A)	6.1.1[12]E	6.1.1[17]C	
2-TCV-67-100	6.1.2[9]F	6.1.2[16]C	
(LCC 2B-B)	6.1.2[12]E	6.1.2[17]C	
2-TCV-67-92	6.1.3[9]F	6.1.3[16]C	
(LCC 2C-A)	6.1.3[12]E	6.1.3[17]C	
2-TCV-67-108	6.1.4[9]F	6.1.4[16]C	
(LCC 2D-B)	6.1.4[12]E	6.1.4[17]C	

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## 5.0 ACCEPTANCE CRITERIA (continued)

E. The Lower Compartment Coolers respond appropriately to Engineered Safety Feature Actuation System (ESFAS) signals:

	Phase B (ØB) Containment Isolation Signal			
LCC	XS in	NORMAL	XS in AUX	
	Stops on ØB	Remains stopped after ØB reset	Can be manually started and run with ØB signal in effect	
LCC 2A-A (2-CCU-30-74)	6.2.1[7]A	6.2.1[9]A	6.2.1[13]	
LCC 2B-B (2-CCU-30-75)	6.2.2[7]A	6.2.2[9]A	6.2.2[13]	
LCC 2C-A (2-CCU-30-77)	6.2.1[7]B	6.2.1[9]B	6.2.1[15]	
LCC 2D-B (2-CCU-30-78)	6.2.2[7]B	6.2.2[9]B	6.2.2[15]	

F. The Lower Compartment Coolers respond appropriately to a Bus Undervoltage condition (LOOP).

	XS in NORMAL		XS in AUX	
LCC	Stops on LOOP	Remains stopped after bus voltage is restored	Stops on LOOP	Restarts after bus voltage is restored
LCC 2A-A (2-CCU-30-74)	6.3.1[6]	6.3.1[8]	6.3.1[12]	6.3.1[14]
LCC 2B-B (2-CCU-30-75)	6.3.2[6]	6.3.2[8]	6.3.2[12]	6.3.2[14]
LCC 2C-A (2-CCU-30-77)	6.3.3[6]	6.3.3[8]	6.3.3[12]	6.3.3[14]
LCC 2D-B (2-CCU-30-78)	6.3.4[6]	6.3.4[8]	6.3.4[12]	6.3.4[14]

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## 5.0 ACCEPTANCE CRITERIA (continued)

G. The Lower Compartment Coolers can operate correctly during Design Basis Accident conditions

LCC Motor	Design Density Motor Horsepower is ≤ Motor Nameplate Horsepower of 56 HP*
LCC 2A-A (2-MTR-30-74)	6.5[10]A
LCC 2B-B (2-MTR-30-75)	6.5[10]B
LCC 2C-A (2-MTR-30-77)	6.5[10]C
LCC 2D-B (2-MTR-30-78)	6.5[10]D

\* Nameplate HP = 60 HP, reduced to 56 HP to account for instrument inaccuracies

H. The Lower Compartment Coolers respond appropriately to a Low Flow condition in another Lower Compartment Cooler. (Only when XS is in AUX)

	Auto-start on Low Flow in 2/4 LCCs to maintain 3/4 LCCs in operation.				
Rur	ning L	CCs	LCC with Low Flow	LCC that Auto-Starts	Step
C-A	&	D-B	B-B	A-A	6.4[11]
C-A	&	D-B	A-A	B-B	6.4[14]
B-B	&	D-B	C-A	A-A	6.4[17]
B-B	&	D-B	A-A	C-A	6.4[20]
B-B	&	C-A	D-B	A-A	6.4[23]
B-B	&	C-A	A-A	D-B	6.4[26]
A-A	&	D-B	C-A	B-B	6.4[31]
A-A	&	D-B	B-B	C-A	6.4[34]
A-A	&	C-A	D-B	B-B	6.4[37]
A-A	&	C-A	B-B	D-B	6.4[40]
A-A	&	B-B	D-B	C-A	6.4[45]
A-A	&	B-B	C-A	D-B	6.4[48]

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## 5.0 ACCEPTANCE CRITERIA (continued)

- I. The Lower Compartment Coolers provide the required minimum air flows in the following configurations:
  - 1. Each LCC Operating Individually:

LCC	Total per cooler: 48,700 CFM	
LCC 2A-A	6.5[4]A	
LCC 2B-B	6.5[4]B	
LCC 2C-A	6.5[4]C	
LCC 2D-B	6.5[4]D	

2. Any Three LCCs Operating Together:

Running LCCs	Total: 146,000 CFM	Each S/G Enclosure: 5,625 CFM	Pressurizer Enclosure: 3,700 CFM	Reactor Cavity: 10,000 CFM
LCC 2A-A LCC 2B-B LCC 2C-A	6.5[5]A	6.5[5]A	6.5[5]A	6.5[5]A
LCC 2A-A LCC 2C-A LCC 2D-B	6.5[5]B	6.5[5]B	6.5[5]B	6.5[5]B
LCC 2A-A LCC 2B-B LCC 2D-B	6.5[5]C	6.5[5]C	6.5[5]C	6.5[5]C
LCC 2B-B LCC 2C-A LCC 2D-B	6.5[5]D	6.5[5]D	6.5[5]D	6.5[5]D

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## 5.0 ACCEPTANCE CRITERIA (continued)

3. Each Train of LCCs Operating Together

Running LCCs	Total: 105,000 CFM	Pressurizer Enclosure: 2,400 CFM	Reactor Cavity: 6,700 CFM
Train A: LCC 2A-A LCC 2C-A	6.5[6]A	6.5[6]A	6.5[6]A
Train B: LCC 2B-B LCC 2D-B	6.5[6]B	6.5[6]B	6.5[6]B

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#### 6.0 PERFORMANCE



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## 6.1 Lower Compartment Cooler Logic Test

#### NOTE

Unless otherwise noted, SubSections 6.1.1 through 6.1.4 may be performed in any order. Unless otherwise noted, the steps within each SubSection shall be performed in the order written. The diagram at the beginning of Section 6.0 may be used as a placekeeping tool throughout the performance of this Section.

## 6.1.1 Lower Compartment Cooler 2A-A Logic

- [1] **ENSURE** all prerequisites listed in Section 4.0 for Section 6.1 and SubSection 6.1.1 have been completed.
- [2] **RACK** Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74), [480V SHUTDOWN BOARD 2A1-A, Compartment 7C], to the TEST position.
- [3] **VERIFY** 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is CLEAR.
- [4] **PRESS** the REAC LWR COMPT CLR FAN 2A-A BKR TEST CLOSE switch at Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74), **AND**

**VERIFY** the following:

A. At Breaker 2-BKR-30-74:

- Green Light OFF
- Red Light ON
- Red Flag at Breaker Panel
- B. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is in ALARM (after approximately 30 seconds).
- C. Unit 2 Alarm Events Display Screen indicates 104-A LOWER CNTMT CLR A-A FLOW LO (FS-30-74), is in ALARM (Red).

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	Data	Date		
6.1.1	Lowe	er Co	mpartment Cooler 2A-A Logic (continued	(t
	[5]	5] PRESS the REAC LWR COMPT CLR FAN 2A-A BKR TEST TRIP switch at Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74), AND		
		VE	RIFY the following:	
		A.	At Breaker 2-BKR-30-74:	
			Green Light ON	·
			Red Light OFF	
	Green Flag at Breaker Panel			
		В.	DW LO,	
		<ul> <li>C. Unit 2 Alarm Events Display Screen indicates 104-A LOWER CNTMT CLR A-A FLOW LO (FS-30-74), is NORMAL (Green).</li> <li>[6] ENSURE Transfer Switch 2-XS-30-74, LOWER COMPT COOLER 2A-A, [480V SHUTDOWN BOARD 2A1-A, Compartment 5A], is in NORMAL.</li> <li>[7] RACK Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74) to the CONNECTED position.</li> <li>[8] VERIFY the following:</li> </ul>		tes O (FS-30-74), 
	[6]			R COMPT A1-A,
	[7]			COOLER 2A-A
	[8]			
		A.	Cooler 2-CCU-30-74, CNTMT LOWER CC COOLER 2A-A, [Lwr Cntmt/716 AZ 21° (S is OFF.	DMPARTMENT Fan Rm)],
		В.	2-XA-55-6E-138E, PANEL M-9 MOTOR T is CLEAR.	RIPOUT,
		C.	2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2A1-/	A, is CLEAR.

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6.1.1	Lowe	er Co	mpartment Cooler 2A-A Logic (continued	(k	
	[9]	<b>PL/</b> [2-N	<b>\CE</b> Handswitch 2-HS-30-74A, LWR CNTM /I-9], to START, <b>AND</b>	IT CLR A-A,	
		VE	RIFY the following:		
		Α.	On Handswitch 2-HS-30-74A:		
			Green Light OFF		
			Red Light ON		
			White Light OFF		
		В.	On 2-XX-55-6E, Train A CISP, Window 10 LWR CNTMT A FAN-30-74, [2-M-6]:	З,	
			Green Light OFF		
			Red Light ON		
		C.	2-XA-55-5C-104A, LWR CNTMT CLR FLC remains CLEAR (after approximately 30 set	DW LO, econds).	
		D.	On Handswitch 2-HS-30-74C, LOWER CC COOLER 2A-A, [480V SHUTDOWN BOAI Compartment 5A]:	OMPT RD 2A1-A,	
			Green Light OFF		
			Red Light ON		
		E.	At Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74):	г	
			Green Light OFF		
			Red Light ON		

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6.1.1	Lower	<sup>-</sup> Compa	rtment Cooler 2A-A Logic (continued	d)	
		F. Loc	ally:		
		•	Cooler 2-CCU-30-74, CNTMT LOWE COMPARTMENT COOLER 2A-A, is	R ON	
<ul> <li>Backo CLR S is OPI</li> <li>Valve OUT (S Fail</li> </ul>		•	Backdraft Damper 2-BKD-30-514, LO CLR SUP, [Lwr Cntmt/731 AZ 21° (S is OPEN. (Acc Crit)	WER COMPT Fan Rm)],	
		•	Valve 2-TCV-67-84, LWR CNTMT VE OUT TEMP CNTL, [Lwr Cntmt/721 A (S Fan Rm)], modulates OPEN. (Ac	ENT CLR 2A-A Z 10° <b>c Crit)</b>	
	[10]	VERIFY ICS Poir	that the LCC 2A-A intake and exhaust nt Qualities are GOOD (Green). <b>(Acc (</b>	air temperature C <b>rit)</b>	
		•	Point T1114A, LOWER COMPT COOL UNIT A-A IN	ТАКЕ	
		•	Point T1110A, LOWER COMPT COOL UNIT A-A EX	KHAUST	
	[11]	RECOR indicated	<b>D</b> LCC 2A-A intake and exhaust air ter d by the ICS points:	nperatures as	
		T1114A LOWER T1110A	A, R COMPT COOL UNIT A-A INTAKE: A, R COMPT COOL UNIT A-A EXHAUST:	°F ∘⊏	
				I	

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6.1.1	Lowe	er Co	mpa	rtment Cooler 2A-A Logic (continued	i)							
	[12]	PL/ to S	PLACE Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, to STOP, AND									
		VE	RIFY	the following:								
		Α.	On	Handswitch 2-HS-30-74A:								
			•	Green Light ON								
			٠	Red Light OFF								
			٠	White Light OFF								
		В.	On LW	2-XX-55-6E, Train A CISP, Window 10 R CNTMT A FAN-30-74:	3,							
			٠	Green Light ON								
			•	Red Light OFF								
		C.	On CO	Handswitch 2-HS-30-74C, LOWER CC OLER 2A-A:	MPT							
			٠	Green Light ON								
			٠	Red Light OFF								
		D.	At E CO	Breaker 2-BKR-30-74, LOWER COMPT OLER 2A-A (2-CCU-30-74):								
			•	Green Light ON	·							
			٠	Red Light OFF								
		E.	Loc	cally:								
			•	Cooler 2-CCU-30-74, CNTMT LOWEI COMPARTMENT COOLER 2A-A, is (	२ DFF							
			٠	Backdraft Damper 2-BKD-30-514, LO CLR SUP, is CLOSED. <b>(Acc Crit)</b>	WER COMPT							
			•	Valve 2-TCV-67-84, LWR CNTMT VE OUT TEMP CNTL, is CLOSED. (Acc	NT CLR 2A-A Crit)							

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6.1.1	Lowe	er Co	mpartment Cooler 2A-A Logic (continue	d)
	[13]	<b>EN</b> 480	SURE 2-XA-55-6F-149B, SD BD 2A1-A/2A2-A/CA VT BD 2A1-A, is	CLEAR
	[14]	PL	<b>ACE</b> the following Transfer Switches to AUX	<b>K</b> :
		Α.	2-XS-30-74, LOWER COMPT COOLER 2	A-A
		В.	2-XS-67-84, LWR CNTMT CLR A-A ERC OUTLET TCV, [2-L-11A].	N
	[15]	VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-74A, LWR CNTM	1T CLR A-A:
			Green Light OFF	
			Red Light OFF	
			White Light OFF	
		В.	On 2-XX-55-6E, Train A CISP, Window 10 LWR CNTMT A FAN-30-74:	03,
			Green Light OFF	
			Red Light OFF	
		C.	Annunciation and Alarms:	
			<ul> <li>2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2 is in ALARM.</li> </ul>	2A1-A,
			<ul> <li>Unit 2 Alarm Events Display Screen i 149-B 480 SD BD 2A1-A/2A2-A XS II is in ALARM (Red).</li> </ul>	ndicates N AUX,
		D.	On Handswitch 2-HS-30-74C, LOWER CO COOLER 2A-A:	ОМРТ
			Green Light ON	
			Red Light OFF	

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6.1.1	Lowe	er Ca	mpartment Cooler 2A-A Logic (continued)	
		E.	At Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74):	
			Green Light ON	
			Red Light OFF	
	[16]	PL/ CO	ACE Handswitch 2-HS-30-74C, LOWER COMPT OLER 2A-A, to CLOSE, <b>AND</b>	
		VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-74C, LOWER COMPT COOLER 2A-A:	
			Green Light OFF	
			Red Light ON	
		Β.	At Breaker 2-BKR-30-74, LOWER COMPT COOLER 2A-A (2-CCU-30-74):	
			Green Light OFF	
			Red Light ON	
		C.	Locally:	
			Cooler 2-CCU-30-74, CNTMT LOWER     COMPARTMENT COOLER 2A-A, is ON.	
			• Valve 2-TCV-67-84, LWR CNTMT VENT COUT TEMP CNTL, modulates OPEN. (Ac	CLR 2A-A c Crit)

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6.1.1	Lowe	er Co	ompa	rtment Cooler 2A-A Logic (continued	(k
	[17]	PL/ CO	ACE OLE	Handswitch 2-HS-30-74C, LOWER CC R 2A-A, to TRIP, <b>AND</b>	)MPT
		VE	RIFY	the following:	
		Α.	On CO	Handswitch 2-HS-30-74C, LOWER CC OLER 2A-A:	OMPT
			•	Green Light ON	
			٠	Red Light OFF	
		В.	At I CO	Breaker 2-BKR-30-74, LOWER COMP <sup>-</sup> OLER 2A-A (2-CCU-30-74):	Г
			٠	Green Light ON	
			٠	Red Light OFF	
		C.	Loc	cally:	
			•	Cooler 2-CCU-30-74, CNTMT LOWE COMPARTMENT COOLER 2A-A, is	R OFF
			•	Valve 2-TCV-67-84, LWR CNTMT VE OUT TEMP CNTL, is CLOSED. <b>(Acc</b>	ENT CLR 2A-A <b>: Crit)</b>
	[18]	PL/ CO	ACE OLE	Transfer Switch 2-XS-30-74, LOWER ( R 2A-A, to NORMAL.	СОМРТ
	[19]	PL/ ER	ACE CW (	Transfer Switch 2-XS-67-84, LWR CN OUTLET TCV to NOR.	TMT CLR A-A

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	Data	Date								
6.1.1	Lowe	er Co	mpartment Cooler 2A-A Logic (continued)							
	[20]	VE	RIFY	the following:						
		Α.	On	Handswitch 2-HS-30-74A, LWR CNTM	T CLR A-A:					
			•	Green Light ON						
			•	Red Light OFF						
			•	White Light OFF						
		B. On 2-XX-55-6E, Train A CISP, Window 103, LWR CNTMT A FAN-30-74:			3,					
			•	Green Light ON						
			•	Red Light OFF						
		C.	Anr	nunciation and Alarms:						
			•	2-XA-55-6E-138E, PANEL M-9 MOTO is CLEAR.	DR TRIPOUT,					
			•	Motor Tripout Buzzer, [2-M-2], is OFF						
		·	•	2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2 is CLEAR.	2A1-A,					
			•	Unit 2 Alarm Events Display Screen ir 149-B 480 SD BD 2A1-A/2A2-A XS IN is NORMAL (Green).	ndicates I AUX,					

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	Data	Pack	kage:	Page _	of		Da	ite	
6.1.1	Lowe	r Co	mpart	tment C	ooler 2A-A	Logic (continued	(k		
	[21]	<b>RA</b> (2-0	<b>CK</b> Br CCU-3	eaker 2- 0-74), to	-BKR-30-74, o the REMO	LOWER COMPT VED position.	COOLER 2A-A		
	[22]	REMOVE front cover of Breaker 2-BKF COMPT COOLER 2A-A (2-CCU-30-74					LOWER		
								1st	
								CV	
	[23]	PL/ CO me	ACE B OLER chanic	Breaker 2 2A-A (2 al lever	2-BKR-30-74 2-CCU-30-74 (DTA plunge	l, LOWER COMP l), Overload Trip ( er) to the TRIP po	T Switch (OTS) sition.		
	[24]	INS CO	<b>TALL</b> MPT (	front co	over of Break R 2A-A (2-C	er 2-BKR-30-74, CU-30-74).	LOWER		
					,	,		1st	
								CV	
	[25]	<b>RA</b> (2-0	CK Br CCU-3	eaker 2 0-74), to	-BKR-30-74, o the CONNI	LOWER COMPT ECTED position.	COOLER 2A-A		
	[26]	VE	RIFY t	he follow	wing:				
		A.	On ⊦	landswi	tch 2-HS-30-	74A, LWR CNTN	IT CLR A-A:		
			٠	Green L	ight ON				
			•	Red Lig	ht OFF				
			•	White L	ight ON				
		В.	Annı	unciatior	n and Alarms	5:			
			•	2-XA-55 is in AL/	5-6E-138E, F ARM.	PANEL M-9 MOTO	OR TRIPOUT,		
			•	Unit 2 A 138-E F is in AL/	larm Events PANEL M-9 M ARM (Red).	Display Screen ir IOTOR TRIPOUT	ndicates ſ,		
			•	Motor T	ripout Buzze	er is ON.			

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## 6.1.1 Lower Compartment Cooler 2A-A Logic (continued)

## NOTES

- 1) The following step will electrically reset the Overload Trip Switch (OTS) for Breaker 2-BKR-30-74. Refer to Precaution 3.0H for further details.
- 2) If the following step does not reset the OTS, then the OTS may be reset manually by pressing the OTS Reset button on the front of the Breaker, and a Test Deficiency Notice shall be initiated.
  - [27] **RESET** the OTS by

# **PLACING** Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, to STOP, **AND**

## **VERIFY** the following:

- A. On Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A:
  - Green Light ON
  - Red Light OFF
  - White Light OFF

## B. Annunciation and Alarms:

- 2-XA-55-6E-138E, PANEL M-9 MOTOR TRIPOUT, is CLEAR.
- Unit 2 Alarm Events Display Screen indicates 138-E PANEL M-9 MOTOR TRIPOUT, is NORMAL (Green).
- Motor Tripout Buzzer is OFF.

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## 6.1.1 Lower Compartment Cooler 2A-A Logic (continued)

[28] **RECORD** the As-Found position of the following Handswitches on 2-M-9, **AND** 

**IF** any of the following Handswitches are found in STOP PULL TO LOCK, **THEN** 

**PLACE** that Handswitch in A AUTO.

A. 2-HS-30-38A, AIR RETURN FAN A-A

As-Found: \_\_\_\_\_

As Left: \_\_\_\_\_

B. 2-HS-30-77A, LWR CNTMT CLR C-A

As-Found: \_\_\_\_\_

As Left: \_\_\_\_\_

C. 2-HS-30-83A, CRDM CLR A-A

As-Found: \_\_\_\_\_

As Left:

D. 2-HS-30-88A, CRDM CLR C-A

As-Found: \_\_\_\_\_

As Left: \_\_\_\_\_

- [29] VERIFY ICS Point HD2030, VENT SYS HS-38A, 88A, 74A, 77A, 83A, displays NOT P-L.
- [30] **PLACE** Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, in STOP PULL TO LOCK, **AND**

**VERIFY** ICS Point HD2030, VENT SYS HS-38A, 88A, 74A, 77A, 83A, displays PULLT-L.

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6.1.1	Lower Compartment Cooler 2A-A Logic (continued)								
	[31]	<b>ENSUR</b> As-Four (The As- As-Four	E the following Handswitches are retund ad position recorded in Step 6.1.1[28] -Left position recorded in this step sh ad position recorded in Step 6.1.1[28]	urned to their ould match the .)					
		A.	2-HS-30-38A, AIR RETURN FAN	A-A					
			As-Found:						
			As Left:						
		В.	2-HS-30-77A, LWR CNTMT CLR	C-A					
			As-Found:						
			As Left:						
		C	. 2-HS-30-83A, CRDM CLR A-A						
			As-Found:						
			As Left:						
		D	. 2-HS-30-88A, CRDM CLR C-A						
			As-Found:						
			As Left:						
	[32]	ENSUR 2-TIC-6 returned	E ERCW Temperature Indicating Con 7-84, LOWER CNTMT VENT CLR 24 I to its As-Found positions recorded in	ntroller A TEMP CNTL, is n Step 4.3[5]A.					
			Auto/Manual Status:						
		Inc	dicated Controller Setpoint:						
		Ir	ndicated Controller Output:						
				1st					
	1001								
	႞ၖၖ႞		successitul completion of this SUDSe						

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## 6.1.2 Lower Compartment Cooler 2B-B Logic

- [1] **ENSURE** all prerequisites listed in Section 4.0 for Section 6.1 and SubSection 6.1.2 have been completed.
- [2] RACK Breaker 2-BKR-30-75, LOWER COMPT COOLER 2B-B (2-CCU-30-75), [480V SHUTDOWN BOARD 2B1-B, Compartment 7D], to the TEST position.
- [3] **VERIFY** 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is CLEAR.
- [4] **PRESS** the REAC LWR COMPT CLR FAN 2B-B BKR TEST CLOSE switch at Breaker 2-BKR-30-75, LOWER COMPT COOLER 2B-B (2-CCU-30-75), **AND**

#### **VERIFY** the following:

A. At Breaker 2-BKR-30-75:

- Green Light OFF
- Red Light ON
- Red Flag at Breaker Panel
- B. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is in ALARM (after approximately 30 seconds).
- C. Unit 2 Alarm Events Display Screen indicates 104-A LOWER CNTMT CLR B-B FLOW LO (FS-30-75), is in ALARM (Red).

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 46 of 144						
	Data	Date								
6.1.2	Lowe	er Compartment Cooler 2B-B Logic (continued)								
	[5] PRESS the REAC LWR COMPT CLR FAN 2B-B BKR TEST TRIP switch at Breaker 2-BKR-30-75, LOWER COMPT COOLER 2B-B (2-CCU-30-75), AND									
	VERIFY the following:									
	A. At Breaker 2-BKR-30-75:									
		<u></u>								
	<ul> <li>Red Light OFF</li> <li>Green Flag at Breaker Panel</li> <li>B. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is CLEAR.</li> </ul>									
		C.	Unit 2 Alarm Events Display Screen indicat 104-A LOWER CNTMT CLR B-B FLOW Lo is NORMAL (Green).	tes O (FS-30-75), 						
	[6]	EN CO Cor	<b>SURE</b> Transfer Switch 2-XS-30-75, LOWER OLER 2B-B, [480V SHUTDOWN BOARD 2I npartment 5A], is in NORMAL.	COMPT 31-B,						
	[7] <b>RACK</b> Breaker 2-BKR-30-75, LOWER COMPT CO (2-CCU-30-75) to the CONNECTED position.		COOLER 2B-B							
	[8]	VE	RIFY the following:							
		A.	Cooler 2-CCU-30-75, CNTMT LOWER CO COOLER 2B-B, [Lwr Cntmt/716 AZ 159° (N is OFF.	MPARTMENT N Fan Rm)],						
		B.	2-XA-55-6E-138E, PANEL M-9 MOTOR THis CLEAR.							
		C.	2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD 2B1-E	3, is CLEAR						

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6.1.2	Lowe	er Co	mpartment Cooler 2B-B Logic (continued	d)
	[9]	<b>PL</b> [2-1	<b>CE</b> Handswitch 2-HS-30-75A, LWR CNTM I-9], to START, <b>AND</b>	IT CLR B-B,
		VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-75A:	
			Green Light OFF	
			Red Light ON	
			White Light OFF	
		В.	On 2-XX-55-6F, Train B CISP, Window 10 LWR CNTMT B FAN-30-75, [2-M-6]:	3,
			Green Light OFF	
			Red Light ON	
		C.	2-XA-55-5C-104A, LWR CNTMT CLR FLC remains CLEAR (after approximately 30 s	DW LO, econds).
		D.	On Handswitch 2-HS-30-75C, LOWER CC COOLER 2B-B, [480V SHUTDOWN BOA Compartment 5A]:	DMPT RD 2B1-B,
			Green Light OFF	
			Red Light ON	
		E.	At Breaker 2-BKR-30-75, LOWER COMP COOLER 2B-B (2-CCU-30-75):	Г
			Green Light OFF	
			Red Light ON	

WBN Unit 2			Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 48 of 144
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6.1.2	Lowe	er Compa	rtment Cooler 2B-B Logic (continue	d)
		F. Loc	ally:	
		•	Cooler 2-CCU-30-75, CNTMT LOWE COMPARTMENT COOLER 2B-B, is	R ON
		•	Backdraft Damper 2-BKD-30-507, LC CLR SUP, [Lwr Cntmt/731 AZ 159° (I is OPEN. <b>(Acc Crit)</b>	WER COMPT N Fan Rm)], 
	• \ (		Valve 2-TCV-67-100, LWR CNTMT V OUT TEMP CNTL, [Lwr Cntmt/721 A (N Fan Rm)], modulates OPEN. (Ac	/ENT CLR 2B-B Z 170° c Crit)
	[10]	VERIFY ICS Poir	that the LCC 2B-B intake and exhaust nt Qualities are GOOD (Green). <b>(Acc</b> (	air temperature Crit)
		•	Point T1115A, LOWER COMPT COOL UNIT B-B IN	TAKE
		•	Point T1111A, LOWER COMPT COOL UNIT B-B EX	KHAUST
	[11]	RECOR indicated	<b>D</b> LCC 2B-B intake and exhaust air ter d by the ICS points:	nperatures as
		T1115A LOWEF	A, R COMPT COOL UNIT B-B INTAKE:	°F
		T1111A LOWEF	N, R COMPT COOL UNIT B-B EXHAUST:	

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6.1.2	Lowe	r Co	mpa	rtment	Coo	ler 2B-B Lo	gic (continued	d)	
	[12]	PL/ to S	ACE Stop	Handsw 9, <b>AND</b>	itch	2-HS-30-75	A, LWR CNTM	IT CLR B-B,	
		VE	RIFY	the follo	wing	g:			
		Α.	On	Handsw	vitch	2-HS-30-75	δA:		
			٠	Green	Ligh	nt ON			
			٠	Red Li	ght (	OFF			
			٠	White	_igh	t OFF			<u></u>
		В.	On LW	2-XX-55 R CNTM	5-6F 1T B	, Train B CI FAN-30-75	SP, Window 10 :	3,	
			•	Green	Ligh	nt ON			
			•	Red Li	ght (	OFF			
		C.	On CO	Handsw OLER 2	vitch B-B:	2-HS-30-75 :	SC, LOWER CO	OMPT	
			•	Green	Ligh	nt ON			
			•	Red Li	ght (	OFF			
		D.	At E CO	Breaker OLER 2	2-B⊧ B-B	<r-30-75, l<br="">(2-CCU-30-</r-30-75,>	OWER COMP <sup>-</sup> ·75):	Г	
			•	Green	Ligh	nt ON			
			•	Red Li	ght (	OFF			
		Ε.	Loc	ally:					
			•	Cooler COMP	2-C ART	CU-30-75, 0 MENT COO	CNTMT LOWE DLER 2B-B, is	R OFF.	
			•	Backdi CLR S	aft [ UP,	Damper 2-B is CLOSED	KD-30-507, LO . <b>(Acc Crit)</b>	WER COMPT	
			•	Valve 2 OUT T	2-TC EMF	CV-67-100, L P CNTL, is (	WR CNTMT V CLOSED. <b>(Acc</b>	'ENT CLR 2B-B <b>: Crit)</b>	

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6.1.2	Lowe	er Ca	mpartment Cooler 2B-B Logic (continue	d)
	[13]	<b>EN</b> 480	SURE 2-XA-55-6F-150B, SD BD 2B1-B/2B2-B/CA VT BD 2B1-B, is	CLEAR.
	[14]	PL	<b>ACE</b> the following Transfer Switches to AUX	<b>X</b> :
		A.	2-XS-30-75, LOWER COMPT COOLER 2	
		В.	2-XS-67-100, LWR CNTMT CLR B-B ERC OUTLET TCV, [2-L-11B].	CW
	[15]	VE	RIFY the following:	
		A.	On Handswitch 2-HS-30-75A, LWR CNT	IT CLR B-B:
			Green Light OFF	
			Red Light OFF	
			White Light OFF	
		В.	On 2-XX-55-6F, Train B CISP, Window 10 LWR CNTMT A FAN-30-75:	03,
			Green Light OFF	
			Red Light OFF	
		C.	Annunciation and Alarms:	
			<ul> <li>2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD is in ALARM.</li> </ul>	2В1-В,
			<ul> <li>Unit 2 Alarm Events Display Screen i 150-B 480 SD BD 2B1-B/2B2-B XS I is in ALARM (Red).</li> </ul>	ndicates N AUX,
		D.	On Handswitch 2-HS-30-75C, LOWER CO COOLER 2B-B:	OMPT
			Green Light ON	
			Red Light OFF	

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6.1.2	Lowe	er Co	mpartment Cooler 2B-B Logic (continued)	
		E.	At Breaker 2-BKR-30-75, LOWER COMPT COOLER 2B-B (2-CCU-30-75):	
			Green Light ON	
			Red Light OFF	
	[16]	PL/ CO	ACE Handswitch 2-HS-30-75C, LOWER COMPT OLER 2B-B, to CLOSE, <b>AND</b>	
		VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-75C, LOWER COMPT COOLER 2B-B:	
			Green Light OFF	
			Red Light ON	
		В.	At Breaker 2-BKR-30-75, LOWER COMPT COOLER 2B-B (2-CCU-30-75):	
			Green Light OFF	
			Red Light ON	
		C.	Locally:	
			Cooler 2-CCU-30-75, CNTMT LOWER     COMPARTMENT COOLER 2B-B, is ON.	
			<ul> <li>Valve 2-TCV-67-100, LWR CNTMT VENT CLR OUT TEMP CNTL, modulates OPEN. (Acc Cr</li> </ul>	8 2B-B it)

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6.1.2	Lowe	r Co	ompa	rtment Cooler 2B-B Logic (continued	(t	
	[17]	PL/ CO	ACE OLEI	Handswitch 2-HS-30-75C, LOWER CC R 2B-B, to TRIP, <b>AND</b>	MPT	
		VE	RIFY	the following:		
		A.	On CO	Handswitch 2-HS-30-75C, LOWER CC OLER 2B-B:	OMPT	
			٠	Green Light ON		
			٠	Red Light OFF		
		В.	At E CO	Breaker 2-BKR-30-75, LOWER COMPT OLER 2B-B (2-CCU-30-75):	Ţ	
			٠	Green Light ON		
			٠	Red Light OFF		
		C.	Loc	ally:		
			•	Cooler 2-CCU-30-75, CNTMT LOWE COMPARTMENT COOLER 2B-B, is	R DFF	
			٠	Valve 2-TCV-67-100, LWR CNTMT V OUT TEMP CNTL, is CLOSED. <b>(Acc</b>	ENT CLR 2B-B ; <b>Crit)</b>	
	[18]	PL/ CO	ACE OLE	Transfer Switch 2-XS-30-75, LOWER ( R 2B-B, to NORMAL.	COMPT	
	[19]	PL/ ER	ACE CW (	Transfer Switch 2-XS-67-100, LWR CN DUTLET TCV to NOR.	ITMT CLR B-B	

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6.1.2	Lowe	er Co	mpa	rtment Cooler 2B-B Logic (continued	1)
	[20]	VE	RIFY	the following:	
		Α.	On	Handswitch 2-HS-30-75A, LWR CNTM	T CLR B-B:
			•	Green Light ON	
			•	Red Light OFF	
			٠	White Light OFF	
		В.	On LW	2-XX-55-6F, Train B CISP, Window 10 R CNTMT B FAN-30-75:	3,
			•	Green Light ON	
			•	Red Light OFF	
		C.	Anr	nunciation and Alarms:	
			•	2-XA-55-6E-138E, PANEL M-9 MOTO is CLEAR.	DR TRIPOUT,
			٠	Motor Tripout Buzzer, [2-M-2], is OFF	
			•	2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD 2 is CLEAR.	B1-B,
			•	Unit 2 Alarm Events Display Screen ir 150-B 480 SD BD 2B1-B/2B2-B XS IN is NORMAL (Green).	ndicates I AUX,

WBN Unit 2				Lower	Compartm	2-PTI-030H-01 Rev. 0000 Page 54 of 144	4	
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6.1.2	Lowe	r Co	mpa	rtment (	Cooler 2B-E	B Logic (continue	ed)	
l	[21]	<b>RA</b> ( (2-0	CK B CCU-	reaker 2 30-75), 1	2-BKR-30-75 to the REM0	5, LOWER COMP OVED position.	T COOLER 2B-B	3
l	[22]	REI CO	MOV MPT	E front o	over of Brea R 2B-B (2-0	aker 2-BKR-30-75 CU-30-75).	, LOWER	
					·	,		1st
								CV
	[23]	PL/ CO med	ACE OLEI chani	Breaker R 2B-B ( cal leve	2-BKR-30-7 (2-CCU-30-7 r (DTA plunç	75, LOWER COMF 75), Overload Trips ger) to the TRIP p	PT s Switch (OTS) osition.	
	[24]				over of Brea	aker 2-BKR-30-75	LOWER	
		00		COOLE	.N 20-0 (2-0	,00-30-75).		1st
								CV
1	[25]	<b>RA</b> ( (2-0	CK B CCU-	reaker 2 30-75), 1	2-BKR-30-75 to the CONN	5, LOWER COMP NECTED position.	T COOLER 2B-B	3
	[26]	VE	RIFY	the follo	wing:			
		Α.	On	Handsw	itch 2-HS-30	0-75A, LWR CNTI	MT CLR B-B:	
			•	Green	Light ON			
			•	Red Lig	ght OFF			
			•	White I	Light ON			
		В.	Ann	unciatio	n and Alarm	IS:		
			•	2-XA-5 is in AL	5-6E-138E, _ARM.	PANEL M-9 MOT	OR TRIPOUT,	
			•	Unit 27 138-E is in AL	Alarm Event PANEL M-9 _ARM (Red)	s Display Screen MOTOR TRIPOU	indicates T,	
			•	Motor <sup>-</sup>	Tripout Buzz	er is ON.		

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# 6.1.2 Lower Compartment Cooler 2B-B Logic (continued)

## NOTES

- 1) The following step will electrically reset the Overload Trip Switch (OTS) for Breaker 2-BKR-30-75. Refer to Precaution 3.0H for further details.
- 2) If the following step does not reset the OTS, then the OTS may be reset manually by pressing the OTS Reset button on the front of the Breaker, and a Test Deficiency Notice shall be initiated.
  - [27] **RESET** the OTS by:

**PLACING** Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B, to STOP, **AND** 

- A. On Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B:
  - Green Light ON
  - Red Light OFF
  - White Light OFF
- B. Annunciation and Alarms:
  - 2-XA-55-6E-138E, PANEL M-9 MOTOR TRIPOUT, is CLEAR.
  - Unit 2 Alarm Events Display Screen indicates 138-E PANEL M-9 MOTOR TRIPOUT, is NORMAL (Green).
  - Motor Tripout Buzzer is OFF.

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6.1.2	Lowe	er Comp	artmer	nt Coole	er 2B-B Logic	(continue	d)	
	[28]	RECO on 2-M	<b>RD</b> the I-9, <b>AN</b>	As-Fou <b>D</b>	nd position of t	he followir	ng Handswitches	
		<b>IF</b> any STOP	of the f PULL 1	ollowing	g Handswitches K, <b>THEN</b>	s are found	1 in	
		PLACI	E that H	landswi	tch in A AUTO			
		,	4. 2 <b>-</b> H	18-30-3	9A, AIR RETU	RN FAN B	-В	
			A	s-Found	l:			
				As Lef	t:			
		E	B. <b>2-</b> ⊦	IS-30-7	8A, LWR CNTI	MT CLR D	-В	
			A	s-Found	l:			
				As Left	t:			
		(	C. 2-⊦	IS-30-9	2A, CRDM CLI	R B-B		
			A	s-Found	l:			
				As Lef	t:			
		ſ	D. 2-H	IS-30-8	0A, CRDM CLI	R D-B		
			A	s-Found	:	<u>.</u>		
				As Lef	t:			
	[29]	<b>VERIF</b> 92A, 8	Y ICS F 0A, disj	Point HE	02064, VENT S OT P-L.	SYS HS-39	9A, 78A, 75A,	
	[30]	PLACI in STC	E Hand P PUL	switch 2 L TO LC	2 <b>-</b> HS-30-75A, L DCK, <b>AND</b>	WR CNTN	/IT CLR B-B,	
		<b>VERIF</b> 92A, 8	Y ICS F 0A, disj	Point HE plays Pl	D2064, VENT S JLLT-L.	SYS HS-39	9A, 78A, 75A,	

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6.1.2	Lowe	er Compa	rtment Cooler 2B-B Logic (continu	ed)
	[31]	<b>ENSURI</b> As-Foun (The As- As-Foun	E the following Handswitches are retu d position recorded in Step 6.1.2[28] Left position recorded in this step sh d position recorded in Step 6.1.2[28]	urned to their ould match the .)
		A.	2-HS-30-39A, AIR RETURN FAN	B-B
			As-Found:	
			As Left:	
		В.	2-HS-30-78A, LWR CNTMT CLR	D-B
			As-Found:	
			As Left:	
		C.	2-HS-30-92A, CRDM CLR B-B	
			As-Found:	
			As Left:	
		D.	2-HS-30-80A, CRDM CLR D-B	
			As-Found:	
			As Left:	
	[32]	ENSURI 2-TIC-67 returned	E ERCW Temperature Indicating Cor -100, LOWER CNTMT VENT CLR 2 to its As-Found positions recorded in	ntroller 2B TEMP CNTL, is n Step 4.3[5]B.
			Auto/Manual Status:	
		Ind	icated Controller Setpoint:	· · · · · · · · · · · · · · · · · · ·
		Ir	idicated Controller Output:	
	-			1st
				<u> </u>
	[33]	VEDIEV	successful completion of this SubSe	ction 6.1.2
	[99]	(Acc Cri		

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	Data	Package:	Page	of
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Date \_\_\_\_\_

## 6.1.3 Lower Compartment Cooler 2C-A Logic

- [1] **ENSURE** all prerequisites listed in Section 4.0 for Section 6.1 and SubSection 6.1.3 have been completed.
- [2] **RACK** Breaker 2-BKR-30-77, LOWER COMPT COOLER 2C-A (2-CCU-30-77), [480V SHUTDOWN BOARD 2A2-A, Compartment 7D], to the TEST position.
- [3] **VERIFY** 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is CLEAR.
- [4] **PRESS** the REAC LWR COMPT CLR FAN 2C-A BKR TEST CLOSE switch at Breaker 2-BKR-30-77, LOWER COMPT COOLER 2C-A (2-CCU-30-77), **AND**

- A. At Breaker 2-BKR-30-77:
  - Green Light OFF
  - Red Light ON
  - Red Flag at Breaker Panel
- B. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is in ALARM (after approximately 30 seconds).
- C. Unit 2 Alarm Events Display Screen indicates 104-A LOWER CNTMT CLR C-A FLOW LO (FS-30-77), is in ALARM (Red).

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6.1.3	Lowe	er Co	mpartment Cooler 2C-A Logic (continued	d)
	[5]	PR TR CO	<b>ESS</b> the REAC LWR COMPT CLR FAN 2C- P switch at Breaker 2-BKR-30-77, LOWER OLER 2C-A (2-CCU-30-77), <b>AND</b>	-A BKR TEST COMPT
		VE	<b>RIFY</b> the following:	
		Α.	At Breaker 2-BKR-30-77:	
			Green Light ON	
			Red Light OFF	
			Green Flag at Breaker Panel	
		В.	2-XA-55-5C-104A, LWR CNTMT CLR FLC is CLEAR.	DW LO,
		C.	Unit 2 Alarm Events Display Screen indica 104-A LOWER CNTMT CLR C-A FLOW L is NORMAL (Green).	ites O (FS-30-77), 
	[6]	EN CO Coi	<b>SURE</b> Transfer Switch 2-XS-30-77, LOWEF OLER 2C-A, [480V SHUTDOWN BOARD 2 mpartment 5A], is in NORMAL.	R COMPT A2-A,
	[7]	<b>RA</b> CO	<b>CK</b> Breaker 2-BKR-30-77, LOWER COMPT OLER 2C-A (2-CCU-30-77) to the CONNEC	- CTED position.
	[8]	VE	RIFY the following:	
		Α.	Cooler 2-CCU-30-77, CNTMT LOWER CC COOLER 2C-A, [Lwr Cntmt/716 AZ 201° ( is OFF.	OMPARTMENT N Fan Rm)],
		В.	2-XA-55-6E-138E, PANEL M-9 MOTOR T is CLEAR.	RIPOUT,
		C.	2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2A1-A	A, is CLEAR.

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6.1.3	Lowe	er Co	mpartment Cooler 2C-A Logic (continued	(k
	[9]	<b>PL/</b> [2-N	ACE Handswitch 2-HS-30-77A, LWR CNTM /I-9], to START, <b>AND</b>	T CLR C-A,
		VE	RIFY the following:	
		A.	On Handswitch 2-HS-30-77A:	
			Green Light OFF	
			Red Light ON	
			White Light OFF	
		B.	On 2-XX-55-6E, Train A CISP, Window 10 LWR CNTMT C FAN-30-77, [2-M-6]:	4,
			Green Light OFF	
			Red Light ON	
		C.	2-XA-55-5C-104A, LWR CNTMT CLR FLC remains CLEAR (after approximately 30 set	OW LO, econds).
		D.	On Handswitch 2-HS-30-77C, LOWER CC COOLER 2C-A, [480V SHUTDOWN BOAI Compartment 5A]:	DMPT RD 2A2-A,
			Green Light OFF	
			Red Light ON	
		E.	At Breaker 2-BKR-30-77, LOWER COMPT COOLER 2C-A (2-CCU-30-77):	r
			Green Light OFF	
			Red Light ON	

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	Data	Pack	age: Page _	of		ſ	Date
6.1.3	Lowe	r Cor	npartment C	ooler 2C-A Logic (	continue	d)	
		F.	Locally:				
			Cooler 2     COMPA	2-CCU-30-77, CNT ARTMENT COOLEF	MT LOWE R 2C-A, is	R ON.	
			<ul> <li>Backdra CLR SL is OPEN</li> </ul>	aft Damper 2-BKD-3 JP, [Lwr Cntmt/731 N. <b>(Acc Crit)</b>	80-503, LC AZ 201° (I	WER COMPT N Fan Rm)],	
			• Valve 2 OUT TE (N Fan	-TCV-67-92, LWR ( EMP CNTL, [Lwr Cn Rm)], modulates Ol	CNTMT VE tmt/721 A PEN. <b>(Ac</b>	ENT CLR 2C-A Z 190° c <b>Crit)</b>	
	[10]	VER ICS	<b>IFY</b> that the Point Qualitie	LCC 2C-A intake ar es are GOOD (Gree	nd exhaus n). <b>(Acc</b>	t air temperature <b>Crit)</b>	
			<ul> <li>Point T<sup>2</sup></li> <li>LOWEF</li> </ul>	1116A, R COMPT COOL UI	NIT C-A IN	ITAKE	
			Point T <sup>2</sup> LOWEF	1112A, R COMPT COOL UI	NIT C-A E	XHAUST	
	[11]	<b>REC</b> indic	CORD LCC 20 cated by the I	C-A intake and exha CS points:	aust air tei	mperatures as	
		T1 LO T1 LO	116A, WER COMPT 112A, WER COMPT	COOL UNIT C-A INT	AKE: HAUST:	°	F

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l	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 63 of 144
	Data	Pacl	age: Page of	Date
6.1.3	Lowe	er Co	mpartment Cooler 2C-A Logic (continu	ed)
	[13]	<b>EN</b> 480	<b>SURE</b> 2-XA-55-6F-149B, SD BD 2A1-A/2A2-A/CA VT BD 2A1-A, it	s CLEAR.
	[14]	PL	<b>ACE</b> the following Transfer Switches to AL	JX:
		Α.	2-XS-30-77, LOWER COMPT COOLER	2C-A.
		В.	2-XS-67-92, LWR CNTMT CLR C-A ERO OUTLET TCV, [2-L-11A].	CW
	[15]	VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-77A, LWR CNT	MT CLR C-A:
			Green Light OFF	
			Red Light OFF	
			White Light OFF	
		В.	On 2-XX-55-6E, Train A CISP, Window 1 LWR CNTMT C FAN-30-77:	104,
			Green Light OFF	
			Red Light OFF	
		C.	Annunciation and Alarms:	
			<ul> <li>2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD is in ALARM.</li> </ul>	) 2A1-A,
			<ul> <li>Unit 2 Alarm Events Display Screen 149-B 480 SD BD 2A1-A/2A2-A XS is in ALARM (Red).</li> </ul>	indicates IN AUX,
		D.	On Handswitch 2-HS-30-77C, LOWER C COOLER 2C-A:	COMPT
			Green Light ON	
			Red Light OFF	

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	Data	Pac	kage: Page of f	Date			
6.1.3	Lowe	er Co	ompartment Cooler 2C-A Logic (continued)				
		E.	At Breaker 2-BKR-30-77, LOWER COMPT COOLER 2C-A (2-CCU-30-77):				
			Green Light ON				
			Red Light OFF	. <u> </u>			
	[16]	PL. CO	ACE Handswitch 2-HS-30-77C, LOWER COMPT OLER 2C-A, to CLOSE, <b>AND</b>				
		VE	RIFY the following:				
		А.	On Handswitch 2-HS-30-77C, LOWER COMPT COOLER 2C-A:				
			Green Light OFF				
			Red Light ON				
		В.	At Breaker 2-BKR-30-77, LOWER COMPT COOLER 2C-A (2-CCU-30-77):				
			Green Light OFF				
			Red Light ON				
		C.	Locally:				
			Cooler 2-CCU-30-77, CNTMT LOWER     COMPARTMENT COOLER 2C-A, is ON.				
			<ul> <li>Valve 2-TCV-67-92, LWR CNTMT VENT CLR 2C-A OUT TEMP CNTL, modulates OPEN. (Acc Crit)</li> </ul>				

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	WBN Unit 2			Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 65 of 144	
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6.1.3	Lowe	er Co	mpa	rtment Cooler 2C-A Logic (continued	(t	
	[17]	PL/ CO	ACE Olei	Handswitch 2-HS-30-77C, LOWER CC R 2C-A, to TRIP, <b>AND</b>	MPT	
		VE	rify	the following:		
		Α.	On CO	Handswitch 2-HS-30-77C, LOWER CC OLER 2C-A:	DMPT	
			•	Green Light ON	-	
			•	Red Light OFF	-	
		В.	At E CO	Breaker 2-BKR-30-77, LOWER COMPT OLER 2C-A (2-CCU-30-77):	r	
			٠	Green Light ON	-	
			٠	Red Light OFF	-	
		C.	Loc	ally:		
			٠	Cooler 2-CCU-30-77, CNTMT LOWE COMPARTMENT COOLER 2C-A, is	R OFF.	
			•	Valve 2-TCV-67-92, LWR CNTMT VE OUT TEMP CNTL, is CLOSED. <b>(Acc</b>	NT CLR 2C-A Crit)	
	[18]	PL/ CO	ACE OLE	Transfer Switch 2-XS-30-77, LOWER ( R 2C-A, to NORMAL.	COMPT	
	[19]	PL/ ER	ACE CW (	Transfer Switch 2-XS-67-92, LWR CN <sup>-</sup> DUTLET TCV to NOR.	ſMT CLR C-A	

	WBN Unit 2			Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 66 of 144	
	Data	Pack	kage	: Page of	Date	-
6.1.3	Lowe	er Co	mpa	rtment Cooler 2C-A Logic (continued	1)	
	[20]	VEI	RIFY	the following:		
		A.	On	Handswitch 2-HS-30-77A, LWR CNTN	IT CLR C-A:	
			•	Green Light ON		_
			•	Red Light OFF		_
			٠	White Light OFF	·	_
		В.	On LW	2-XX-55-6E, Train A CISP, Window 10 R CNTMT C FAN-30-77:	4,	
			•	Green Light ON	<u></u>	_
			•	Red Light OFF		_
		C.	Anr	nunciation and Alarms:		
			•	2-XA-55-6E-138E, PANEL M-9 MOTO is CLEAR.		_
			•	Motor Tripout Buzzer, [2-M-2], is OFF		_
			•	2-XA-55-6F-149B, 480 SD BD 2A1-A/2A2-A/CA VT BD 2 is CLEAR.	2A1-A,	
			•	Unit 2 Alarm Events Display Screen ir 149-B 480 SD BD 2A1-A/2A2-A XS IN is NORMAL (Green).	ndicates NAUX,	_

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6.1.3	Lowe	r Co	mpartment C	Cooler 2C-A Logic (c	ontinued)	
	[21]	<b>RA</b> 2C-	CK Breaker 2 A (2-CCU-30	-BKR-30-77, LOWER -77), to the REMOVEI	COMPT COOLER D position.	
	[22]	<b>RE</b> CO	MOVE front c MPT COOLE	over of Breaker 2-BKF R 2C-A (2-CCU-30-77	R-30-77, LOWER 7).	
						1st
						CV
	[23]	PL/ CO me	<b>ACE</b> Breaker OLER 2C-A ( chanical lever	2-BKR-30-77, LOWE 2-CCU-30-77), Overlo (DTA plunger) to the	R COMPT ad Trips Switch (OTS TRIP position.	)
	[24]	INS	TALL front co	over of Breaker 2-BKF	R-30-77, LOWER	
		CO		R 20-A (2-000-30-77	).	1st
						CV
	[25]	<b>RA</b> CO	<b>CK</b> Breaker 2 OLER 2C-A (1	-BKR-30-77, LOWER 2-CCU-30-77), to the	COMPT CONNECTED position	n
	[26]	VE	RIFY the follo	wing:		
		A.	On Handswi	tch 2-HS-30-77A, LW	R CNTMT CLR C-A:	
			Green I	_ight ON		
			Red Lig	ht OFF		
			• White L	ight ON		<u></u>
		В.	Annunciatio	n and Alarms:		
			• 2-XA-5 is in AL	5-6E-138E, PANEL M ARM.	-9 MOTOR TRIPOUT	
			• Unit 2 A 138-E F is in AL	Narm Events Display S PANEL M-9 MOTOR 1 ARM (Red).	Screen indicates IRIPOUT,	
			• Motor T	ripout Buzzer is ON.		

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# 6.1.3 Lower Compartment Cooler 2C-A Logic (continued)

## NOTES

- 1) The following step will electrically reset the Overload Trip Switch (OTS) for Breaker 2-BKR-30-77. Refer to Precaution 3.0H for further details.
- 2) If the following step does not reset the OTS, then the OTS may be reset manually by pressing the OTS Reset button on the front of the Breaker, and a Test Deficiency Notice shall be initiated.
  - [27] **RESET** the OTS by:

**PLACING** Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A, to STOP, **AND** 

- A. On Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A:
  - Green Light ON
  - Red Light OFF
  - White Light OFF
- B. Annunciation and Alarms:
  - 2-XA-55-6E-138E, PANEL M-9 MOTOR TRIPOUT, is CLEAR.
  - Unit 2 Alarm Events Display Screen indicates 138-E PANEL M-9 MOTOR TRIPOUT, is NORMAL (Green).
  - Motor Tripout Buzzer is OFF.

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## 6.1.3 Lower Compartment Cooler 2C-A Logic (continued)

[28] **RECORD** the As-Found position of the following Handswitches on 2-M-9, **AND** 

**IF** any of the following Handswitches are found in STOP PULL TO LOCK, **THEN** 

**PLACE** that Handswitch in A AUTO.

A. 2-HS-30-38A, AIR RETURN FAN A-A

As-Found:

As Left:

B. 2-HS-30-74A, LWR CNTMT CLR A-A

As-Found: \_\_\_\_\_

As Left: \_\_\_\_\_

C. 2-HS-30-83A, CRDM CLR A-A

As-Found:

As Left:

D. 2-HS-30-88A, CRDM CLR C-A

As-Found:

As Left:

- [29] **VERIFY** ICS Point HD2030, VENT SYS HS-38A, 88A, 74A, 77A, 83A, displays NOT P-L.
- [30] **PLACE** Handswitch 2-HS-30-77A, LWR CNTMT CLR A-A, in STOP PULL TO LOCK, **AND**

**VERIFY** ICS Point HD2030, VENT SYS HS-38A, 88A, 74A, 77A, 83A, displays PULLT-L.

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6.1.3	Lowe	er Compa	rtment Cooler 2C-A Logic (continu	ed)
	[31]	<b>ENSURI</b> As-Foun (The As- As-Foun	E the following Handswitches are retu d position recorded in Step 6.1.3[28]. Left position recorded in this step sho d position recorded in Step 6.1.3[28].	urned to their ould match the )
		A.	2-HS-30-38A, AIR RETURN FAN A	A-A
			As-Found:	
			As Left:	<u></u>
		В.	2-HS-30-74A, LWR CNTMT CLR /	A-A
			As-Found:	
			As Left:	
		C.	2-HS-30-83A, CRDM CLR A-A	
			As-Found:	
			As Left:	
		D.	2-HS-30-88A, CRDM CLR C-A	
			As-Found:	
			As Left:	
	[32]	ENSURI 2-TIC-67 returned	E ERCW Temperature Indicating Cor 7-92, LOWER CNTMT VENT CLR 20 to its As-Found positions recorded ir	troller TEMP CNTL, is Step 4.3[5]C.
			Auto/Manual Status:	
		Ind	icated Controller Setpoint:	
		In	dicated Controller Output:	
				1st
				CV
	[33]	VERIFY (Acc Cri	successful completion of this SubSection (t)	ction 6.1.3.

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## 6.1.4 Lower Compartment Cooler 2D-B Logic

- [1] **ENSURE** all prerequisites listed in Section 4.0 for Section 6.1 and SubSection 6.1.4 have been completed.
- [2] **RACK** Breaker 2-BKR-30-78, LOWER COMPT COOLER 2D-B (2-CCU-30-78), [480V SHUTDOWN BOARD 2B2-B, Compartment 7D], to the TEST position.
- [3] **VERIFY** 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is CLEAR.
- [4] **PRESS** the REAC LWR COMPT CLR FAN 2D-B BKR TEST CLOSE switch at Breaker 2-BKR-30-78, LOWER COMPT COOLER 2D-B (2-CCU-30-78), **AND**

- A. At Breaker 2-BKR-30-78:
  - Green Light OFF
  - Red Light ON
  - Red Flag at Breaker Panel
- B. 2-XA-55-5C-104A, LWR CNTMT CLR FLOW LO, is in ALARM (after approximately 30 seconds).
- C. Unit 2 Alarm Events Display Screen indicates 104-A LOWER CNTMT CLR D-B FLOW LO (FS-30-78), is in ALARM (Red).
|       | WBN<br>Unit 2 |                        | Lower Compartment Coolers  | 2-PTI-030H-01<br>Rev. 0000<br>Page 72 of 144 |
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| 6.1.4 | Lowe          | er Co                  | mpartment Cooler 2D-B Logic (continue  | d)   |
|       | [5]           | <b>PR</b><br>TRI<br>CO | ESS the REAC LWR COMPT CLR FAN 2D<br>P switch at Breaker 2-BKR-30-78, LOWER<br>OLER 2D-B (2-CCU-30-78), AND        | -B BKR TEST<br>COMPT                         |
|       |               | VE                     | RIFY the following:  |  |
|       |               | Α.                     | At Breaker 2-BKR-30-78:  |  |
|       |               |                        | Green Light ON   |  |
|       |               |                        | Red Light OFF  |  |
|       |               |                        | Green Flag at Breaker Panel  |  |
|       |               | В.                     | 2-XA-55-5C-104A, LWR CNTMT CLR FLC<br>is CLEAR.  | DW LO,                                       |
|       |               | C.                     | Unit 2 Alarm Events Display Screen indica<br>104-A LWR CNTMT CLR D-B FLOW LO (<br>is NORMAL (Green).               | ates<br>(FS-30-78),<br>                      |
|       | [6]           | EN<br>CO<br>Cor        | <b>SURE</b> Transfer Switch 2-XS-30-78, LOWEF<br>OLER 2D-B, [480V SHUTDOWN BOARD 2<br>npartment 5A], is in NORMAL. | R COMPT<br>2B2-B,                            |
|       | [7]           | <b>RA</b><br>CO        | <b>CK</b> Breaker 2-BKR-30-78, LOWER COMPT<br>OLER 2D-B (2-CCU-30-78) to the CONNEC                                | r<br>CTED position.                          |
|       | [8]           | VE                     | RIFY the following:  |  |
|       |               | A.                     | Cooler 2-CCU-30-78, CNTMT LOWER CC<br>COOLER 2D-B, [Lwr Cntmt/716 AZ 339° (<br>is OFF.                             | OMPARTMENT<br>(S Fan Rm)],                   |
|       |               | В.                     | 2-XA-55-6E-138E, PANEL M-9 MOTOR T<br>is CLEAR.  | RIPOUT,                                      |
|       |               | C.                     | 2-XA-55-6F-150B,<br>480 SD BD 2B1-B/2B2-B/CA VT BD 2B1-b   | B, is CLEAR.                                 |

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6.1.4	Lowe	er Co	mpartment Cooler 2D-B Logic (continued	))							
	[9]	<b>PL</b> / [2-N	ACE Handswitch 2-HS-30-78A, LWR CNTM 1-9], to START, <b>AND</b>	T CLR D-B,							
		VE	RIFY the following:								
		A.	On Handswitch 2-HS-30-78A:								
			Green Light OFF								
			Red Light ON								
			White Light OFF								
		B.	On 2-XX-55-6F, Train B CISP, Window 104 LWR CNTMT D FAN-30-78, [2-M-6]:	4,							
			Green Light OFF								
			Red Light ON								
		C.	2-XA-55-5C-104A, LWR CNTMT CLR FLO remains CLEAR (after approximately 30 se	W LO, econds).							
		D.	On Handswitch 2-HS-30-78C, LOWER CO COOLER 2D-B, [480V SHUTDOWN BOAF Compartment 5A]:	MPT RD 2B2-B,							
			Green Light OFF								
			Red Light ON								
		E.	At Breaker 2-BKR-30-78, LOWER COMPT COOLER 2D-B (2-CCU-30-78):								
			Green Light OFF								
			Red Light ON								

WBN Unit 2				Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 74 of 144	
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6.1.4	Lowe	er Con	npar	tment Cooler 2D-B Logic (continued	d)	
		F.	Loca	illy:		
			•	Cooler 2-CCU-30-78, CNTMT LOWE COMPARTMENT COOLER 2D-B, is	R ON.	
			•	Backdraft Damper 2-BKD-30-518, LO CLR SUP, [Lwr Cntmt/731 AZ 339° (S is OPEN. <b>(Acc Crit)</b>	WER COMPT § Fan Rm)],	
			•	Valve 2-TCV-67-108, LWR CNTMT V OUT TEMP CNTL, [Lwr Cntmt/721 A (S Fan Rm)], modulates OPEN. (Acc	'ENT CLR 2D-B Z 350° <b>: Crit)</b>	<u></u>
	[10]	VER ICS	<b>RIFY</b> ( Point	hat the LCC 2D-B intake and exhaust t Qualities are GOOD (Green). <b>(Acc (</b>	air temperature C <b>rit)</b>	
			•	Point T1117A, LOWER COMPT COOL UNIT D-B IN	TAKE	
			•	Point T1113A, LOWER COMPT COOL UNIT D-B EX	KHAUST	
	[11]	<b>REC</b> indic	CORE	LCC 2D-B intake and exhaust air ter by the ICS points:	nperatures as	
		T1 <sup>-</sup> LO	117A, WER	COMPT COOL UNIT D-B INTAKE:	°F	
		T1 LO	113A, WER	COMPT COOL UNIT D-B EXHAUST:	°F	

l	WBN Unit 2			Lower	Co	mpartme	ent Coolers		2-PTI-030H-01 Rev. 0000 Page 75 of 144	
	Data	Pack	kage:	Page _		_ of			Dat	e
6.1.4	6.1.4 Lower Compartment Cooler 2D-B Logic (continued)									
	[12]	PL/ to S	ACE Stop	Handswi ', <b>AND</b>	tch	2-HS-30	-78A, LWR CN	NTM	T CLR D-B,	
		VE	RIFY	the follo	win	g:				
		A.	On	Handswi	tch	2-HS-30	-78A:			
			٠	Green I	_igh	nt ON				
			•	Red Lig	ht (	OFF				
			٠	White L	igh	t OFF				
		В.	On LW	2-XX-55 R CNTM	-6F T C	, Train B ) FAN-30	CISP, Windov -78:	w 104	ŀ,	
			•	Green I	_igh	nt ON				
			•	Red Lig	jht (	OFF				
		C.	On CO	Handswi OLER 2[	tch D-B	2-HS-30 :	-78C, LOWEF	۲ CO	MPT	•
			•	Green l	_igł	nt ON				
			•	Red Lig	jht (	OFF				·
		D.	At E CO	Breaker 2 OLER 20	2-Bł D-B	<r-30-78 (2-CCU-</r-30-78 	, LOWER CO 30-78):	MPT		
			•	Green l	_igh	nt ON				
			•	Red Lig	ht (	OFF				
		Ε.	Loc	ally:						
			•	Cooler COMP/	2-C \R1	CU-30-7 IMENT C	8, CNTMT LO OOLER 2D-B	)WEF 3, is (	R DFF.	
			٠	Backdra CLR Sl	aft I JP,	Damper 2 is CLOS	2-BKD-30-518 ED. <b>(Acc Cri</b> t	6, LO∖ <b>t)</b>	WER COMPT	
			•	Valve 2 OUT TI	-TC EMI	CV-67-108 P CNTL,	8, LWR CNTM is CLOSED. (	/IT VI (Acc	ENT CLR 2D-B <b>Crit)</b>	

-

WBN Unit 2				Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 76 of 144	
	Data	Pacl	kage:	Page of	Date	
6.1.4	Lowe	er Co	ompa	rtment Cooler 2D-B Logic (continue	d)	
	[13]	<b>EN</b> 480	SURI	E 2-XA-55-6F-150B, BD 2B1-B/2B2-B/CA VT BD 2B1-B, is	CLEAR.	
	[14]	PL	ACE	the following Transfer Switches to AUX	<b>&lt;</b> :	
		A.	2-X	S-30-78, LOWER COMPT COOLER 2	В-В.	
		В.	2-X OU	S-67-108, LWR CNTMT CLR B-B ERC TLET TCV, [2-L-11B].		
	[15]	VE	RIFY	the following:		
		A.	On	Handswitch 2-HS-30-78A, LWR CNTM	IT CLR D-B:	
			•	Green Light OFF		
			•	Red Light OFF		
			•	White Light OFF		
		В.	On LW	2-XX-55-6F, Train B CISP, Window 10 R CNTMT D FAN-30-78:	)4,	
			•	Green Light OFF		
			•	Red Light OFF		
		C.	Anr	nunciation and Alarms:		
			•	2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD is in ALARM.	2В1-В,	
			٠	Unit 2 Alarm Events Display Screen i 150-B 480 SD BD 2B1-B/2B2-B XS II is in ALARM (Red).	ndicates N AUX,	
		D.	On CO	Handswitch 2-HS-30-78C, LOWER CO OLER 2D-B:	ОМРТ	
			٠	Green Light ON		
			•	Red Light OFF		

WBN Unit 2			Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 77 of 144					
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6.1.4	Low	er Co	mpartment Cooler 2D-B Logic (continued	1)					
		E.	At Breaker 2-BKR-30-78, LOWER COMPT COOLER 2D-B (2-CCU-30-78):	-					
			Green Light ON	·					
			Red Light OFF						
	[16]	PL/ CO	ACE Handswitch 2-HS-30-78C, LOWER CO OLER 2D-B, to CLOSE, AND	MPT					
		VE	RIFY the following:						
		Α.	On Handswitch 2-HS-30-78C, LOWER CO COOLER 2D-B:	MPT					
			Green Light OFF						
			Red Light ON						
		В.	At Breaker 2-BKR-30-78, LOWER COMPT COOLER 2D-B (2-CCU-30-78):	-					
			Green Light OFF						
			Red Light ON						
		C.	Locally:						
			Cooler 2-CCU-30-78, CNTMT LOWER     COMPARTMENT COOLER 2D-B, is 0	R ON					
			• Valve 2-TCV-67-108, LWR CNTMT VI OUT TEMP CNTL, modulates OPEN.	ENT CLR 2D-B (Acc Crit)					

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6.1.4	Lowe	er Co	ompa	rtment Cooler 2D-B Logic (continued	(F
	[17]	PL/ CO	ACE OLE	Handswitch 2-HS-30-78C, LOWER CC R 2D-B, to TRIP, <b>AND</b>	DMPT
		VE	RIFY	the following:	
		Α.	On CO	Handswitch 2-HS-30-78C, LOWER CO OLER 2D-B:	OMPT
			•	Green Light ON	
			•	Red Light OFF	
		В.	At I CO	Breaker 2-BKR-30-78, LOWER COMP <sup>-</sup> OLER 2D-B (2-CCU-30-78):	ſ
			•	Green Light ON	
			•	Red Light OFF	
		C.	Loc	cally:	
			•	Cooler 2-CCU-30-78, CNTMT LOWE COMPARTMENT COOLER 2D-B, is	R OFF
			٠	Valve 2-TCV-67-108, LWR CNTMT V OUT TEMP CNTL, is CLOSED. <b>(Acc</b>	ENT CLR 2D-B <b>Crit)</b>
	[18]	PL/ CO	ACE OLE	Transfer Switch 2-XS-30-78, LOWER ( R 2D-B, to NORMAL.	СОМРТ
	[19]	PL/ ER	ACE CW (	Transfer Switch 2-XS-67-108, LWR CN OUTLET TCV to NOR.	ITMT CLR D-B

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6.1.4	Lowe	er Co	mpa	rtment Cooler 2D-B Logic (continued	(1			
	[20]	VE	RIFY	the following:				
		Α.	On	Handswitch 2-HS-30-78A, LWR CNTM	IT CLR D-B:			
			•	Green Light ON				
			•	Red Light OFF				
			•	White Light OFF				
		В.	On LW	2-XX-55-6F, Train B CISP, Window 10 R CNTMT D FAN-30-78:	4,			
			•	Green Light ON				
			•	Red Light OFF				
		C.	Anr	nunciation and Alarms:				
			•	2-XA-55-6E-138E, PANEL M-9 MOTO is CLEAR.	DR TRIPOUT,			
			•	Motor Tripout Buzzer, [2-M-2], is OFF				
			•	2-XA-55-6F-150B, 480 SD BD 2B1-B/2B2-B/CA VT BD 2 is CLEAR.	2B1-B,			
			•	Unit 2 Alarm Events Display Screen ir 150-B 480 SD BD 2B1-B/2B2-B XS IN is NORMAL (Green).	ndicates NAUX,			

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	Data	Pacl	kage: Page _	of	Date		
6.1.4	Lowe	er Co	mpartment Co	ooler 2D-B Logic (continue	ed)		
	[21]	<b>RA</b> CO	CK Breaker 2- OLER 2D-B (2	BKR-30-78, LOWER COMP -CCU-30-78), to the REMO\	T /ED position.		
	[22]	RE CO	MOVE front co	ver of Breaker 2-BKR-30-78 2 2D-B (2-CCU-30-78).	, LOWER		
				· · · ·		1st	
						CV	
	[23]	PL/ CO me	<b>ACE</b> Breaker 2 OLER 2D-B (2 chanical lever (	-BKR-30-78, LOWER COMF -CCU-30-78), Overload Trip (DTA plunger) to the TRIP p	PT s Switch (OTS) osition.		
	[24]	INS		ver of Breaker 2-BKR-30-78	LOWER		
		CO		(2D-B (2-CCU-30-78).		1st	
						CV	
	[25]	<b>RA</b> CO	CK Breaker 2- OLER 2D-B (2	BKR-30-78, LOWER COMP -CCU-30-78), to the CONNE	T ECTED position.		
	[26]	VE	<b>RIFY</b> the follow	ving:			
		A.	On Handswite	ch 2-HS-30-78A, LWR CNT <b>i</b>	MT CLR D-B:		
			Green Li	ight ON			
			Red Ligh	nt OFF			
			White Lip	ght ON			
		В.	Annunciation	and Alarms:			
			• 2-XA-55 is in ALA	-6E-138E, PANEL M-9 MOT \RM.	OR TRIPOUT,		
			<ul> <li>Unit 2 AI 138-E PA is in ALA</li> </ul>	arm Events Display Screen ANEL M-9 MOTOR TRIPOU \RM (Red).	indicates T,		
			Motor Tr	ipout Buzzer is ON.			

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## 6.1.4 Lower Compartment Cooler 2D-B Logic (continued)

### NOTES

- 1) The following step will electrically reset the Overload Trip Switch (OTS) for Breaker 2-BKR-30-78. Refer to Precaution 3.0H for further details.
- 2) If the following step does not reset the OTS, then the OTS may be reset manually by pressing the OTS Reset button on the front of the Breaker, and a Test Deficiency Notice shall be initiated.
  - [27] **RESET** the OTS by:

**PLACING** Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B, to STOP, **AND** 

**VERIFY** the following:

- A. On Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B:
  - Green Light ON
  - Red Light OFF
  - White Light OFF
- B. Annunciation and Alarms:
  - 2-XA-55-6E-138E, PANEL M-9 MOTOR TRIPOUT, is CLEAR.
  - Unit 2 Alarm Events Display Screen indicates 138-E PANEL M-9 MOTOR TRIPOUT, is NORMAL (Green).
  - Motor Tripout Buzzer is OFF.

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## 6.1.4 Lower Compartment Cooler 2D-B Logic (continued)

[28] **RECORD** the As-Found position of the following Handswitches on 2-M-9, **AND** 

**IF** any of the following Handswitches are found in STOP PULL TO LOCK, **THEN** 

**PLACE** that Handswitch in A AUTO.

A. 2-HS-30-39A, AIR RETURN FAN B-B

As-Found: \_\_\_\_\_

As Left:

B. 2-HS-30-75A, LWR CNTMT CLR B-B

As-Found:

As Left:

C. 2-HS-30-92A, CRDM CLR B-B

As-Found:

As Left:

D. 2-HS-30-80A, CRDM CLR D-B

As-Found:

As Left: \_\_\_\_

- [29] **VERIFY** ICS Point HD2064, VENT SYS HS-39A, 78A, 75A, 92A, 80A, displays NOT P-L.
- [30] **PLACE** Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B, in STOP PULL TO LOCK, **AND**

**VERIFY** ICS Point HD2064, VENT SYS HS-39A, 78A, 75A, 92A, 80A, displays PULLT-L.

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6.1.4	Lowe	er Compa	artment Cooler 2D-B Logic (conti	nued)
	[31]	<b>ENSUR</b> As-Four (The As As-Four	E the following Handswitches are r nd position recorded in Step 6.1.4[2 -Left position recorded in this step nd position recorded in Step 6.1.4[2	returned to their 28]. should match the 28].)
		A	. 2-HS-30-39A, AIR RETURN FA	N B-B
			As-Found:	
			As Left:	
		В	. 2-HS-30-75A, LWR CNTMT CL	R B-B
			As-Found:	
			As Left:	
		С	. 2-HS-30-92A, CRDM CLR B-B	
			As-Found:	-
			As Left:	
		D	. 2-HS-30-80A, CRDM CLR D-B	
			As-Found:	
			As Left:	<u> </u>
	[32]	ENSUR 2-TIC-6 <sup>°</sup> is return	E ERCW Temperature Indicating C 7-108, LOWER CNTMT VENT CLF ned to its As-Found positions record	Controller R 2D TEMP CNTL, led in Step 4.3[5]D.
			Auto/Manual Status:	
		Inc	dicated Controller Setpoint:	
		l	ndicated Controller Output:	
				1st
	[33]	VERIFY (Acc Cr	' successful completion of this Sub	Section 6.1.4.

Date \_\_\_\_\_

# 6.2 Lower Compartment Coolers Response to Phase B Containment Isolation Signal

## NOTE

SubSubsections 6.2.1 and 6.2.2 may be performed in any order, provided their applicable predecessor SubSections are completed. Unless otherwise noted, the steps within each SubSection shall be performed in the order written. The diagram at the beginning of Section 6.0 may be used as a placekeeping tool throughout the performance of this Section.

## 6.2.1 Train A Lower Compartment Coolers (2A-A and 2C-A)

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.2 have been completed.
- [2] **ENSURE** SubSections 6.1.1 and 6.1.3 have been completed.
- [3] **PLACE** Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, to START, **AND**

**VERIFY** on Handswitch 2-HS-30-74A:

- Green Light OFF
- Red Light ON
- [4] **PLACE** Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A, to START, **AND**

VERIFY on Handswitch 2-HS-30-77A:

- Green Light OFF
- Red Light ON
- [5] **ENSURE** the following Control Rod Drive Mechanism coolers are OFF:
  - 2-CLR-30-83, CRDM COOLER 2A-A
  - 2-CLR-30-88, CRDM COOLER 2C-A

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# 6.2.1 Train A Lower Compartment Coolers (2A-A and 2C-A) (continued)

### NOTE

The following steps will simulate a Train A Phase B Containment Isolation Signal and Phase B signal reset by closing and opening a test switch (TS-1, installed in step 4.3[11.1]) in SSPS Train A Output Cabinet 2-R-48.

- [6] **PLACE** Test Switch TS-1 in the CLOSED (ON) position.
- [7] **VERIFY** the following:
  - A. On Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
  - B. On Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
- [8] **PLACE** Test Switch TS-1 in the OPEN (OFF) position.
- [9] **VERIFY** the following:
  - A. On Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A:
  - Green Light ON (Acc Crit)
     Red Light OFF (Acc Crit)
    B. On Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
- [10] **PLACE** the following Transfer Switches in AUX:
  - A. 2-XS-30-74, LOWER COMPT COOLER 2A-A
  - B. 2-XS-30-77, LOWER COMPT COOLER 2C-A

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6.2.1	Train (cont	A Lo inue	ower d)	Compartment Coolers (2A-A and 20	C-A)	
	[11]	PL/	ACE	Test Switch TS-1 in the CLOSED (ON)	position.	
	[12]	VE	RIFY	the following:		
		Α.	On ÇO	Handswitch 2-HS-30-74C, LOWER CC OLER 2A-A:	OMPT	
			•	Green Light ON		
			•	Red Light OFF		
		В.	On CO	Handswitch 2-HS-30-77C, LOWER CC OLER 2C-A:	OMPT	
			٠	Green Light ON		
			٠	Red Light OFF		
	[13]	PL/ CO	ACE	Handswitch 2-HS-30-74C, LOWER CC R 2A-A, to CLOSE, <b>AND</b>	OMPT	
		VE	RIFY	the following on Handswitch 2-HS-30-	74C:	
			•	Green Light OFF (Acc Crit)		
			•	Red Light ON (Acc Crit)		
	[14]	PL/ CO	ACE OLEF	Handswitch 2-HS-30-74C, LOWER CC R 2A-A, to TRIP, <b>AND</b>	OMPT	
		VE	RIFY	the following on Handswitch 2-HS-30-	74C:	
			•	Green Light ON		
			•	Red Light OFF		
	[15]	PL/ CO	ACE	Handswitch 2-HS-30-77C, LOWER CC R 2C-A, to CLOSE, <b>AND</b>	OMPT	
		VE	RIFY	the following on Handswitch 2-HS-30-	77C:	
			•	Green Light OFF (Acc Crit)		
			•	Red Light ON (Acc Crit)		

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6.2.1	Train A Lower Compartment Coolers (2A-A and 2C-A) (continued)			C-A)
	[16]	PL/ CO	ACE Handswitch 2-HS-30-77C, LOWER CO OLER 2C-A, to TRIP, AND	TAWC
		VE	<b>RIFY</b> the following on Handswitch 2-HS-30	-77C:
			Green Light ON	
			Red Light OFF	
	[17]	PL	ACE Test Switch TS-1 in the OPEN (OFF)	position.
	[18]	VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-74C, LOWER Co COOLER 2A-A:	OMPT
			Green Light ON	
			Red Light OFF	
		В.	On Handswitch 2-HS-30-77C, LOWER Co COOLER 2C-A:	OMPT
			Green Light ON	
			Red Light OFF	
	[19]	PL	<b>CE</b> the following Transfer Switches in NO	RMAL:
		A.	2-XS-30-74, LOWER COMPT COOLER	2A-A
		В.	2-XS-30-77, LOWER COMPT COOLER 2	2C-A
	[20]	PL	<b>ACE</b> the following Handswitches in STOP F	PULL TO LOCK:
		A.	2-HS-30-74A, LWR CNTMT CLR A-A	
		В.	2-HS-30-77A, LWR CNTMT CLR C-A	

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5.2.2	Train	B Low	er Compartment Coolers (2B-B and	2D-B)		
	[1]	<b>ENSU</b> SubSe	<b>RE</b> all prerequisites listed in Section 4 oction 6.2 have been completed.	.0 for		
	[2]	ENSU	<b>RE</b> SubSections 6.1.2 and 6.1.4 have	been completed.		
	[3]	<b>PLAC</b> to STA	E Handswitch 2-HS-30-75A, LWR CN <sup>:</sup> \RT, <b>AND</b>	TMT CLR B-B,		
		VERIF	Y on Handswitch 2-HS-30-75A:			
		•	Green Light OFF			
		•	Red Light ON			
	[4]	PLAC to STA	E Handswitch 2-HS-30-78A, LWR CN <sup>:</sup> \RT, <b>AND</b>	ТМТ CLR D-B,		
		VERIF	Y on Handswitch 2-HS-30-78A:			
		٠	Green Light OFF			
		٠	Red Light ON			
	[5]	<b>ENSU</b> are OF	<b>RE</b> the following Control Rod Drive Me F:	echanism coolers		
		•	2-CLR-30-92, CRDM COOLER 2B	-В		
		•	2-CLR-30-80, CRDM COOLER 2D	-B		

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# 6.2.2 Train B Lower Compartment Coolers (2B-B and 2D-B) (continued)

### NOTE

The following steps will simulate a Train B Phase B Containment Isolation Signal and Phase B signal reset by closing and opening a test switch (TS-2, installed in step 4.3[11.2]) in SSPS Train B Output Cabinet 2-R-51.

- [6] **PLACE** Test Switch TS-2 in the CLOSED (ON) position.
- [7] **VERIFY** the following:
  - A. On Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
  - B. On Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
- [8] **PLACE** Test Switch TS-2 in the OPEN (OFF) position.
- [9] **VERIFY** the following:
  - A. On Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B:
  - Green Light ON (Acc Crit)
    Red Light OFF (Acc Crit)
  - B. On Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B:
    - Green Light ON (Acc Crit)
    - Red Light OFF (Acc Crit)
- [10] **PLACE** the following Transfer Switches in AUX:
  - A. 2-XS-30-75, LOWER COMPT COOLER 2B-B
  - B. 2-XS-30-78, LOWER COMPT COOLER 2D-B

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6.2.2	Train (cont	B Lo inue	ower d)	Compartment Coolers (2B-B and 2D	р-В)
	[11]	PL/		rest Switch TS-2 in the CLOSED (ON)	position.
	[12]	VE	RIFY	the following:	
		A.	On ł COC	Handswitch 2-HS-30-75C, LOWER CC DLER 2B-B:	MPT
			•	Green Light ON	
			•	Red Light OFF	
		В.	On I COC	Handswitch 2-HS-30-78C, LOWER CC DLER 2D-B:	MPT
			•	Green Light ON	
			•	Red Light OFF	
	[13]	PL/ CO	ACE H OLEF	Handswitch 2-HS-30-75C, LOWER CC 8 2B-B, to CLOSE, <b>AND</b>	MPT
		VEI	RIFY	the following on Handswitch 2-HS-30-7	75C:
			•	Green Light OFF (Acc Crit)	
			•	Red Light ON (Acc Crit)	
	[14]	PL/ CO	ACE H OLEF	Handswitch 2-HS-30-75C, LOWER CC 8 2B-B, to TRIP, <b>AND</b>	MPT
		VEI	RIFY	the following on Handswitch 2-HS-30-7	75C:
			•	Green Light ON	<u></u>
			•	Red Light OFF	
	[15]	PL/ CO	ACE H OLEF	Handswitch 2-HS-30-78C, LOWER CC 8 2D-B, to CLOSE, <b>AND</b>	MPT
		VEI	RIFY	the following on Handswitch 2-HS-30-7	78C:
			•	Green Light OFF (Acc Crit)	
			•	Red Light ON (Acc Crit)	

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6.2.2	Train (cont	B Le inue	ower Compartment Coolers (2B-B and 2 d)	D-В)
	[16]	PL/ CO	ACE Handswitch 2-HS-30-78C, LOWER CO OLER 2D-B, to TRIP, AND	ОМРТ
		VE	<b>RIFY</b> the following on Handswitch 2-HS-30	-78C:
			Green Light ON	
			Red Light OFF	
	[17]	PL/	<b>ACE</b> Test Switch TS-2 in the OPEN (OFF)	position.
	[18]	VE	RIFY the following:	
		Α.	On Handswitch 2-HS-30-75C, LOWER C COOLER 2B-B:	OMPT
			Green Light ON	
			Red Light OFF	
		B.	On Handswitch 2-HS-30-78C, LOWER C COOLER 2D-B:	OMPT
	~		Green Light ON	
			Red Light OFF	
	[19]	PL/	<b>CE</b> the following Transfer Switches in NO	RMAL:
		A.	2-XS-30-75, LOWER COMPT COOLER	2В-В
		В.	2-XS-30-78, LOWER COMPT COOLER 2	2D-В
	[20]	PL/	ACE the following Handswitches in STOP I	PULL TO LOCK:
		A.	2-HS-30-75A, LWR CNTMT CLR B-B	
		В.	2-HS-30-78A, LWR CNTMT CLR D-B	

Date \_\_\_\_\_

## 6.3 Lower Compartment Coolers Response to Bus Undervoltage

# **NOTE** SubSubsections 6.3.1 through 6.3.4 may be performed in any order, provided their applicable predecessor SubSection is completed. Unless otherwise noted, the steps within each SubSection shall be performed in the order written. The diagram at the beginning of Section 6.0 may be used as a placekeeping tool throughout the performance of this Section.

## 6.3.1 Lower Compartment Cooler 2A-A

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.3 have been completed.
- [2] **ENSURE** SubSection 6.1.1 has been completed.
- [3] **ENSURE** Handswitch 2-HS-30-83A, CRDM CLR A-A, is in STOP PULL TO LOCK.
- [4] **PLACE** Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, to START, **AND**

**VERIFY** on Handswitch 2-HS-30-74A:

- Green Light OFF
- Red Light ON

## NOTE

The following step will simulate a Loss of Offsite Power.

 [5] MOMENTARILY PLACE a handheld jumper between Terminal Point 7 (Wire A17CTP) and Point 8 (Wire A17CT1) of Relay 2A1Y1, [480V SHUTDOWN BOARD 2A1-A, Compartment 6A]. (Drawing 618F938)

1st

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Data Package: Page \_\_\_\_ of \_\_\_\_ Date \_\_\_\_\_ 6.3.1 Lower Compartment Cooler 2A-A (continued) [6] VERIFY on Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A: • Green Light ON (Acc Crit) Red Light OFF (Acc Crit) NOTE The following step will simulate a restoration of bus voltage. **MOMENTARILY PLACE** a handheld jumper between Terminal [7] Point 3 (Wire DCE4) and Point 4 (Wire DCE5) of Relay 2A1X1, [480V SHUTDOWN BOARD 2A1-A, Compartment 6A]. (Drawing 618F938) 1st CV **VERIFY** that LCC 2A-A remains OFF after approximately [8] 1 minute, as indicated on Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A:

- CNTMT CLR A-A:
  Green Light ON (Acc Crit)
  - Red Light OFF (Acc Crit)
- [9] **PLACE** Transfer Switch 2-XS-30-74, LOWER COMPT COOLER 2A-A in AUX.
- [10] **PLACE** Handswitch 2-HS-30-74C, LOWER COMPT COOLER 2A-A, to CLOSE, **AND**

**VERIFY** the following on Handswitch 2-HS-30-74C:

- Green Light OFF
- Red Light ON

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Data I	Package: Page	of		Date	<u></u>
6.3.1 Lowe	r Compartment (	Cooler 2A-A (contin	ued)		
	114 Acres	NOTE			
The following	step will simulate	a Loss of Offsite Po	wer.		
[11]	<b>MOMENTARILY</b> Point 7 (Wire A1 Relay 2A1Y1, (I	<b>PLACE</b> a handheld 7CTP) and Point 8 (\ Drawing 618F938)	jumper bet Vire A17C1	ween Terminal [1) of	
				-	1st
				-	CV
[12]	VERIFY on Han COOLER 2A-A:	dswitch 2-HS-30-74C	, LOWER	COMPT	
	• Green	Light ON (Acc Crit)		-	
	Red Li	ght OFF (Acc Crit)			
		NOTE		<u>,</u>	
The following	step will simulate	a restoration of bus	voltage.		
[13]	<b>MOMENTARILY</b> Point 3 (Wire DO (Drawing 618E9)	<b>f PLACE</b> a handheld CE4) and Point 4 (Wir 38)	jumper bet e DCE5) o	ween Terminal f Relay 2A1X1.	
					1st
				-	CV
[14]	VERIFY that LC as indicated on I COOLER 2A-A:	C 2A-A STARTS afte Handswitch 2-HS-30-	r approxim 74C, LOW	ately 1 minute, ER COMPT	
	• Green	Light OFF (Acc Crit	)		
	• Red Li	ght ON (Acc Crit)			
[15]	PLACE Transfer COOLER 2A-A i	r Switch 2-XS-30-74, in NORMAL.	LOWER C	OMPT	
[16]	PLACE Handsw in STOP PULL 1	/itch 2-HS-30-74A, L\ TO LOCK.	VR CNTMT	CLR A-A,	

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## 6.3.2 Lower Compartment Cooler 2B-B

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.3 have been completed.
- [2] **ENSURE** SubSection 6.1.2 has been completed.
- [3] **ENSURE** Handswitch 2-HS-30-92A, CRDM CLR B-B, is in STOP PULL TO LOCK.
- [4] **PLACE** Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B, to START, **AND**

**VERIFY** on Handswitch 2-HS-30-75A:

- Green Light OFF
- Red Light ON

### NOTE

The following step will simulate a Loss of Offsite Power.

 [5] MOMENTARILY PLACE a handheld jumper between Terminal Point 7 (Wire B17DTP) and Point 8 (Wire B17DT1) of Relay 2B1Y1, [480V SHUTDOWN BOARD 2B1-B, Compartment 6A]. (Drawing 618F941)

1st

- [6] **VERIFY** on Handswitch 2-HS-30-75A, LWR CNTMT CLR B-B:
  - Green Light ON (Acc Crit)
  - Red Light OFF (Acc Crit)

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6.3.2 Lower	Compartment Cooler 2B-B (contin	ued)				
	NOTE					
The following s	step will simulate a restoration of bus	voltage.				
[7]	<b>MOMENTARILY PLACE</b> a handheld Point 3 (Wire DCE4) and Point 4 (Wir [480V SHUTDOWN BOARD 2B1-B, 0 (Drawing 618F941)	jumper between Terminal re DCE5) of Relay 2B1X1, Compartment 6A].  1st				
		CV				
[8]	<b>VERIFY</b> that LCC 2B-B remains OFF 1 minute, as indicated on Handswitch CNTMT CLR 2B-B:	after approximately 2-HS-30-75A, LWR				
	• Green Light ON (Acc Crit)					
	• Red Light OFF (Acc Crit)					
[9]	<b>PLACE</b> Transfer Switch 2-XS-30-75, COOLER 2B-B in AUX.	LOWER COMPT				
[10]	PLACE Handswitch 2-HS-30-75C, LC COOLER 2B-B, to CLOSE, AND	OWER COMPT				
	VERIFY the following on Handswitch	2-HS-30-75C:				
	Green Light OFF					
	Red Light ON					

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	Data P	Package	: Page	_ of	D	ate		
6.3.2	6.3.2 Lower Compartment Cooler 2B-B (continued)							
			·····	NOTE				
The fo	llowing s	step will	simulate a L	oss of Offsite Power.				
[11] <b>MOMENTARILY PLACE</b> a handheld jumper between Terminal Point 7 (Wire B17DTP) and Point 8 (Wire B17DT1) of Relay 2B1Y1 (Drawing 618E941)								
		-	,	<b>č</b> ,		1st		
						CV		
	[12]	VERIFY COOLE	′ on Handsw R 2B-B:	itch 2-HS-30-75C, LOV	VER COMPT			
		•	Green Ligł	nt ON <b>(Acc Crit)</b>				
		•	Red Light	OFF (Acc Crit)				
	· · · , ,			NOTE				
The fo	llowing	step will	simulate a r	estoration of bus voltag	Je			
	[13]	MOMEN Point 3 ( (Drawing	<b>ITARILY PL</b> (Wire DCE4) a 618E941)	ACE a handheld jump and Point 4 (Wire DC	er between Terminal E5) of Relay 2B1X1.			
		(214111)	g o loi o l i,			1st		
						CV		
	[14]	VERIFY as indica COOLE	' that LCC 2l ated on Han R 2B-B:	B-B STARTS after app dswitch 2-HS-30-75C,	roximately 1 minute, LOWER COMPT			
		•	Green Ligł	nt OFF (Acc Crit)		<u> </u>		
		٠	Red Light	ON (Acc Crit)				
	[15]	PLACE COOLE	Transfer Sw R 2B-B in N	/itch 2-XS-30-75, LOW ORMAL.	ER COMPT			
	[16]	PLACE in STOF	Handswitch PULL TO L	2-HS-30-75A, LWR Cl .OCK.	NTMT CLR B-B,			

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6.3.3	Low	er Compartment Cooler 2C-A	
	[1]	<b>ENSURE</b> all prerequisites listed in Section 4.0 for	

- SubSection 6.3 have been completed.
- [2] **ENSURE** SubSection 6.1.3 has been completed.
- [3] **ENSURE** Handswitch 2-HS-30-88A, CRDM CLR C-A, is in STOP PULL TO LOCK.
- [4] **PLACE** Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A, to START, **AND**

VERIFY on Handswitch 2-HS-30-77A:

- Green Light OFF
- Red Light ON

## NOTE

The following step will simulate a Loss of Offsite Power.

[5] MOMENTARILY PLACE a handheld jumper between Terminal Point 7 (Wire A27DTP) and Point 8 (Wire A27DT1) of Relay 2A2Y1, [480V SHUTDOWN BOARD 2A2-A, Compartment 6A]. (Drawing 6947D67)

1st

- [6] **VERIFY** on Handswitch 2-HS-30-77A, LWR CNTMT CLR C-A:
  - Green Light ON (Acc Crit)
  - Red Light OFF (Acc Crit)

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6.3.3	Lowe	er Compa	artment Cooler 2C-A (continued)					
<b></b>			NOTE	·				
The following step will simulate a restoration of bus voltage.								
	[7]	MOME Point 3 [480V \$ (Drawir	NTARILY PLACE a handheld jumper I (Wire DCE4) and Point 4 (Wire DCE5) SHUTDOWN BOARD 2A2-A, Compart	between Terminal ) of Relay 2A2X1, ment 6A].				
		(Brawn	·9 00+1 D01 )		1st			
					CV			
	[8]	VERIFY 1 minut CNTM	<b>Y</b> that LCC 2C-A remains OFF after ap e, as indicated on Handswitch 2-HS-3 F CLR 2C-A:	proximately 0-77A, LWR				
		•	Green Light ON (Acc Crit)					
		٠	Red Light OFF (Acc Crit)					
	[9]	PLACE COOLE	Transfer Switch 2-XS-30-77, LOWER ER 2C-A in AUX.	COMPT				
	[10]	PLACE COOLE	Handswitch 2-HS-30-77C, LOWER C ER 2C-A, to CLOSE, <b>AND</b>	OMPT				
		VERIF	<b>f</b> the following on Handswitch 2-HS-30	9-77C:				
		•	Green Light OFF					
		٠	Red Light ON					

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6.3.3 Lowe	6.3.3 Lower Compartment Cooler 2C-A (continued)								
			NOTE	<del></del>					
The following	step	will simulate a Lo	ss of Offsite Power.						
[11] <b>MOMENTARILY PLACE</b> a handheld jumper between Terminal Point 7 (Wire A27DTP) and Point 8 (Wire A27DT1) of Relay 2A2Y1 (Drawing 6947D67)									
			<b>c</b> ,		1st				
					CV				
[12]	VEF COC	<b>IFY</b> on Handswite DLER 2C-A:	ch 2-HS-30-77C, LOWER	COMPT					
		Green Light	ON (Acc Crit)						
		Red Light O	FF (Acc Crit)						
			NOTE						
The following	step	will simulate a res	storation of bus voltage.						
[13]	<b>MOI</b> Poir (Dra	MENTARILY PLA t 3 (Wire DCE4) a wing 6947D67)	CE a handheld jumper be and Point 4 (Wire DCE5)	etween Terminal of Relay 2A2X1.					
	·	о́,			1st				
					CV				
[14]	VEF as ir COC	<b>IFY</b> that LCC 2Condicated on Hands DLER 2C-A:	A STARTS after approxir switch 2-HS-30-77C, LOV	nately 1 minute, VER COMPT					
		Green Light	OFF (Acc Crit)						
		Red Light O	N (Acc Crit)		<u></u>				
[15]	PLA COC	<b>CE</b> Transfer Swit DLER 2C-A in NO	ch 2-XS-30-77, LOWER ( RMAL.	COMPT					
[16]	<b>PLA</b> in S	<b>CE</b> Handswitch 2 TOP PULL TO LC	-HS-30-77A, LWR CNTM DCK.	IT CLR C-A,					

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6.3.4	Lower Compartment Cooler 2D-B	

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.3 have been completed.
- [2] **ENSURE** SubSection 6.1.4 has been completed.
- [3] **ENSURE** Handswitch 2-HS-30-80A, CRDM CLR D-B, is in STOP PULL TO LOCK.
- [4] **PLACE** Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B, to START, **AND**

**VERIFY** on Handswitch 2-HS-30-78A:

- Green Light OFF
- Red Light ON

## NOTE

The following step will simulate a Loss of Offsite Power.

[5] MOMENTARILY PLACE a handheld jumper between Terminal Point 7 (Wire B27DTP) and Point 8 (Wire B27DT1) of Relay 2B2Y1, [480V SHUTDOWN BOARD 2B2-B, Compartment 6A]. (Drawing 6947D85)

1st

- [6] **VERIFY** on Handswitch 2-HS-30-78A, LWR CNTMT CLR D-B:
  - Green Light ON (Acc Crit)
  - Red Light OFF (Acc Crit)

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6.3.4	4 Lower Compartment Cooler 2D-B (continued)								
			NOTE						
The fo	ollowing	step will	simulate a restoration of bus voltage.						
	[7]	MOME Point 3 [480V S	NTARILY PLACE a handheld jumper b (Wire DCE4) and Point 4 (Wire DCE5) SHUTDOWN BOARD 2B2-B, Compartr	etween Terminal of Relay 2B2X1, nent 6A].					
		(Brawn	ig 00+1000)		1st				
					CV				
	[8]	VERIFY 1 minut CNTMT	/ that LCC 2D-B remains OFF after app e, as indicated on Handswitch 2-HS-30 「CLR 2D-B:	proximately -78A, LWR					
		•	Green Light ON (Acc Crit)						
		•	Red Light OFF (Acc Crit)						
	[9]	PLACE COOLE	Transfer Switch 2-XS-30-78, LOWER R 2D-B in AUX.	COMPT					
	[10]	PLACE COOLE	Handswitch 2-HS-30-78C, LOWER COR R 2D-B, to CLOSE, <b>AND</b>	ОМРТ					
		VERIFY	<i>I</i> the following on Handswitch 2-HS-30-	-78C:					
		•	Green Light OFF						
		•	Red Light ON						

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	Data I	Packa	age: Page	of		Date	e		
6.3.4	5.3.4 Lower Compartment Cooler 2D-B (continued)								
				NOTE	<u></u>				
The fo	ollowing	step	will simulate	a Loss of Offsite Po	wer.				
[11] <b>MOMENTARILY PLACE</b> a handheld jumper between Terminal Point 7 (Wire B27DTP) and Point 8 (Wire B27DT1) of Relay 2B2Y1 (Drawing 6947D85)									
			, (	<b>0</b>			1st		
							CV		
	[12]	VER COC	<b>IFY</b> on Hand DLER 2D-B:	dswitch 2-HS-30-78	C, LOWER	COMPT			
			• Green	Light ON (Acc Crit	)				
			Red Lig	ght OFF (Acc Crit)					
				NOTE					
The fo	ollowing	step	will simulate	a restoration of bus	voltage.				
	[13]	<b>MOI</b> Poin (Dra	<b>IENTARILY</b> t 3 (Wire DC wing 6947D	<b>PLACE</b> a handheld CE4) and Point 4 (W 85)	l jumper be ire DCE5)	etween Terminal of Relay 2B2X1.			
		(010					1st		
							CV		
	[14]	VER as ir COC	IFY that LC dicated on I DLER 2D-B:	C 2D-B STARTS aft Handswitch 2-HS-30	er approxir -78C, LOV	nately 1 minute, VER COMPT			
			• Green	Light OFF (Acc Cri	t)				
			Red Lig	ght ON <b>(Acc Crit)</b>					
	[15]	PLA COC	<b>CE</b> Transfer DLER 2D-B i	<sup>r</sup> Switch 2-XS-30-78 n NORMAL.	, LOWER (	COMPT			
	[16]	<b>PLA</b> in S <sup>-</sup>	<b>CE</b> Handsw FOP PULL 1	itch 2-HS-30-78A, L O LOCK.	WR CNTN	IT CLR D-B,			

Date \_\_\_\_\_

## 6.4 Lower Compartment Coolers Auto-Start on Low Air Flow

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.4 have been completed.
- [2] **ENSURE** SubSections 6.1, 6.2 and 6.3 have been completed.

## NOTE

The following step will enable the Train A LCCs' Auto-start on Low Flow function.

 LAND Wire A17C2 (lifted in step 4.3[12]) on point 8 of Terminal Block 65B5, inside the front panel of 480V SHUTDOWN BOARD 2A1-A, Compartment 6A. (Drawing 618F938)

1st

CV

## NOTE

The following step will enable the Train B LCCs' Auto-start on Low Flow function.

 [4] LAND Wire B17D2 (lifted in step 4.3[13]) on point 5 of Terminal Block 65B2, inside the front panel of 480V SHUTDOWN BOARD 2B1-B Compartment 6A. (Drawing 618F941)

1st

CV

[5] **PLACE** Handswitch 2-HS-30-74A, LWR CNTMT CLR A-A, to A AUTO, **AND** 

**VERIFY** the following on Handswitch 2-HS-30-74A:

- Green Light ON
- Red Light OFF

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6.4 Low (con	er Con tinued	npartment Coolers Auto-Start on Low A I)	ir Flow
[6]	PLA to S <sup>-</sup>	<b>CE</b> Handswitch 2-HS-30-75A, LWR CNTM TART, <b>AND</b>	IT CLR B-B,
	VER	<b>IFY</b> the following on Handswitch 2-HS-30-	75A:
		Green Light OFF	
		Red Light ON	
[7]	<b>PLA</b> to S <sup>−</sup>	<b>CE</b> Handswitch 2-HS-30-77A, LWR CNTM TART, <b>AND</b>	IT CLR C-A,
	VER	<b>RIFY</b> the following on Handswitch 2-HS-30-	77A:
		Green Light OFF	
		Red Light ON	
[8]	PLA to S <sup>-</sup>	<b>CE</b> Handswitch 2-HS-30-78A, LWR CNTM TART, <b>AND</b>	IT CLR D-B,
	VER	<b>RIFY</b> the following on Handswitch 2-HS-30-	78A:
		Green Light OFF	
		Red Light ON	
[9]	PLA	CE the following Transfer Switches to AUX	<b>:</b>
	A.	2-XS-30-74, LOWER COMPT COOLER 2	A-A
	В.	2-XS-30-75, LOWER COMPT COOLER 2	В-В
	C.	2-XS-30-77, LOWER COMPT COOLER 2	C-A
	D.	2-XS-30-78, LOWER COMPT COOLER 2	D-В

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	Data I	Package	e: Page of	Date	
6.4	Lowe (conti	r Compa inued)	artment Coolers Auto-Start on Low A	ir Flow	
	[10]	PLACE COMP	and <b>HOLD</b> Handswitch 2-HS-30-75C, Γ COOLER 2B-B, to TRIP, <b>AND</b>	LOWER	
		VERIF	the following on Handswitch 2-HS-30-	75C:	
		٠	Green Light ON	_	
		٠	Red Light OFF		
	[11]	VERIFY COOLE	on Handswitch 2-HS-30-74C, LOWER R 2A-A, that LCC 2A-A is ON.	COMPT	
		٠	Green Light OFF (Acc Crit)	_	
		٠	Red Light ON (Acc Crit)		
	[12]	RELEA COOLE	<b>SE</b> Handswitch 2-HS-30-75C, LOWER R 2B-B.	COMPT	
	[13]	PLACE COMP	and <b>HOLD</b> Handswitch 2-HS-30-74C, Γ COOLER 2A-A, to TRIP, <b>AND</b>	LOWER	
		VERIF	the following on Handswitch 2-HS-30-	74C:	
		•	Green Light ON		
		•	Red Light OFF		
	[14]	VERIFY COOLE	<b>/</b> on Handswitch 2-HS-30-75C, LOWER R 2B-B, that LCC 2B-B is ON.	COMPT	
		•	Green Light OFF (Acc Crit)		
		٠	Red Light ON (Acc Crit)		
	[15]	RELEA COOLE	<b>SE</b> Handswitch 2-HS-30-74C, LOWER R 2A-A,	СОМРТ —	

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6.4	Lower (contii	<sup>r</sup> Comp nued)	artment Coolers Auto-Start on Low A	ir Flow
	[16]	PLACE Comp <sup>-</sup>	E and <b>HOLD</b> Handswitch 2-HS-30-77C, T COOLER 2C-A, to TRIP, <b>AND</b>	LOWER
		VERIF	Y the following on Handswitch 2-HS-30-	77C:
		•	Green Light ON	
		٠	Red Light OFF	
	[17]	VERIF COOLE	<b>Y</b> on Handswitch 2-HS-30-74C, LOWER ER 2A-A, that LCC 2A-A is ON.	COMPT
		•	Green Light OFF (Acc Crit)	
		٠	Red Light ON (Acc Crit)	
	[18]	RELEA COOLE	<b>ASE</b> Handswitch 2-HS-30-77C, LOWER ER 2C-A.	СОМРТ
	[19]	PLACE Comp <sup>-</sup>	E and <b>HOLD</b> Handswitch 2-HS-30-74C, T COOLER 2A-A, to TRIP, <b>AND</b>	LOWER
		VERIF	Y the following on Handswitch 2-HS-30-	74C:
		•	Green Light ON	
		•	Red Light OFF	<u></u>
	[20]	VERIF COOLE	<b>Y</b> on Handswitch 2-HS-30-77C, LOWER ER 2C-A, that LCC 2C-A is ON.	COMPT
		•	Green Light OFF (Acc Crit)	
		•	Red Light ON (Acc Crit)	
	[21]	RELEA COOLE	<b>ASE</b> Handswitch 2-HS-30-74C, LOWER ER 2A-A.	СОМРТ
	WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 108 of 144	
-----	---------------------	--	---	
	Data Pa	ckage: Page of	Date	
6.4	Lower C (continu	ompartment Coolers Auto-Start on Low A ed)	ir Flow	
	[22] <b>P</b> C	<b>_ACE</b> and <b>HOLD</b> Handswitch 2-HS-30-78C, OMPT COOLER 2D-B, to TRIP, <b>AND</b>	LOWER	
	V	ERIFY the following on Handswitch 2-HS-30-	78C:	
		Green Light ON		
		Red Light OFF		
	[23] <b>V</b> C	ERIFY on Handswitch 2-HS-30-74C, LOWER OOLER 2A-A, that LCC 2A-A is ON.	COMPT	
		• Green Light OFF (Acc Crit)		
		Red Light ON (Acc Crit)		
	[24] <b>R</b> C	E <b>LEASE</b> Handswitch 2-HS-30-78C, LOWER OOLER 2D-B.	СОМРТ	
	[25] <b>P</b> C	<b>_ACE</b> and <b>HOLD</b> Handswitch 2-HS-30-74C, OMPT COOLER 2A-A, to TRIP, <b>AND</b>	LOWER	
	V	ERIFY the following on Handswitch 2-HS-30-	74C:	
		Green Light ON		
		Red Light OFF		
	[26] <b>V</b> C	ERIFY on Handswitch 2-HS-30-78C, LOWER DOLER 2D-B, that LCC 2D-B is ON.	COMPT	
		• Green Light OFF (Acc Crit)		
		Red Light ON (Acc Crit)		
	[27] <b>R</b> C	ELEASE Handswitch 2-HS-30-74C, LOWER DOLER 2A-A.	СОМРТ	

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 109 of 144
	Data	Package	e: Page of	Date
6.4	Lowe (cont	er Compa inued)	artment Coolers Auto-Start on Low A	ir Flow
	[28]	<b>PLACE</b> 2A-A, te	E Handswitch 2-HS-30-74C, LOWER CC o CLOSE, <b>AND</b>	MPT COOLER
		VERIF	<b>Y</b> the following on Handswitch 2-HS-30-	74C:
		•	Green Light OFF	
		٠	Red Light ON	
	[29]	<b>PLACE</b> 2B-B, te	Handswitch 2-HS-30-75C, LOWER CC o TRIP, <b>AND</b>	MPT COOLER
		VERIF	<b>Y</b> the following on Handswitch 2-HS-30-	75C:
		•	Green Light ON	
		•	Red Light OFF	
	[30]	PLACE	and <b>HOLD</b> Handswitch 2-HS-30-77C, TCOOLER 2C-A, to TRIP, <b>AND</b>	LOWER
		VERIF	<b>Y</b> the following on Handswitch 2-HS-30-	77C:
		•	Green Light ON	
		٠	Red Light OFF	
	[31]	VERIFY COOLE	<b>Y</b> on Handswitch 2-HS-30-75C, LOWER ER 2B-B, that LCC 2B-B is ON.	COMPT
		٠	Green Light OFF (Acc Crit)	
		•	Red Light ON (Acc Crit)	
	[32]	RELEA COOLE	<b>SE</b> Handswitch 2-HS-30-77C, LOWER ER 2C-A.	СОМРТ

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 110 of 144
	Data	Package	e: Page of	Date
6.4	Lowe (conti	r Compa inued)	artment Coolers Auto-Start on Low A	ir Flow
	[33]	PLACE COMPT	and <b>HOLD</b> Handswitch 2-HS-30-75C, I COOLER 2B-B, to TRIP, <b>AND</b>	_OWER
		VERIFY	the following on Handswitch 2-HS-30-	75C:
		•	Green Light ON	
		•	Red Light OFF	
	[34]	VERIFY COOLE	on Handswitch 2-HS-30-77C, LOWER R 2C-A, that LCC 2C-A is ON.	COMPT
		•	Green Light OFF (Acc Crit)	
		•	Red Light ON (Acc Crit)	
	[35]	RELEA COOLE	<b>SE</b> Handswitch 2-HS-30-75C, LOWER R 2B-B.	COMPT
	[36]	PLACE COMPT	and <b>HOLD</b> Handswitch 2-HS-30-78C, I COOLER 2D-B, to TRIP, <b>AND</b>	LOWER
		VERIFY	the following on Handswitch 2-HS-30-	78C:
		•	Green Light ON	
		•	Red Light OFF	
	[37]	VERIFY COOLE	on Handswitch 2-HS-30-75C, LOWER R 2B-B, that LCC 2B-B is ON.	COMPT
		•	Green Light OFF (Acc Crit)	
		•	Red Light ON (Acc Crit)	
	[38]	<b>RELEA</b> COOLE	<b>SE</b> Handswitch 2-HS-30-78C, LOWER R 2D-B.	СОМРТ

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 111 of 144
	Data P	Package	: Page of	Date
6.4	Lower (contin	<sup>.</sup> Compa nued)	rtment Coolers Auto-Start on Low A	r Flow
	[39]	PLACE COMPT	and <b>HOLD</b> Handswitch 2-HS-30-75C, I COOLER 2B-B, to TRIP, <b>AND</b>	OWER
		VERIFY	the following on Handswitch 2-HS-30-	75C:
		•	Green Light ON	
		•	Red Light OFF	
	[40]	VERIFY COOLE	on Handswitch 2-HS-30-78C, LOWER R 2D-B, that LCC 2D-B is ON.	COMPT
		•	Green Light OFF (Acc Crit)	<u> </u>
		•	Red Light ON (Acc Crit)	
	[41]	RELEAS COOLE	<b>SE</b> Handswitch 2-HS-30-75C, LOWER R 2B-B.	СОМРТ
	[42]	PLACE 2B-B, to	Handswitch 2-HS-30-75C, LOWER CC CLOSE, <b>AND</b>	MPT COOLER
		VERIFY	the following on Handswitch 2-HS-30-	75C:
		٠	Green Light OFF	
		٠	Red Light ON	
	[43]	PLACE 2C-A, to	Handswitch 2-HS-30-77C, LOWER CC TRIP, <b>AND</b>	MPT COOLER
		VERIFY COMPT	the following on Handswitch 2-HS-30-3 COOLER 2C-A:	77C, LOWER
		•	Green Light ON	
		٠	Red Light OFF	

	WBN Unit 2	Lower Compartment Coole	rs 2-PTI-030H-01 Rev. 0000 Page 112 of 144
	Data P	ackage: Page of	Date
6.4	Lower (contii	Compartment Coolers Auto-Start or ued)	ו Low Air Flow
	[44]	PLACE and HOLD Handswitch 2-HS-3 COMPT COOLER 2D-B, to TRIP, AND	80-78C, LOWER <b>)</b>
		<b>/ERIFY</b> the following on Handswitch 2	-HS-30-78C:
		Green Light ON	
		Red Light OFF	
	[45]	<b>VERIFY</b> on Handswitch 2-HS-30-77C, COOLER 2C-A, that LCC 2C-A is ON.	LOWER COMPT
		• Green Light OFF (Acc Crit)	
		• Red Light ON (Acc Crit)	
	[46]	RELEASE Handswitch 2-HS-30-78C, I COOLER 2D-B.	LOWER COMPT
	[47]	PLACE and HOLD Handswitch 2-HS-3 COMPT COOLER 2C-A, to TRIP, AND	80-77C, LOWER <b>)</b>
		<b>/ERIFY</b> the following on Handswitch 2	-HS-30-77C:
		Green Light ON	
		Red Light OFF	
	[48]	<b>/ERIFY</b> on Handswitch 2-HS-30-78C, COOLER 2D-B, that LCC 2D-B is ON.	LOWER COMPT
		• Green Light OFF (Acc Crit)	
		• Red Light ON (Acc Crit)	
	[49]	RELEASE Handswitch 2-HS-30-77C, I COOLER 2C-A.	LOWER COMPT

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 113 of 144	
	Data	Pacl	kage: Page of	Date	
6.4	Lowe (cont	er Co inue	ir Flow		
	[50]	PL/	ACE the following Transfer Switches to NO	RMAL:	
		A.	2-XS-30-74, LOWER COMPT COOLER 2	2A-A	
		В.	2-XS-30-75, LOWER COMPT COOLER 2	В-В	
		C.	2-XS-30-77, LOWER COMPT COOLER 2	2C-A	
		D.	2-XS-30-78, LOWER COMPT COOLER 2	2D-В	
	[51]	PL	ACE the following Handswitches to STOP F	PULL TO LOCK:	
		Α.	2-HS-30-74A, LWR CNTMT CLR A-A		
		В.	2-HS-30-75A, LWR CNTMT CLR B-B		
		C.	2-HS-30-77A, LWR CNTMT CLR C-A		
		D.	2-HS-30-78A, LWR CNTMT CLR D-B		

WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000
		Page 114 of 144

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

### 6.5 Lower Compartment Cooler Performance

- [1] **ENSURE** all prerequisites listed in Section 4.0 for SubSection 6.5 have been completed.
- [2] **ENSURE** motor operating data and air flow measurements for the following Lower Compartment Coolers have been performed using GTM-05, HVAC Air Balance:
  - A. 2-CCU-30-74, CNTMT LOWER COMPARTMENT COOLER 2A-A
  - B. 2-CCU-30-75, CNTMT LOWER COMPARTMENT COOLER 2B-B
  - C. 2-CCU-30-77, CNTMT LOWER COMPARTMENT COOLER 2C-A
  - D. 2-CCU-30-78, CNTMT LOWER COMPARTMENT COOLER 2D-B
- [3] **ENSURE** completed GTM-05 data sheets are attached to this instruction.

WBN Lower Compartment Coolers Unit 2	2-PTI-030H-01 Rev. 0000 Page 115 of 144
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Data Package: Page \_\_\_\_ of \_\_\_\_ Date \_\_\_\_\_

### 6.5 Lower Compartment Cooler Performance (continued)

[4] **RECORD** the air flow measurement for each LCC individually, **AND** 

**VERIFY** it meets acceptance criteria:

A. 2-CCU-30-74, CNTMT LOWER COMPARTMENT COOLER 2A-A

\_\_\_\_ CFM

Acc Crit: 48,700 CFM minimum

B. 2-CCU-30-75, CNTMT LOWER COMPARTMENT COOLER 2B-B

CFM

Acc Crit: 48,700 CFM minimum

C. 2-CCU-30-77, CNTMT LOWER COMPARTMENT COOLER 2C-A

CFM

Acc Crit: 48,700 CFM minimum

D. 2-CCU-30-78, CNTMT LOWER COMPARTMENT COOLER 2D-B

CFM

Acc Crit: 48,700 CFM minimum

oata F ower	Package: Page Compartmen RECORD the any three LCC	e of t Cooler Perform	nance (continue	Date
ower	<b>Compartmen</b> <b>RECORD</b> the any three LCC	t Cooler Perform	nance (continue	
5]	RECORD the any three LCC			d)
		s operating toget	nents for each co her, <b>AND</b>	mbination of
	VERIFY they r	neet acceptance	criteria:	
	A. LCCs 2A-	A, 2B-B, and 2C-	A operating toget	ther:
	• Tota	Air Flow to the L	ower Compartme	ent
	Ace	<b>: Crit</b> : 146,000 C	CFM CFM minimum	
	• Air fl	ow to each Steam	n Generator Enclo	osure
	S/G	#1:	CFM	
	S/G	#2:	CFM	
	S/G	#3:	CFM	
	S/G	#4:	CFM	
		Acc Crit: 5	5,625 CFM minim to each S/G encl	ium osure
	• Air F	low to the Pressu	rizer Cubicle	
	Ace	<b>Crit:</b> 3,700 CFN	CFM M minimum	
	• Air F	low to the Reacto	or Vessel Cavity	
	Ace	<b>Crit:</b> 10,000 CF	CFM <sup></sup>	
		• Air F	Air Flow to the Reactor Acc Crit: 10,000 Cl	Air Flow to the Reactor Vessel Cavity CFM Acc Crit: 10,000 CFM minimum

WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 117 of 144
Data Pac	ckage: Page of	Date
.5 Lower C	ompartment Cooler Performance (cont	inued)
B.	LCCs 2A-A, 2C-A, and 2D-B operating	together:
	Total Air Flow to the Lower Compa	artment
	CFM Acc Crit: 146,000 CFM minimum	m
	• Air flow to each Steam Generator	Enclosure
	S/G #1: (	CFM
	S/G #2:	CFM
	S/G #3: (	CFM
	S/G #4:	CFM
	Acc Crit: 5,625 CFM n to each S/G	ninimum enclosure
	• Air Flow to the Pressurizer Cubicle	)
	CFM Acc Crit: 3,700 CFM minimum	
	Air Flow to the Reactor Vessel Ca	vity
	CFM Acc Crit: 10,000 CFM minimum	

WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 118 of 144
Data Pa	ckage: Page of	Date
.5 Lower C	compartment Cooler Performance (co	ntinued)
С	. LCCs 2A-A, 2B-B, and 2D-B operatir	ng together:
	• Total Air Flow to the Lower Com	partment
	CFM Acc Crit: 146,000 CFM minim	num
	Air flow to each Steam Generate	or Enclosure
	S/G #1:	CFM
	S/G #2:	CFM
	S/G #3:	CFM
	S/G #4:	CFM
	Acc Crit: 5,625 CFN to each S/	Ī minimum G enclosure
	• Air Flow to the Pressurizer Cubi	cle
	CFM Acc Crit: 3,700 CFM minimur	n
	• Air Flow to the Reactor Vessel C	Cavity
	CFM Acc Crit: 10,000 CFM minimu	ım

	WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 119 of 144		
	Data Pac	age: Page of	Date		
.5	Lower Compartment Cooler Performance (continued)				
	D.	LCCs 2B-B, 2C-A, and 2D-B operatir	ng together:		
		• Total Air Flow to the Lower Com	partment		
		CFM Acc Crit: 146,000 CFM minim	ium		
		• Air flow to each Steam Generate	or Enclosure		
		S/G #1:	CFM		
		S/G #2:	CFM		
		S/G #3:	CFM		
		S/G #4:	CFM		
		Acc Crit: 5,625 CFN to each S/	1 minimum G enclosure 		
		• Air Flow to the Pressurizer Cubi	cle		
		CFM Acc Crit: 3,700 CFM minimur	n		
		Air Flow to the Reactor Vessel C	Cavity		
		CFM Acc Crit: 10,000 CFM minimu	im -		

	Data	Pack	age:	Page	_ of		Date	
6.5	Lowe	r Co	mpar	tment Coo	ler Perform	ance (continued)		
	[6] <b>RECORD</b> the air flow measurements for each train of LCCs operating together, <b>AND</b>							
		VEF	RIFY	they meet a	acceptance o	criteria:		
		A. Train A: LCCs 2A-A and 2C-A operating together:						
			٠	Total Air Fl	low to the Lo	ower Compartment		
				Acc Crit:	105,000 Cl	CFM FM minimum		
			•	Air Flow to	the Pressur	izer Cubicle		_
				Acc Crit:	2,400 CFN	CFM 1 minimum		
			•	Air Flow to	the Reactor	Vessel Cavity		
				Acc Crit:	6,700 CFM	CFM 1 minimum		
		В.	Traii LCC	n B: s 2B-B and	l 2D-B opera	ating together:		
			٠	Total Air F	low to the Lo	ower Compartment		
				Acc Crit:	105,000 Cl	CFM FM minimum		
			•	Air Flow to	the Pressur	izer Cubicle	-	
				Acc Crit:	2,400 CFN	CFM 1 minimum		
			•	Air Flow to	the Reactor	Vessel Cavity		
				Acc Crit:	6,700 CFN	CFM 1 minimum		

	WBN Unit 2	Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 121 of 144
	Data Pa	ackage: Page of	Date
6.5	Lower	Compartment Cooler Performance (cont	inued)
	[7] <u> </u>	<b>RECORD</b> the following data obtained during Frain A LCCs (2A-A and 2C-A operating tog Data Sheets 1 & 3:	g operation of ether) on
		Motor Current	
		Motor Voltage	
		Atmospheric conditions	
	[8] [	<b>RECORD</b> the following data obtained during Frain B LCCs (LCCs 2B-B and 2D-B operati Data Sheets 2 & 4:	g operation of ing together) on
		Motor Current	
		Motor Voltage	
		Atmospheric conditions	
	[9] (	CALCULATE the Motor Horsepower at Des HPDD) for each LCC using Data Sheets 1 t	ign Density through 4.

	WBN Unit 2		Lower Compartment Coolers	2-PTI-030H-01 Rev. 0000 Page 122 of 144		
	Data	Pack	cage: Page of	Date		
6.5	Lowe	er Co	ued)			
	[10]	[10] <b>RECORD</b> the HPDD of each LCC, <b>AND</b>				
		<b>VE</b> I Nar	<b>RIFY</b> they are less than or equal to the LCC meplate Horsepower:	C Motor		
		Α.	2-CCU-30-74, CNTMT LOWER COMPAR COOLER 2A-A	RTMENT		
			HP Acc Crit: 56 HP maximum			
		B.	2-CCU-30-75, CNTMT LOWER COMPAR COOLER 2B-B	RTMENT		
			HP			
			Acc Crit: 56 HP maximum			
		C.	2-CCU-30-77, CNTMT LOWER COMPAR COOLER 2C-A	RTMENT		
			НР			
			Acc Crit: 56 HP maximum			
		D.	2-CCU-30-78, CNTMT LOWER COMPAR COOLER 2D-B	RTMENT		
			HP			

Acc Crit: 56 HP maximum

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Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

# 7.0 POST PERFORMANCE ACTIVITY

NOTE							
Post-pe	Post-performance steps may be performed in any order unless otherwise stated and should be completed as close in time as practicable to the end of the instruction performance.						
	[1]	REM the fo	<b>OVE</b> the switched jumpers installed in step 4.3[11] from locations:				
	[	[1.1]	Labeled TS-1: In SSPS Train-A Output Cabinet 2-R-48, at TB615, between Pt. 11 (2340VL) and Pt. 12 (Wire CNA1). (Drawing 45N2676-4)				
				1st			
			-	CV			
	[	[1.2]	Labeled TS-2: In SSPS Train-B Output Cabinet 2-R-51, at TB615, between Pt. 11 (Wire 2435VL) and Pt. 12 (Wire CNB1). (Drawing 45N2677-4)				
			(	1st			
			-	CV			
	[2]	<b>NOTI</b> syste	<b>FY</b> the Unit 2 US/SRO/SM of the test completion and m alignment.				
	[3]	<b>NOTI</b> syste	<b>FY</b> the Unit 1 US/SRO/SM of the test completion and m alignment.				
8.0	REC	CORDS					
	A.	QA Rec	cords				
		Comple	eted Test Package				
	В.	Non-QA	A Records				
		None					

### Appendix A (Page 1 of 1)

## **TEST PROCEDURES/INSTRUCTIONS REFERENCE REVIEW**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

# NOTES

1) Additional copies of this table may be made as necessary.

2) Initial and date indicates review has been completed for impact.

PROCEDURE/ INSTRUCTION	<b>REVISION/CHANGES</b>	IMPACT Yes/No	INITIAL AND DATE. (N/A for no change)
GTM-05			
FSAR			
Section 9.2.1			
Section 9.4.7			
Table 14.2-1, Sh 4 & 5			
Table 14.2-1, Sh 38 & 39			
WBN2-30RB-4002			
G-37			
2-TSD-30H-1			
2-PTI-030L-01			
2-PTI-067-02-A			
2-PTI-067-02-B			
2-PTI-067-03			
MI-57.002			
SSD-2-LPT-67-84			
SSD-2-LPT-67-100			
SSD-2-LPT-67-92			
SSD-2-LPT-67-108			
VM-F180-3066			

### Appendix B (Page 1 of 1)

## TEMPORARY CONDITION LOG

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

### NOTES

1) Additional copies of this table may be made as necessary.

2) These steps will be N/A'd if no temporary condition existed.

ITEM	TEMPORARY CONDITION		PERFORMED	RETURNED TO NORMAL		
No.	DESCRIPTION		Performed By/Date CV By/Date	Step No.	Returned By/Date CV By/Date	
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				1		

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# Appendix C (Page 1 of 2)

# PERMANENT PLANT INSTRUMENTATION LOG

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

INSTRUMENT OR INSTRUMENT	CAL DUE DATE	FILLED AND VENTED <sup>1</sup>	PLACED IN SERVICE <sup>1</sup>	USED QUANTI ACC (	FOR TATIVE CRIT	POST-TEST CAL DATE <sup>2</sup>	POST-TEST CALIBRATION ACCEPTABLE <sup>2</sup>	
LOOP #		INIT/DATE	INIT/DATE	YES	NO		INITIAL/DATE	
2-TE-30-211G		N/A			NO	N/A	N/A	
2-TE-30-211H		N/A			NO	N/A	N/A	
2-TE-30-211I		N/A			NO	N/A	N/A	
2-TE-30-211J		N/A			NO	N/A	N/A	
2-TE-30-211K		N/A			NO	N/A	N/A	
2-TE-30-211L		N/A			NO	N/A	N/A	
2-TE-30-211M		N/A			NO	N/A	N/A	
2-TE-30-211N		N/A			NO	N/A	N/A	
2-FS-30-74A/B		N/A			NO	N/A	N/A	
2-FS-30-74C/D		N/A			NO	N/A	N/A	
2-FS-30-75A/B		N/A			NO	N/A	N/A	
2-FS-30-75C/D		N/A			NO	N/A	N/A	

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# Appendix C (Page 2 of 2)

# PERMANENT PLANT INSTRUMENTATION LOG

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

INSTRUMENT OR INSTRUMENT	CAL DUE DATE	FILLED AND VENTED <sup>1</sup>	PLACED IN SERVICE <sup>1</sup>	USED QUANTI ACC (	FOR TATIVE CRIT	POST-TEST CAL DATE <sup>2</sup>	POST-TEST CALIBRATION ACCEPTABLE <sup>2</sup>
LOOP #		INIT/DATE	INIT/DATE	YES	NO		INITIAL/DATE
2-FS-30-77A/B		N/A			NO	N/A	N/A
2-FS-30-77C/D		N/A			NO	N/A	N/A
2-FS-30-78A/B		N/A			NO	N/A	N/A
2-FS-30-78C/D		N/A			NO	N/A	N/A
2-LPT-67-84		N/A			NO	N/A	N/A
2-LPT-67-92		N/A			NO	N/A	N/A
2-LPT-67-100		N/A			NO	N/A	N/A
2-LPT-67-108		N/A			NO	N/A	N/A

<sup>1</sup> These items may be initialed and dated by personnel performing the task. Instrumentation not required to be filled and vented may be identified as Not Applicable. (N/A)

<sup>2</sup> May be identified as Not Applicable (N/A) if instrument was not used to verify/record quantitative acceptance criteria data.

Date \_\_\_\_\_

# Appendix D (Page 1 of 4)

# ELECTRICAL LINEUP

Data Package: Page \_\_\_\_ of \_\_\_\_

IDENTIFICATION	LOCATION	NOMENCLATURE	POSITION	VERIFIED BY: INITIAL						
	Main Control Room									
2-HS-30-74A	2-M-9	LWR CNTMT CLR A-A	STOP PULL TO LOCK							
2-HS-30-75A	2-M-9	LWR CNTMT CLR B-B	STOP PULL TO LOCK							
2-HS-30-77A	2-M-9	LWR CNTMT CLR C-A	STOP PULL TO LOCK							
2-HS-30-78A	2-M-9	LWR CNTMT CLR D-B	STOP PULL TO LOCK							
2-HS-67-84A	0-M-27A	LWR CNTMT CLR A OUTLET TCV	P AUTO							
2-HS-67-92A	0-M-27A	LWR CNTMT CLR C OUTLET TCV	P AUTO							
2-HS-67-100A	0-M-27A	LWR CNTMT CLR B OUTLET TCV	P AUTO							
2-HS-67-108A	0-M-27A	LWR CNTMT CLR D OUTLET TCV	P AUTO							
		Auxiliary Control Room		·						
2-XS-67-84	2-L-11A	LWR CNTMT CLR A-A ERCW OUTLET TCV	NOR							
2-XS-67-92	2-L-11A	LWR CNTMT CLR C-A ERCW OUTLET TCV	NOR							
2-XS-67-100	2-L-11B	LWR CNTMT CLR B-B ERCW OUTLET TCV	NOR							
2-XS-67-108	2-L-11B	LWR CNTMT CLR D-B ERCW OUTLET TCV	NOR							
2-HS-67-84C	2-L-10	LWR CNTMT CLR A-A ERCW OUTLET TCV	P AUTO							
2-XS-67-92C	2-L-10	LWR CNTMT CLR C-A ERCW OUTLET TCV	P AUTO							
2-HS-67-100C	2-L-10	LWR CNTMT CLR B-B ERCW OUTLET TCV	P AUTO							
2-HS-67-108C	2-L-10	LWR CNTMT CLR D-B ERCW OUTLET TCV	P AUTO							

# Appendix D (Page 2 of 4)

# ELECTRICAL LINEUP

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

IDENTIFICATION	LOCATION	NOMENCLATURE	POSITION	VERIFIED BY: INITIAL	
	480V Shutdown Board Room 2A				
2-BKR-30-74	480V SHUTDOWN BOARD 2A1-A, Compartment 7C	LOWER COMPT COOLER 2A-A (2-CCU-30-74)	DISCONNECTED		
2-HS-30-74C	480V SHUTDOWN BOARD 2A1-A, Compartment 5A	LOWER COMPT COOLER 2A-A	Αυτο		
2-XS-30-74	480V SHUTDOWN BOARD 2A1-A, Compartment 5A	LOWER COMPT COOLER 2A-A	NORMAL		
2-BKR-30-77	480V SHUTDOWN BOARD 2A2-A, Compartment 7D	LOWER COMPT COOLER 2C-A (2-CCU-30-77)	DISCONNECTED		
2-HS-30-77C	480V SHUTDOWN BOARD 2A2-A, Compartment 5A	LOWER COMPT COOLER 2C-A	AUTO		
2-XS-30-77	480V SHUTDOWN BOARD 2A2-A, Compartment 5A	LOWER COMPT COOLER 2C-A	NORMAL		
	480	0V Shutdown Board Room 2B			
2-BKR-30-75	480V SHUTDOWN BOARD 2B1-B, Compartment 7D	LOWER COMPT COOLER 2B-B (2-CCU-30-75)	DISCONNECTED		
2-HS-30-75C	480V SHUTDOWN BOARD 2B1-B, Compartment 5A	LOWER COMPT COOLER 2B-B	Αυτο		
2-XS-30-75	480V SHUTDOWN BOARD 2B1-B, Compartment 5A	LOWER COMPT COOLER 2B-B	NORMAL		
2-BKR-30-78	480V SHUTDOWN BOARD 2B2-B, Compartment 7D	LOWER COMPT COOLER 2D-B (2-CCU-30-78)	DISCONNECTED		
2-HS-30-78C	480V SHUTDOWN BOARD 2B2-B, Compartment 5A	LOWER COMPT COOLER 2D-B	Αυτο		
2-XS-30-78	480V SHUTDOWN BOARD 2B2-B, Compartment 5A	LOWER COMPT COOLER 2D-B	NORMAL		

Appendix D (Page 3 of 4)

# ELECTRICAL LINEUP

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

IDENTIFICATION	LOCATION	NOMENCLATURE	POSITION	VERIFIED BY: INITIAL
		Vital Battery Board Room I		•
2-BKR-235-1/7	120V AC VITAL INSTR POWR BOARD 2-I BKR 7	AUX RELAY RACK 2-R-76 BUS A	ON	
2-BKR-235-1/8	120V AC VITAL INSTR POWR BOARD 2-I BKR 8	AUX RELAY RACK C BUS TO PNL 2-R-76	ON	
2-BKR-235-1/11	120V AC VITAL INSTR POWR BOARD 2-I BKR 11	AUX RELAY RACK A BUS TO PNL 2-R-75	ON	
		Vital Battery Board Room II		
2-BKR-235-2/6	120V AC VITAL INSTR POWR BOARD 2-II BKR 6	AUX RELAY RACK 2-R-76 BUS B	ON	
2-BKR-235-2/9	120V AC VITAL INSTR POWR BOARD 2-II BKR 9	AUX RELAY RACK B BUS TO PNL 2-R-75	ON	
		Vital Battery Board Room III		
0-FU-236-3/A21	125V DC BATT BD III CKT A21	LOWER CONTAINMENT VENT CLR A SUPPLY VALVE	INSTALLED*	
0-FU-236-3/A23	125V DC BATT BD III CKT A23	LOWER CONTAINMENT VENT CLR C SUPPLY VALVE	INSTALLED*	
2-BKR-235-3/26	120V AC VITAL INSTR POWR BOARD 2-III BKR 26	BOP INST RACK 1-R-141 1-R-144/146/147 BUS C	ON	
2-BKR-235-3/40	120V AC VITAL INSTR POWR BOARD 2-III BKR 40	AUX RELAY RACK SSPS AUX RELAYS	ON	
	N	/ital Battery Board Room IV		
0-FU-236-4/A9	125V DC BATT BD IV CKT A9	LOWER CONTAINMENT VENT CLR B SUPPLY VALVE	INSTALLED*	
0-FU-236-4/A11	125V DC BATT BD IV CKT A11	LOWER CONTAINMENT VENT CLR D SUPPLY VALVE	INSTALLED*	
2-BKR-235-4/26	120V AC VITAL INSTR POWR BOARD 2-IV BKR 26	AUX BLD INSTR BUS B TO PNL 2-L-26	ON	
2-BKR-235-4/35	120V AC VITAL INSTR POWR BOARD 2-IV BKR 35	AUX RELAY RACK SSPS AUX RELAYS	ON	

## Appendix D (Page 4 of 4)

## **ELECTRICAL LINEUP**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

IDENTIFICATION	LOCATION	NOMENCLATURE	POSITION	VERIFIED BY: INITIAL
	Uni	t 2 Auxiliary Instrument Room		
2-FU-275-R75/L23 2-FU-275-R75/L24	2-R-75 Row L, Fuse 23 & 24	LOWER COMPARTMENT COOLER UNITS 2A-A, 2B-B, 2C-A & 2D-B ANNUNCIATION SEPERATION RELAYS	INSTALLED*	
2-FU-275-R75/M7 2-FU-275-R75/M8	2-R-75 Row M, Fuse 7 & 8	LOWER COMPARTMENT COOLER UNITS 2A-A, 2B-B, 2C-A & 2D-B ANNUNCIATION SEPERATION RELAYS	INSTALLED*	
2-FU-275-R75/M9 2-FU-275-R75/M10	2-R-75 Row M, Fuse 9 & 10	LOWER COMPARTMENT COOLER UNITS 2A-A, 2B-B, 2C-A & 2D-B ANNUNCIATION SEPERATION RELAYS	INSTALLED*	
2-FU-275-R75/M23 2-FU-275-R75/M24	2-R-75 Row M, Fuse 23 & 24	LOWER COMPARTMENT COOLER UNITS 2A-A, 2B-B, 2C-A & 2D-B ANNUNCIATION SEPERATION RELAYS	INSTALLED*	
2-FU-275-R76/I9 2-FU-275-R76/I10	2-R-76 Row I, Fuse 9 & 10	PANEL 2-M-9 MOTOR TRIPOUT ANNUNCIATION SEPARATION RELAY	INSTALLED*	
2-FU-275-R76/I13 2-FU-275-R76/I14	2-R-76 Row I, Fuse 13 & 14	PANEL 2-M-9 MOTOR TRIPOUT ANNUNCIATION SEPARATION RELAY	INSTALLED*	
2-FU-275-R76/N1 2-FU-275-R76/N2	2-R-76 Row N, Fuse 1 & 2	MOTOR TRIPOUT BUZZER FOR PANELS M-1 THROUGH M-6 AND M-9	INSTALLED*	

\* When installing fuses with actuators, ensure that the actuating rod is oriented correctly to provide for proper alarm initiation and visual indication.

#### Appendix E (Page 1 of 5)

#### **Background Calculations**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

Measurement uncertainties for parameters measured in this test must be incorporated into the test acceptance criteria

### 1.0 Motor Design Density Horsepower

From Reference 2.2C.4, the Lower Compartment Cooler Fan Motors' Nameplate Horsepower is 60 HP and the Motor Horsepower at Design Density conditions cannot exceed the Nameplate Horsepower.

Assuming each measured current and voltage values are within  $\pm 2.4\%$  as given in Reference 2.2C.1, then the adjusted Motor Horsepower and Design Density (HPDD) can be calculated:

$$HPDD = HPTD \times \frac{D_{D}}{D_{T}}$$

Test Density  $(D_T) = \left(\frac{530}{460 + T}\right) \times \left(\frac{B}{29.92}\right) \times 0.075 \frac{lb}{ft^3}$   $D_D = Design Density$ 

Where T = Temperature (°F) and B = Barometric Pressure (inHg) at time of test.

$$HPTD = \frac{I_{AVG} \times V_{AVG} \times PF \times E}{431} \qquad Power(P) = V_{AVG} \times I_{AVG} \qquad \frac{PF \times E}{431} = Constant(C)$$

Where PF = Power Factor and E = Efficiency, which are both constants.

Therefore:

 $HPDD = P \times C \times \frac{D_{D}}{D_{T}}$ 

# Appendix E (Page 2 of 5)

### **Background Calculations**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

# **1.0** Motor Design Density Horsepower (continued)

The Operating Current and Voltage can be calculated:

$$\begin{aligned} \text{Operating Current} \left( I_{\text{AVG}} \right) &= \frac{\Sigma I}{3} = \frac{I_{\text{A}} + I_{\text{B}} + I_{\text{C}}}{3} \\ I_{\text{A}} &= I_{\text{AM}} \pm 0.024 I_{\text{AM}} = I_{\text{AM}} (1 \pm 0.024) \\ I_{\text{B}} &= I_{\text{BM}} \pm 0.024 I_{\text{BM}} = I_{\text{BM}} (1 \pm 0.024) \\ I_{\text{C}} &= I_{\text{CM}} \pm 0.024 I_{\text{CM}} = I_{\text{CM}} (1 \pm 0.024) \\ I_{\text{C}} &= I_{\text{CM}} \pm 0.024 I_{\text{CM}} = I_{\text{CM}} (1 \pm 0.024) \\ I_{\text{C}} &= 1.024 I_{\text{CM}} \text{ or } 0.976 I_{\text{CM}} \end{aligned}$$

Where  $I_{AM}$ ,  $I_{BM}$ , and  $I_{CM}$  are measured currents in A, B, and C phases, respectively.

$$I_{AVG} = \frac{I_{AM}(1 \pm 0.024) + I_{BM}(1 \pm 0.024) + I_{CM}(1 \pm 0.024)}{3} = \frac{(1 \pm 0.024) \cdot (I_{AM} + I_{BM} + I_{CM})}{3}$$

And by applying that same logic to the measured Voltage (V):

$$V_{AVG} = \frac{V_{ABM} (1 \pm 0.024) + V_{ACM} (1 \pm 0.024) + V_{BCM} (1 \pm 0.024)}{3} = \frac{(1 \pm 0.024) \cdot (V_{ABM} + V_{ACM} + V_{BCM})}{3}$$

### Appendix E (Page 3 of 5)

### **Background Calculations**

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

### 1.0 Motor Design Density Horsepower (continued)

Assuming that the Barometric Pressure (B) and Temperature (T) are within  $\pm 0.4\%$  of range (27-31 inHg) and  $\pm 2^{\circ}$ F, respectively, as given in Reference 2.2C.1:

0.4% of 4 inHg = 0.016 inHg

The Maximum percent error for the Barometric Pressure would occur at the lower end of the scale with an indicated Barometric Pressure of 27.00 inHg and an actual Barometric Pressure of 27.016 inHg.

$$1 - \left(\frac{27.00}{27.16}\right) = 0.00059$$

This equates to a maximum error of 0.059%

The Maximum percent error for the Temperature would occur at the lower end of the scale with an indicated Temperature of 32°F and an actual Temperature of 34°F

$$1 - \left(\frac{32}{34}\right) = 0.0588$$

This equates to a maximum error of 5.88%

Looking at the equation for Test Density  $(D_T)$ :

Assuming that the numerator has an error equal to that of Barometric Pressure (B), and the denominator has an error equal to that of Temperature (T), the total maximum error of Test Density will be:

$$\frac{0.059\%}{5.88\%} = 1.00\%$$

Therefore,  $D_T$  may only be 99.0% of its actual value.

### Appendix E (Page 4 of 5)

### **Background Calculations**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

### **1.0 Motor Design Density Horsepower (continued)**

$$HPDD = P \times C \times \frac{D_D}{D_T}$$

 $D_D$  is also a constant and can be accounted for in C, so:

$$HPDD = P \times C \times \frac{1}{D_{T}} = \frac{P \times C}{D_{T}}$$

Maximum calculated Power would be:

$$\frac{V_{AVG}}{0.976} \times \frac{I_{AVG}}{0.976} = \frac{P}{0.9526}$$
$$HPDD = \frac{P \times C}{0.9526 \times 0.990D_{T}} = \frac{P \times C}{0.9431D_{T}}$$

Therefore:

$$\frac{P \times C}{D_{T}} = 0.9431 \times HPDD$$

and since HPDD cannot be greater than 60 HP:

.

$$\frac{P \times C}{D_{T}} = 0.9431 \times HPDD = 0.9431 \times (60) = 56.59$$

Therefore the Acceptance Criteria for Motor Horsepower at Design Density will be adjusted to **less than or equal to 56 HP** to conservatively account for instrument inaccuracies.

## Appendix E (Page 5 of 5)

### **Background Calculations**

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

### 2.0 Air Flow Measurements

This instruction does not perform any air flow measurements; these are done in GTM-05, HVAC Air Balance. The uncertainties associated with taking Air Flow measurements will be handled under GTM-05 and will not be calculated in this instruction.

WBN Unit 2	L	ower Compartme	nt Coolers	2-PTI-030H- Rev. 0000 Page 137 of	01 144
	Low	Data (Page er Compartment C	Sheet 1 e 1 of 2) Cooler 2A-A Per	formance	
Data Pac	kage: F	Page of			Date
LOWE	R COMP		ER 2A-A MOTOF	R OPERATING	DATA
PH	IASE	CURRENT (Amps)		PHASE	VOLTAGE (Volts)
	A			A to B	
	В			A to C	
	С			B to C	
Sum of Current	s (Σl) =	· · · · · · · · · · · · · · · · · · ·	Sum of Vo	ltages (ΣV) = _	
		TEST CO	ONDITIONS		
Design Density (	$D_D) = 0$	.078 lb/ft <sup>3</sup>	Barometric	Pressure (B)	= inHg
Power Factor (I	PF) = _8	2.5%	Ambient Te	mperature (T)	= <u>°F</u>
Efficiency	(E) = <u>9</u>	4.7%			
Average Current (	I <sub>AVG</sub> ) =	<u>ΣI</u> = 3	3 =		Amps
Average Voltage (	V <sub>AVG</sub> ) =	<u>ΣV</u> 3	=		Volts

### Data Sheet 1 (Page 2 of 2)

### Lower Compartment Cooler 2A-A Performance

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

Calculate the Air Density during the test:

Calculate the Motor Horsepower at Test Density (HPTD)

 $HPDTD = \frac{I_{AVG} \times V_{AVG} \times PF \times E}{431}$  $HPTD = \frac{\times \times 0.825 \times 0.947}{431} = \underline{\qquad} HP$ 

Calculate the Motor Horsepower at Design Density (HPDD)





Calculations Performed By: \_\_\_\_\_ Calculations Verified By: \_\_\_\_\_

WBN Unit 2		Lower Compartment Coolers		2-PTI-030H- Rev. 0000 Page 139 of	01 <sup>-</sup> 144
		Da (Pa	ta Sheet 2 age 1 of 2)		
<b>D</b> (	ا م	Lower Compartmen	t Cooler 2B-B Pe	rformance	-
Data	i Packag	e: Page of			Date
LC	WER CO	OMPARTMENT COC	DLER 2B-B MOTO	ROPERATING	) DATA
	PHASI	E CURRENT (Amps)		PHASE	VOLTAGE (Volts)
	А			A to B	
	В			A to C	
	С			B to C	
Sum of Cu	rrents (Σ	l) =	Sum of Ve	oltages ( $\Sigma V$ ) =	
Design Dens	sity (D <sub>D</sub> ) :	TEST = <u>0.078 lb/ft<sup>3</sup></u>	CONDITIONS Barometri	c Pressure (B)	= <u>inHg</u>
Power Fac	ency (E)	= <u>82.5%</u> = <u>94.7%</u>	Ampient 16	emperature (1)	=
Average Curr	ent (I <sub>AVG</sub> )	$) = \frac{\Sigma I}{3} =$	==	·	Amps
Verage Volta	age (V <sub>AVC</sub>	$S_{3} = \frac{\Sigma V}{3} =$	3		Volts

#### Data Sheet 2 (Page 2 of 2)

#### Lower Compartment Cooler 2B-B Performance

Date \_\_\_\_\_

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Calculate the Air Density during the test:

Test Density  $(D_T) = \left(\frac{530}{460 + T}\right) \times \left(\frac{B}{29.92}\right) \times 0.075 \frac{lb}{ft^3}$  $D_T = \left(\frac{530}{460 + 1}\right) \times \left(\frac{29.92}{29.92}\right) \times 0.075 = \frac{lb}{ft^3}$ 

Calculate the Motor Horsepower at Test Density (HPTD)

$$HPDTD = \frac{I_{AVG} \times V_{AVG} \times PF \times E}{431}$$
$$HPTD = \frac{\times \times 0.825 \times 0.947}{431} = \underline{\qquad} HP$$

Calculate the Motor Horsepower at Design Density (HPDD)

$$HPDD = HPTD \times \frac{D_{D}}{D_{T}}$$

$$HPDD = \underline{\qquad} \times \frac{0.078 \frac{lb}{ft^3}}{\underline{\qquad} b ft^3} = \underline{\qquad} HP$$

Calculations Performed By: \_\_\_\_\_ Calculations Verified By: \_\_\_\_\_

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

## LOWER COMPARTMENT COOLER 2C-A MOTOR OPERATING DATA

PHASE	CURRENT (Amps)
А	
В	
С	

•	PHASE	VOLTAGE (Volts)
	A to B	
	A to C	
	B to C	

Sum of Currents ( $\Sigma$ I) = \_\_\_\_\_

Sum of Voltages ( $\Sigma$ V) =

**TEST CONDITIONS** 



### Data Sheet 3 (Page 2 of 2)

## Lower Compartment Cooler 2C-A Performance

Data Package: Page \_\_\_\_\_ of \_\_\_\_\_

Date \_\_\_\_\_

Calculate the Air Density during the test:

Test Density 
$$(D_T) = \left(\frac{530}{460 + T}\right) \times \left(\frac{B}{29.92}\right) \times 0.075 \frac{lb}{ft^3}$$
  
$$D_T = \left(\frac{530}{460 + 1}\right) \times \left(\frac{29.92}{29.92}\right) \times 0.075 = \frac{lb}{ft^3}$$

Calculate the Motor Horsepower at Test Density (HPTD)

$$HPDTD = \frac{I_{AVG} \times V_{AVG} \times PF \times E}{431}$$
$$HPTD = \frac{\times \times 0.825 \times 0.947}{431} = \_\_\__HP$$

Calculate the Motor Horsepower at Design Density (HPDD)

WBN Unit 2	L	Lower Compartment Coolers		2-PTI-030H-01 Rev. 0000 Page 143 of 144	
	Low	Data (Page ver Compartment C	Sheet 4 e 1 of 2) cooler 2D-B Perf	ormance	
Data	Package: I	Page of			Date
LC		PARTMENT COOLE	R 2D-B MOTOR		ΟΑΤΑ
ſ	PHASE	CURRENT (Amps)		PHASE	VOLTAGE (Volts)
-	Α			A to B	
	В			A to C	
	С			B to C	
Sum of Cu	rrents ( $\Sigma$ I) =	· · · · · · · · · · · · · · · · · · ·	Sum of Vol	tages (ΣV) =	
		TEST CC	DNDITIONS		
Design Density ( $D_D$ ) = 0.078 lb/ft <sup>3</sup>		0.078 lb/ft°	Barometric Ambient Ten	Pressure $(B) =$	inHg ∘⊏
Efficie	ency (E) = 9	94.7%			I
Average Curr	ent (I <sub>AVG</sub> ) =	<u>ΣI</u> 3	= 3		Amps
Average Volta	age (V <sub>AVG</sub> ) =	$\frac{\Sigma V}{3} =$	= 3		Volts
## Data Sheet 4 (Page 2 of 2)

## Lower Compartment Cooler 2D-B Performance

Data Package: Page \_\_\_\_ of \_\_\_\_

Date \_\_\_\_\_

Calculate the Air Density during the test:

Calculate the Motor Horsepower at Test Density (HPTD)

$$HPDTD = \frac{I_{AVG} \times V_{AVG} \times PF \times E}{431}$$
$$HPTD = \frac{\times 0.825 \times 0.947}{431} = \underline{\qquad} HP$$

Calculate the Motor Horsepower at Design Density (HPDD)

$$HPDD = HPTD \times \frac{D_{D}}{D_{T}}$$

$$HPDD = \underline{\qquad} \times \frac{0.078 \frac{lb}{ft^3}}{\underline{\qquad} b/ft^3} = \underline{\qquad} HP$$

Calculations Performed By: \_\_\_\_\_ Calculations Verified By: \_\_\_\_\_