WBN2Public Resource

From: Boyd, Desiree L [dlboyd@tva.gov]
Sent: Friday, October 29, 2010 8:43 AM

To: Wiebe, Joel; Poole, Justin; Raghavan, Rags; Milano, Patrick; Campbell, Stephen

Cc: Crouch, William D; Hamill, Carol L; Boyd, Desiree L

Subject: TVA letter to NRC_10-28-10_2-PTI-268-01 transmittal to NRC

Attachments: 10-28-10_2-PTI-268-01 transmittal to NRC_Final.pdf

Please see attached letter that was sent to NRC today.

Thank You,

-*-*-*-*-Désíreé L. Boyd

WBN 2 Licensing Support Sun Technical Services

dlboyd@tva.gov

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From: Boyd, Desiree L

Created By: dlboyd@tva.gov

Recipients:

"Crouch, William D" <wdcrouch@tva.gov>

Tracking Status: None

"Hamill, Carol L" <clhamill@tva.gov>

Tracking Status: None

"Boyd, Desiree L" <dlboyd@tva.gov>

Tracking Status: None

"Wiebe, Joel" < Joel. Wiebe@nrc.gov>

Tracking Status: None

"Poole, Justin" < Justin. Poole@nrc.gov>

Tracking Status: None

"Raghavan, Rags" < Rags. Raghavan@nrc.gov>

Tracking Status: None

"Milano, Patrick" <Patrick.Milano@nrc.gov>

Tracking Status: None

"Campbell, Stephen" < Stephen. Campbell@nrc.gov>

Tracking Status: None

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October 28, 2010

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-268-01	0	Permanent Hydrogen Mitigation System

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

Sincerely,

Masoud Bailestaní

Watts Bar Unit 2 Vice President

U.S. Nuclear Regulatory Commission Page 2 October 28, 2010

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 U.S. Nuclear Regulatory Commission Page 3 October 28, 2010

bcc (Enclosure):

Stephen Campbell
U.S. Nuclear Regulatory Commission
MS 08H4A
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

Loren R. Plisco, Deputy Regional Administrator for Construction U. S. Nuclear Regulatory Commission Region II Marquis One Tower 245 Peachtree Center Ave., NE Suite 1200 Atlanta, Georgia 30303-1257

WATTS BAR NUCLEAR PLANT UNIT 2 STARTUP

UNIT 2 STARTUP				
TITLE: Permanent Hydrogen Mitigation System				
Instruction No: 2-PTI-268-01				
Revision No: _0000				
PREPARED BY: Regina Ballard & CONCA BALLAND DATE 8 12 10 PRINT NAME/ SIGNATURE REVIEWED BY: A. Blake Lowe 1 A. B Calu Sur DATE 8/12/10				
REVIEWED BY: A. Blake Lowe 10. B Calve 100. DATE 8/12/10 PRINT NAME/ SIGNATURE				
INSTRUCTION APPROVAL				
JTG MEETING NO: 2-10-010				
APPROVED BY: DATE 10)14112 DATE 10)16110				
APPROVED BY: DATE 10)16(10) PREOPERATIONAL STARTUP MANAGER				
TEST RESULTS APPROVAL				
JTG MEETING NO:				
JTG CHAIRMAN: DATE				
APPROVED BY: DATE				
PREOPERATIONAL STARTUP MANAGER				

SMP-8.0, R4, Administration of Preoperational Test Instructions, Appendix B

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Unit 2	SYSTEM	Rev. 0000
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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	10/19/10	ALL	INITIAL ISSUE

WBN Unit 2

PERMANENT HYDROGEN MITIGATION 2-PTI-268-01 SYSTEM

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1.0 INTRODUCTION

1.1 Test Objectives

The purpose of this test instruction is to verify that the Hydrogen Igniters will provide ignition sources of a specified minimum surface temperature without exceeding a designated maximum input power requirement by energizing each igniter circuit and verifying the voltage, current, and igniter surface temperature.

1.2 Scope

- A. This test demonstrates the functionality of the Permanent Hydrogen Mitigation system by ensuring the igniters reach a minimum surface temperature of 1700°F and the power requirement for each Hydrogen Igniter circuit does not exceed 663 watts.
- B. The 68 igniters are equally divided into 2 redundant groups, each with independent and separate controls, power supplies and locations.
 - 1. 38 Train A and Train B igniters located in the lower compartment of containment.
 - 2. 30 Train A and Train B igniters located throughout the upper compartment of containment and the upper plenum of the ice condenser.

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2.0 REFERENCES

2.1 Performance References

- A. SMP-9.0, Conduct of Test
- B. SPP-10.11, Control of Ignition Sources (Hot Work)

2.2 Developmental References

- A. Final Safety Analysis Report (FSAR)
 - 1. FSAR-Amendment 100
 - a. FSAR Table 14.2-1, Sheet 40 of 89, Combustible Gas Control Systems Test Summary
 - b. FSAR Chapter 6, Section 6.2.5A, Hydrogen Mitigation System

B. Drawings

1. Flow Diagrams

None

- 2. Electrical Drawings
 - 45W2770-7, Rev 4, Wiring Diagrams 480V Cont & Aux Bldg Vent Bd 2A1-A Connection Diagrams, AD DRA 52348-031, Rev 0 DRA 52348-032, Rev 0
 - 45B2770-9E, Rev 5, Wiring Diagrams 480V C & A Bldg Vt Bd 2A1-A, Conn Diag - Compt 9E, AD DRA 53290-010, Rev 0
 - 45W2772-7, Rev 4, Wiring Diagrams 480V Cont & Aux Bldg Vent Bd 2B1-B Connection Diagrams, AD DRA 52348-033, Rev 0 DRA 52348-034, Rev 0
 - d. 45B2772-12C, Rev 4, Wiring Diagrams 480V C & A Bldg Vt Bd 2B1-B, Conn Diag.- Compt 12C, AD DRA 53290-037, Rev 0

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2.2 Developmental References (continued)

- e. 45W2649-2, Rev 10, Wiring Diagrams Unit Control Board, Panel 2-M-10 Connection Diagrams, Sheet 2, AD
- f. 2-45W2656-4, Rev 0, Wiring Diagrams Unit Control Board, Panel 2-M-21 Connection Diagrams, Sheet 4, CC DRA 52315-077, Rev 0
- g. 2-45W756-2, Rev 0, Wiring Diagrams 480V Cont & Aux Bldg Vt Bd 2A1-A Single Line, Sheet 2, CC
- h. 2-45W756-6, Rev 0, Wiring Diagrams 480V Cont & Aux Bldg Vt Bd 2B1-B Single Line, Sheet 2, CC
- i. 2-45W760-268-1, Rev 0, Wiring Diagram Permanent Hydrogen Mitigation Sys Schematic Diagrams, CC

DRA 52348-028, Rev 0

DRA 52348-029, Rev 0

DRA 52348-030, Rev 0

DRA 53290-050, Rev 0

DRA 53290-069, Rev 0

- j. 2-45B655-5C, Rev 0, Main Control Room Annunciator Inputs Window Box, XA-55-5C, CC
- k. 2-45B655-E5C, Rev 0, Electrical Annunciator Window Box XA-55-5C Engraving (Contract Number 75554B), CC
- 3. Mechanical

None

4. Logic/Control

None

- 5. Other
 - 45W872-2, Rev 23, Conduit & Grounding Floor El. 716.0 Ceiling Plan,
 AD
 DRA 52348-002, Rev 0
 - 45W872-8, Rev 27, Conduit & Grounding El. 716.0 Details, Sheet 6, AD DRA 52348-003

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2.2 Developmental References (continued)

- c. 45W872-9, Rev 33, Conduit & Grounding Floor El. 716.0 Details, Sheet 7, AD DRA 52348-004
- d. 45W872-10, Rev 36, Conduit & Grounding Floor El. 716.0 Details, Sheet 8, AD DRA 52348-005
- e. 45W872-11, Rev 28, Conduit & Grounding Floor El. 716.0 Details, Sheet 9, AD DRA 52348-006
- f. 45W872-16, Rev 17, Conduit & Grounding Floor El. 716.0 Details, Sheet 14, AD DRA 52348-007
- g. 45W872-18, Rev 25, Conduit & Grounding Floor El. 716.0 Details,
 Sheet 16, AD
 DRA 52348-008
- h. 45W872-19, Rev 23, Conduit & Grounding Floor El. 716.0 Details,
 Sheet 17, AD
 DRA 52348-009
- 45W874-2, Rev 22, Conduit & Grounding Floor El. 744.5 Ceiling Plan, AD DRA 52348-010
- j. 45W874-9, Rev 9, Conduit & Grounding Floor El. 744.5 Details, Sheet 7, AD DRA 52348-011
- k. 45W876-2, Rev 23, Conduit & Grounding El. 756.63 Ceiling Plan, AD DRA 52348-012
- 45W876-4, Rev 18, Conduit & Grounding El. 756.63 Details, Sheet 2, AD DRA 52348-013
- m. 45W876-7, Rev 19, Conduit & Grounding El. 756.63 Details, Sheet 5 DRA 52348-014
- 45W876-8, Rev 13, Conduit & Grounding El. 756.63 Details, Sheet 6,
 AD
 DRA 52348-015

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2.2 Developmental References (continued)

- 45W876-9, Rev 6, Conduit & Grounding El. 756.63 Details, AD DRA 52348-016
- p. 45W876-10, Rev 7, Conduit & Grounding El. 756.63 Details, AD DRA 52348-017
- q. 45W876-11, Rev 4, Conduit & Grounding El. 756.63 Details, AD DRA 52348-018
- r. 45W876-12, Rev 7, Conduit & Grounding El. 756.63 Details, AD DRA 52348-019
- s. 45W878-2, Rev 8, Conduit & Grounding Dome Plan, AD DRA 52348-020

6. Vendor Drawings

- a. 193-3442-4, Rev D, Igniter Assembly, Tayco Engineering Inc., Contract 829810
- b. F9275200001S, Rev 4, 3 Phase Line Regulator 3RTF-480/120-208-30, Power Conversion Products Inc, Contract 830802.
- c. 7003-51051-53, Rev B, Electrical Schematic 120V Distribution Cabinet, Nutherm International Inc. Contract 830137.

C. Vendor Manuals

- 1. WBN-VTM-N431-0090, Rev 5, Vendor Technical Manual for Nuthern International Power Distribution Panels, Contract Number 81-827910
- 2. WBN-VTM-P319-0010, Rev 0, Vendor Technical Manual for Power Conversion Products, Inc. Three-Phase Regulating Transformers, Contract Number 82K05-00830802

D. Documents

- 1. 2-TSD-268-01, Rev 0, Permanent Hydrogen Mitigation System Test Scoping Document
- 2. WBN2-83-4001, Rev 0, System Description for Combustible Gas Control System
- 3. L44850214800, Letter to NRC from TVA concerning surveillance requirements for demonstrating the functionality of hydrogen igniters

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3.0 PRECAUTIONS AND LIMITATIONS

- A. Standard precautions shall be followed for working around energized electrical equipment in accordance with TVA Safety Manual Procedure 1021.
- B. Steps may be repeated if all components cannot be tested in a step. However, if the test has been exited, prerequisite steps must be re-verified and a Chronological Test Log (CTL) entry made.
- C. Component tags and labels may differ slightly (abbreviations, punctuation, letter case, etc.) from the description given in this test. If this situation occurs, it shall NOT be considered a test deficiency or procedure deviation. It shall be documented in the CTL and reconciled by way of a plant labeling request or drawing discrepancy or single-line date typo change in the procedure as appropriate.
- D. All wires removed/lifted from a terminal shall be identified and taped or covered with an insulator to prevent personnel or equipment hazard and possible spurious initiations. The wires should be grouped together and labeled with the work implementing document number that required them to be lifted if left unattended.
- E. All terminal points and connection are to be considered energized. Instrumentation must be used to determine if the circuits are de-energized.
- F. All open problems are to be tracked by a corrective action document and entered on the appropriate system punchlist.
- G. Problems identified during the test shall be annotated on the Chronological Test Log (CTL) from SMP-9.0 including a description of the problem, the procedure step when/where the problem was identified, corrective action steps taken to resolve the problem, and the number of the corrective action document, if one was required.
- H. Observe all Radiation Protection (RP) requirements when working in or near radiological areas.
- I. Figures 1 through 5 provide locations of the 68 hydrogen igniters in the containment. The figures may be marked up during test conduct, as required. For example, as each igniter is located and the required temperature measurement is completed, place a check mark at the igniter location symbol.
- J. Ensure no adverse impact to the operation of Unit 1 structures, systems or components.

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4.0	PREREQUISITE ACTIONS								
		NOTE	·····						
Preli	minary act	ion steps may be performed in any order with 1	Fest Directors approval.						
4.1	Prelim	inary Actions							
		VERIFY the test/performance copy of this Preo Instruction (PTI) is the current revision and as r test person assisting in this test has the current	needed, each						
	[2] OBTAIN copies of the applicable forms from the latest revision of SMP-9.0, AND								
		ATTACH to this PTI for use during the performa	ance of this PTI.						
		ENSURE changes to the references listed on "and Instruction Reference Review", Appendix Areviewed, and determined NOT to adversely afterformance.	v, have been						
		VERIFY current revision and change paper for drawings has been reviewed and determined Nadversely affect the test performance, AND							
		ATTACH documentation of current drawing revaled change paper that were reviewed to the da							
		EVALUATE Open items in Watts Bar Integrate Equipment List (WITEL), AND	d Task						
		ENSURE that they will NOT adversely affect th performance.	e test						
		ENSURE required Component Testing has been prior to start of test.	en completed						
		ENSURE outstanding Design Change Notices Engineering Document Construction Release (I Temporary Alterations (TA's) do NOT adversely	EDCR's) or						

•	WBN Jnit 2	PERMANENT HYDROGEN MITIGATION SYSTEM	2-PTI-268-01 Rev. 0000 Page 11 of 123			
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1	Preliminary Actions (continued)					
	C	NSURE a review of outstanding Clearances hoordinated with Operations for impact to the tearformance, AND				
	R	ECORD in Appendix B, Temporary Condition	Log if required.			
	te se	ERIFY Measuring and Test Equipment (M&TE st performance has been (as required) filled, service and recorded on Measuring and Test E SMP-9.0.	vented, place in			
	Δ	Subsection 6.1				

B.	Subsection 6.2	
C.	Subsection 6.3	

- [10] **VERIFY** Measuring and Test Equipment (M&TE) calibration due dates will support the completion of this test performance.
 - A. Subsection 6.1
 - B. Subsection 6.2
 - C. Subsection 6.3
- [11] **VERIFY** the following system is operational and have been placed in service to the extent necessary to perform this test:
 - A. System 214, 480V Control & Aux (C&A) Bldg Vent Boards 2-MCC-214-A1-A (Board 2A1-A), 2-BKR-214-B1/9E-B
 - B. System 214, 480V Control & Aux (C&A) Bldg Vent Boards 2-MCC-214-B1-B (Board 2B1-B), 2-BKR-214-B1/12C-B
- [12] **ENSURE** components contained within the boundaries of this test are under the jurisdictional control of Preoperational Startup Engineering (PSE) or Plant Operations.

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4.1	Preliminary Actions (continued)						
	[13] VERIFY System 55, Annunciator and Sequential Events Recording System, TBK switches and the Master switch associated with the following annunciator window inputs are in the ON position, AND						
			RIFY the annunciator window, 2-XA-55-5C/1uts are ENABLED.	02-C, software —			
			NOTE		-		
view o	of each i	gnite	stibles within two feet of igniters during preter or (profile or oblique) should be noted as requirements as well as requirements for lado	uired to facilitate			
	[14]		RFORM a pretest walkdown on equipment to ure no conditions exist that will impact test p				
		A.	Subsection 6.1	_			
		B.	Subsection 6.2	_			
		C.	Subsection 6.3	-			
	[15]	Hyd	SURE a Hot Work Permit which allows ener drogen Igniters in the Containment has beer e Control of Ignition Sources (Hot Work), SF	obtained.			
	[16]		NDUCT a pretest briefing with Test and Opersonnel in accordance with SMP-9.0.	erations —			
	[17]		SURE that communications are available for ting is to be conducted.	r areas where			

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4.2	-	Special Tools, Measuring and Test Equipment (M&TE), Parts, and Supplies						
	[1]	ENSURE the following are available:						
	•	2 Jumpers						
		ENSURE following M&TE or equivalent is avail heir calibration due dates, AND	able and within					
		RECORD the M&TE data on SMP-9.0, Measur Equipment (M&TE) Log.	ing and Test					
	•	Voltmeter, Minimum Range 0 to 150 Vac, Accuracy ±0.5 Volts.	Required					

Optical/Infrared Pyrometer, Mikron Model - M90V or Equivalent, Minimum Range 1500° to 2000°F, Required

Optical/Infrared Pyrometer, Minimum Range 1420° to

Clamp-on Ammeter, Minimum Range 0 to 10 amperes,

2500°F, Required Accuracy ±34°F.

Required Accuracy ±0.25 amperes.

Accuracy ±34°F.

PERMANENT HYDROGEN MITIGATION 2-PTI-268-01

WBN

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.3	Field	Prep	parations	
	[1]		SURE the following Handswitches at MCR F in the OFF position:	Panel 2-M-10
		A.	Handswitch 2-HS-268-73, H2 IGNITERS 0	BROUP A
		B.	Handswitch 2-HS-268-74, H2 IGNITERS 0	BROUP B
	[2]		RIFY that required ladders and/or scaffolding equired) to facilitate thermography measure	
		A.	Subsection 6.2	
		B.	Subsection 6.3	
	[3]	VE	RIFY that each Hydrogen Igniters has been	energized

continuously for a period of at least 24 hours and allowed to cool to ambient temperature following installation to ensure that any protective factory coating has been burned off the

RECORD method of this verification in the Chronological Test

igniters, AND

Log. (Subsections 6.2 & 6.3)

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4.4	Approva	als and Notifications		
		BTAIN permission of the Preoperational Start art the test.	tup Manager to	
		Preoperational Startup Signature	Manager	Date
	[2] O	BTAIN Shift Manager's (SM) authorization.		

SM Signature

Date

WBN Unit 2

PERMANENT HYDROGEN MITIGATION SYSTEM

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5.0 ACCEPTANCE CRITERIA

NOTE

Acceptance criteria values of 1325 Watts and 1700°F as listed in the Permanent Hydrogen Mitigation System Test Scoping Document, 2-TSD-268-01, are adjusted to account for M&TE tolerances.

- [1] Each igniter maintains a minimum surface temperature of 1734°F while not exceeding 1275 Watts, the maximum power requirement for two igniters.
 - A. Train A Igniters: Steps 6.2[64] and 6.2[65]
 - B. Train B Igniters: Steps 6.3[64] and 6.3[65]
- [2] Record the voltage and current for each circuit at the Distribution Panels:
 - A. Train A Distribution Panel, 2-DPL-268-1-A: Step 6.2[29]
 - B. Train B Distribution Panel, 2-DPL-268-2-B: Step 6.3[29]
- [3] Each train can be energized from the Main Control Room.
 - A. Train A Igniters 6.1[165.2]
 - B. Train B Igniters 6.1[169.2]
- [4] Indicating lights indicate the correct status of each igniter train in the Main Control Room.
 - A. Train A Igniters Steps 6.1[164] and 6.1[165.1]
 - B. Train B Igniters Steps 6.1[168] and 6.1[169.1]
- [5] Annunciator "PHMS PWR DIST. PNL. A/B UV/BKR TRIP" alarms on:
 - [5.1] Handswitch in "ON" and undervoltage.
 - A. Train A: Steps 6.1[46.1] and 6.1[46.2]
 - B. Train B: Steps 6.1[48.1] and 6.1[48.2]

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5.0 ACCEPTANCE CRITERIA (continued)

- [5.2] Distribution Panel supply circuit breaker open.
 - A. Train A Distribution panel, 2-DPL-268-1-A, supply breaker, 2-BRK-268-1/M1-A: Step 6.1[122]
 - B. Train B Distribution panel 2-DPL-268-2-B, supply breaker, 2-BKR-268-2/M1-B: Step 6.1[124]
- [5.3] Distribution Panel output circuit breaker 1 through 18 trip.
 - [5.3.1] Train A Distribution panel, 2-DPL-268-1-A, output breakers:
 - A. 2-BKR-268-1/1-A: Step 6.1[50]
 - B. 2-BKR-268-1/2-A: Step 6.1[52]
 - C. 2-BKR-268-1/3-A: Step 6.1[54]
 - D. 2-BKR-268-1/4-A: Step 6.1[56]
 - E. 2-BKR-268-1/5-A: Step 6.1[58]
 - F. 2-BKR-268-1/6-A: Step 6.1[60]
 - G. 2-BKR-268-1/7-A: Step 6.1[62]
 - H. 2-BKR-268-1/8-A: Step 6.1[64]
 - I. 2-BKR-268-1/9-A: Step 6.1[66]
 - J. 2-BKR-268-1/10-A: Step 6.1[68]
 - K. 2-BKR-268-1/11-A: Step 6.1[70]
 - L. 2-BKR-268-1/12-A: Step 6.1[72]
 - M. 2-BKR-268-1/13-A: Step 6.1[74]
 - N. 2-BKR-268-1/14-A: Step 6.1[76]
 - O. 2-BKR-268-1/15-A: Step 6.1[78]
 - P. 2-BKR-268-1/16-A: Step 6.1[80]

WBN
Unit 2

PERMANENT HYDROGEN MITIGATION SYSTEM

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5.0 ACCEPTANCE CRITERIA (continued)

Q. 2-BKR-268-1/17-A: Step 6.1[82]

R. 2-BKR-268-1/18-A: Step 6.1[84]

[5.3.2] Train B - Distribution panel, 2-DPL-268-2-B, output breakers:

A. 2-BKR-268-2/1-B:

Step 6.1[86]

B. 2-BKR-268-2/2-B:

6.1[88]

C. 2-BKR-268-2/3-B:

6.1[90]

D. 2-BKR-268-2/4-B:

6.1[92]

E. 2-BKR-268-2/5-B:

6.1[94]

F. 2-BKR-268-2/6-B:

6.1[96]

G. 2-BKR-268-2/7-B:

6.1[98]

H. 2-BKR-268-2/8-B:

6.1[100]

I. 2-BKR-268-2/9-B:

6.1[102]

J. 2-BKR-268-2/10-B:

6.1[104]

K. 2-BKR-268-2/11-B:

6.1[106]

L. 2-BKR-268-2/12-B:

6.1[108]

M. 2-BKR-268-2/13-B:

6.1[110]

N. 2-BKR-268-2/14-B:

6.1[112]

O. 2-BKR-268-2/15-B:

6.1[114]

P. 2-BKR-268-2/16-B:

6.1[116]

Q. 2-BKR-268-2/17-B:

6.1[118]

R. 2-BKR-268-2/18-B:

6.1[120]

WBN Unit 2			PERMANENT HYDROGEN MITIGATION SYSTEM	2-PTI-268-01 Rev. 0000 Page 19 of 123			
	Data	Pack	kage: Page of	Da	nte		
6.0	PERFORMANCE						
6.1	PHM	S Co	ontrol and Alarm Function Tests				
	[1]		SURE precautions and limitations in Section iewed.	a 3.0 have been			
	[2]		RIFY prerequisites listed in Section 4.0 for S	Subsection 6.1			
	[3]	2-B SY	ISURE the following PHMS Supply Breaker, BKR-268-1-A, PERMANENT HYDROGEN METERS 2-DXF-268-1-A, at Compt 9E of Boate OFF position.	IITIGATION			
					CV		
	[4]	2-B SY	ISURE the following PHMS Supply Breaker, BKR-268-2-B, PERMANENT HYDROGEN M STEM 2-DXF-268-2-B, at Compt 12C of Box OFF position.	IITIGATION			
					CV		
			NOTE				

Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A is located at COL A12V, EL 782'.

ENSURE Breaker 2-BKR-268-1/1-A, Breaker 1 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON [5] position.

CV

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	Data I	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[6]	ENSURE Breaker 2-BKR-268-1/2-A, Breaker 2 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	
			CV
	[7]	ENSURE Breaker 2-BKR-268-1/3-A, Breaker 3 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	
			CV
	[8]	ENSURE Breaker 2-BKR-268-1/4-A, Breaker 4 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	
			—CV
	[9]	ENSURE Breaker 2-BKR-268-1/5-A, Breaker 5 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	
	[10]	ENSURE Breaker 2-BKR-268-1/6-A, Breaker 6 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	
	[11]	ENSURE Breaker 2-BKR-268-1/7-A, Breaker 7 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.	CV
		•	
			CV

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	Data F	Package: Page of	Date _	
6.1	PHMS	Control and Alarm Function Tests (con	tinued)	
	[12]	ENSURE Breaker 2-BKR-268-1/8-A, Break Mitigation Distribution Panel 2-DPL-268-1-position.		
			-	CV
	[13]	ENSURE Breaker 2-BKR-268-1/9-A, Break Mitigation Distribution Panel 2-DPL-268-1-position.		
			-	CV
	[14]	ENSURE Breaker 2-BKR-268-1/10-A, Breamitigation Distribution Panel 2-DPL-268-1-position.		
			-	CV
	[15]	ENSURE Breaker 2-BKR-268-1/11-A, Breaking Mitigation Distribution Panel 2-DPL-268-1-position.		
			_	
	[16]	ENSURE Breaker 2-BKR-268-1/12-A, Bream Mitigation Distribution Panel 2-DPL-268-1-position.		CV
	[17]	ENSURE Breaker 2-BKR-268-1/13-A, Breaking Distribution Panel 2-DPL-268-1-position.		CV
			-	
			-	CV

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6.1 PHMS Control and Alarm Function Tests (continued) [18] ENSURE Breaker 2-BKR-268-1/14-A, Breaker 14 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [19] ENSURE Breaker 2-BKR-268-1/15-A, Breaker 15 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position.		Data	Package: Page of	Date
Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [19] ENSURE Breaker 2-BKR-268-1/15-A, Breaker 15 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	6.1	PHM	S Control and Alarm Function Tests (continued)	
[19] ENSURE Breaker 2-BKR-268-1/15-A, Breaker 15 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON		[18]	Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	n
Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON				CV
[20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON		[19]	Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	n
[20] ENSURE Breaker 2-BKR-268-1/16-A, Breaker 16 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON				
Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON		เกตา	ENSUDE Broaker 2-BKD-268-1/16 A Broaker 16 at Hydroge	
[21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON		[20]	Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	
[21] ENSURE Breaker 2-BKR-268-1/17-A, Breaker 17 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON position. CV [22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON				——CV
[22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON		[21]	Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	
[22] ENSURE Breaker 2-BKR-268-1/18-A, Breaker 18 at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON				——CV
		[22]	Mitigation Distribution Panel 2-DPL-268-1-A, is in the ON	

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6.1	PHMS	S Control and Alarm Function Tests (continue	d)	
		NOTE		
Hydı	rogen Mit	igation Distribution Panel 2-DPL-268-2-B is locat	ed at COL A12V, EL 782'.	
	[23]	ENSURE Breaker 2-BKR-268-2/1-B, Breaker 1 Mitigation Distribution Panel 2-DPL-268-2-B, is position.		
	[24]	ENSURE Breaker 2-BKR-268-2/2-B, Breaker 2 Mitigation Distribution Panel 2-DPL-268-2-B, is position.	, ,	
	[25]	ENSURE Breaker 2-BKR-268-2/3-B, Breaker 3 Mitigation Distribution Panel 2-DPL-268-2-B, is position.		
	[26]	ENSURE Breaker 2-BKR-268-2/4-B, Breaker 4 Mitigation Distribution Panel 2-DPL-268-2-B, is position.		
	[27]	ENSURE Breaker 2-BKR-268-2/5-B, Breaker 5 Mitigation Distribution Panel 2-DPL-268-2-B, is position.		
			CV	

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6.1	PHMS	Control and Alarm Function Tests (continued)	
	[28]	ENSURE Breaker 2-BKR-268-2/6-B, Breaker 6 at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	
	[29]	ENSURE Breaker 2-BKR-268-2/7-B, Breaker 7 at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	
	[30]	ENSURE Breaker 2-BKR-268-2/8-B, Breaker 8 at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	
	[31]	ENSURE Breaker 2-BKR-268-2/9-B, Breaker 9 at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	
	[32]	ENSURE Breaker 2-BKR-268-2/10-B, Breaker 10 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	CV n
	[33]	ENSURE Breaker 2-BKR-268-2/11-B, Breaker 11 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	CV n
			CV

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	Data I	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[34]	ENSURE Breaker 2-BKR-268-2/12-B, Breaker 12 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	n
	[35]	ENSURE Breaker 2-BKR-268-2/13-B, Breaker 13 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON	CV n
		position.	
	[36]	ENSURE Breaker 2-BKR-268-2/14-B, Breaker 14 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	CV n
	[37]	ENSURE Breaker 2-BKR-268-2/15-B, Breaker 15 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	CV n
	[38]	ENSURE Breaker 2-BKR-268-2/16-B, Breaker 16 at Hydroge	CV
		Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	
	[39]	ENSURE Breaker 2-BKR-268-2/17-B, Breaker 17 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	n
			CV

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	Data I	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[40]	ENSURE Breaker 2-BKR-268-2/18-B, Breaker 18 at Hydroge Mitigation Distribution Panel 2-DPL-268-2-B, is in the ON position.	n
			CV
	[41]	ENSURE AC POWER Breaker CB1, 2-BKR-268-1A-A, AC CIRCUIT BREAKER PHMS GROUP A, at Panel 2-DXF-268-1-A, is in the ON position.	
			CV
	[42]	ENSURE AC POWER Breaker CB1, 2-BKR-268-2A-B, AC CIRCUIT BREAKER PHMS GROUP B, at Panel 2-DXF-268-2-B, is in the ON position.	
			CV
	[43]	ENSURE Hydrogen Mitigation Distribution Panel MAIN Breaker, 2-BKR-268-1/M1-A, GROUP A PHMS ISOL BKR, at Panel 2-DPL-268-1-A, is in the ON position.	
	[44]	ENSURE Hydrogen Mitigation Distribution Panel MAIN Breaker, 2-BKR-268-2/M1-B, GROUP B PHMS ISOL BKR, at Panel 2-DPL-268-2-B, is in the ON position.	CV :
			CV

NOTE

Annunciator Window, 2-XA-55-5C/102-C, PHMS PNL A/B UV/BKR TRIP is located in the Main Control Room on panel 2-M-5.

[45] **VERIFY** 2-XA-55-5C/102–C, PHMS PWR DIST PNL A/B UV/BKR TRIP, is CLEAR.

 WBN Unit 2					
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PHMS Co	ntrol and Alarm Function Tests (continue	ed)			
	ACE and HOLD handheld jumper across po auxiliary contact at 480V C&A Bldg Vent Bo				
			CV		
[46.1]	VERIFY 2-XA-55-5C/102-C, PHMS PWR UV/BKR TRIP, ALARMS. (Acc Crit)	R DIST PNL A/B			
[46.2]	VERIFY Unit 2 Event Display Monitor ind PHMS POWER DIST PNL A UV/BKR TRALARM (Red). (Acc Crit)				
	MOVE handheld jumper across points 6 and iliary contact at 480V C&A Bldg Vent Bd 2A				
			CV		
[47.1]	VERIFY 2-XA-55-5C/102-C, PHMS PWR UV/BKR TRIP, CLEARS.	R DIST PNL A/B			
[47.2]	VERIFY Unit 2 Event Display Monitor ind PHMS POWER DIST PNL A UV/BKR TF NORMAL (Blue).				
	ACE and HOLD handheld jumper across po auxiliary contact at 480V C&A Bldg Vent Bo C.				

VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B

VERIFY Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in

UV/BKR TRIP, ALARMS. (Acc Crit)

ALARM (Red). (Acc Crit)

[48.1]

[48.2]

CV

WBN Unit 2		PERMANENT HYDROGEN MITIGATION SYSTEM	2-PTI-268-01 Rev. 0000 Page 28 of 123
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6.1	PHMS Co	ntrol and Alarm Function Tests (continue	d)
	aux	MOVE handheld jumper across points 6 and ciliary contact at 480V C&A Bldg Vent Bd 2B ^o C, Breaker 2-BKR-268-2-B.	
			CV
	[49.1]	VERIFY 2-XA-55-5C/102-C, PHMS PWR W/BKR TRIP, CLEARS.	DIST PNL A/B
	[49.2]	VERIFY Unit 2 Event Display Monitor indi PHMS POWER DIST PNL B UV/BKR TR NORMAL (Blue).	
		NOTES	
1)	Section 6.1[5	0] to 6.1[85] verifies the breakers at Panel 2	-DPL-268-1-A TRIP and
2)	Each of the f	ollowing breakers is equipped with a Red TR n turned clockwise.	IP Button which trips the
		IP Breaker 2-BKR-268-1/1-A, (Breaker 1), at PPL-268-1-A, by way of Red TRIP Button. (A	
		, j	,
			CV
	[50.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIS UV/BKR TRIP, ALARMS.	ST PNL A/B
	·	B. Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIP ALARM (Red).	
		SET Breaker 2-BKR-268-1/1-A, (Breaker 1), DPL-268-1-A.	at Panel

CV

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	Data Pac	age: Page _	of	Date	
6.1	PHMS Co	ntrol and Alar	rm Function Tests (continu	ed)	
	[51.1]	VERIFY the	e following:		
			55-5C/102-C, PHMS PWR D R TRIP, CLEARS.	IST PNL A/B	
		POWE	Event Display Monitor indica R DIST PNL A UV/BKR TRII IAL (Blue).		
			BKR-268-1/2-A, (Breaker 2), a by way of Red TRIP Button. (
					CV
	[52.1]	VERIFY the	e following:		
			55-5C/102-C, PHMS PWR DI CR TRIP, ALARMS.	ST PNL A/B	
		POWE	Event Display Monitor indica R DIST PNL A UV/BKR TRII M (Red).		
		BET Breaker 2 PL-268-1-A.	2-BKR-268-1/2-A, (Breaker 2), at Panel 	
				_	CV
	[53.1]	VERIFY the	e following:		•
			55-5C/102-C, PHMS PWR D KR TRIP, CLEARS.	IST PNL A/B	
		POWE	Event Display Monitor indica ER DIST PNL A UV/BKR TRII IAL (Blue).		
			BKR-268-1/3-A, (Breaker 3), a by way of Red TRIP Button.		
					CV

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	Data Pac	kage:	Page of	Date	.
5.1	PHMS Co	ntrol a	and Alarm Function Tests (continue	ed)	
	[54.1]	VEF	RIFY the following:		
		Α.	2-XA-55-5C/102-C, PHMS PWR DIS UV/BKR TRIP, ALARMS.	ST PNL A/B	
		B.	Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIP ALARM (Red).		
		SET B DPL-26	reaker 2-BKR-268-1/3-A, (Breaker 3), 8-1-A.	, at Panel	
					CV
	[55.1]	VEF	RIFY the following:		
		A.	2-XA-55-5C/102-C, PHMS PWR DIS UV/BKR TRIP, CLEARS.	ST PNL A/B	
		B.	Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIP NORMAL (Blue).		
			aker 2-BKR-268-1/4-A, (Breaker 4), a 8-1-A, by way of Red TRIP Button.(A		
					CV

[56.1] **VERIFY** the following:

- A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.
- B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).

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	Data Pacl	tage: Page of	Date
.1	PHMS Co	ntrol and Alarm Function Tes	its (continued)
		SET Breaker 2-BKR-268-1/4-A PL-268-1-A.	, (Breaker 4), at Panel
			CV
	[57.1]	VERIFY the following:	
		•	MS PWR DIST PNL A/B
		UV/BKR TRIP, CLEARS	<u></u>

[58] TRIP Breaker 2-BKR-268-1/5-A, (Breaker 5), at Panel 2-DPL-268-1-A, by way of Red TRIP Button. (Acc Crit) CV [58.1] **VERIFY** the following: 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red). [59] RESET Breaker 2-BKR-268-1/5-A, (Breaker 5), at Panel 2-DPL-268-1-A. CV [59.1] **VERIFY** the following: 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue).

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PHMS	Control	and Alarm Function Tests (continued)	
		eaker 2-BKR-268-1/6-A, (Breaker 6), at Panel 68-1-A, by way of Red TRIP Button. (Acc Crit)	
			CV
[60	.1] V E	ERIFY the following:	
	A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	B.	Unit 2 Event Display Monitor indicates 102-C PH POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).	MS
	RESET 2-DPL-2	Breaker 2-BKR-268-1/6-A, (Breaker 6), at Panel 68-1-A.	
			CV
[61	.11 V E	ERIFY the following:	
•	Α.	_	
	В.	Unit 2 Event Display Monitor indicates 102-C PH POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue).	MS
		eaker 2-BKR-268-1/7-A, (Breaker 7), at Panel 68-1-A, by way of Red TRIP Button. (Acc Crit)	
[62	.1] V I	ERIFY the following:	CV
	Α.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	В.	Unit 2 Event Display Monitor indicates 102-C PH POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).	IMS

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	Data I	Packa	ge: I	Page	_ of	Date
6.1	PHMS	6 Cont	rol a	nd Alarm	Function Tests (continued)	
	[63]	RESE 2-DPI			3KR-268-1/7-A, (Breaker 7), at Panel	
						CV
	īes	3:1]	VED	NEV the fo	ollowing	OV
	Į O C). I]	VER	RIFY the fo	Diowing.	
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, CLEARS.	
			B.		rent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in _ (Blue).	is
	[64]				R-268-1/8-A, (Breaker 8), at Panel way of Red TRIP Button. (Acc Crit)	
						CV
	[6 <u>/</u>	4.1]	VFR	RIFY the fo	ollowing:	
	Į.]			•	
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, ALARMS.	
			B.		vent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in (Red).	1S
	[65] RESET B 2-DPL-26				3KR-268-1/8-A, (Breaker 8), at Panel	
						CV
	[6	5.1]	VER	RIFY the fo	ollowing:	
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, CLEARS.	
			B.		vent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in L (Blue).	1S

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	Data I	Packa	ge:	Page	_ of	Date _	
6.1	PHMS	S Cont	rol a	nd Alarm	Function Tests (continued)		
	[66]				R-268-1/9-A, (Breaker 9), at Panel vay of Red TRIP Button. (Acc Crit)	_	
						_	CV
	[66	3.1]	VEF	RIFY the fo	llowing:		
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, ALARMS.	_	
			B.		ent Display Monitor indicates 102-C PHN DIST PNL A UV/BKR TRIPPED is in Red).	MS -	
	[67]			reaker 2-Bl 8-1-A.	KR-268-1/9-A, (Breaker 9), at Panel	_	
						_	CV
	ro-	7 41	\	31537 th - f-	Unavida		OV
	[67	7.1]	VE	RIFY the fo	bliowing:		
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, CLEARS.		
			B.		ent Display Monitor indicates 102-C PHN DIST PNL A UV/BKR TRIPPED is in . (Blue).	MS _	
	[68]				R-268-1/10-A, (Breaker 10), at Panel way of Red TRIP Button. (Acc Crit)	_	
						_	
							CV
	[68	8.1]	VE	RIFY the fo	ollowing:		
			A.		5C/102-C, PHMS PWR DIST PNL A/B TRIP, ALARMS.	_	
			B.		ent Display Monitor indicates 102-C PHNDIST PNL A UV/BKR TRIPPED is in Red).	MS -	

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Unit	2

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Data Pa	ckage: Page of Da	te
PHMS (Control and Alarm Function Tests (continued)	
	RESET Breaker 2-BKR-268-1/10-A, (Breaker 10), at Panel -DPL-268-1-A.	
		CV
[69.1	I] VERIFY the following:	
	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
	 B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue). 	
	RIP Breaker 2-BKR-268-1/11-A, (Breaker 11), at Panel 2-DPL-268-1-A, by way of Red TRIP Button. (Acc Crit)	
		CV
[70.1	1] VERIFY the following:	.
•	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	4-4
	B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).	
	RESET Breaker 2-BKR-268-1/11-A, (Breaker 11), at Panel 2-DPL-268-1-A.	
		CV
[71.1	1] VERIFY the following:	CV
· ·	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
	B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue).	

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	Data	Packa	ge: l	Page of	Date
.1	PHMS	S Cont	rol a	nd Alarm Function Tests (continued)	
	[72]			ker 2-BKR-268-1/12-A, (Breaker 12), at Panel -1-A, by way of Red TRIP Button. (Acc Crit)	
					CV
	[7:	2.1]	VER	IFY the following:	
			A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHM POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).	IS
	[73]	RESE 2-DPI		eaker 2-BKR-268-1/12-A, (Breaker 12), at Panel -1-A.	
					CV
	[7:	3.1]	VER	IFY the following:	
			A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHM POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue).	1S
	[74]			ker 2-BKR-268-1/13-A, (Breaker 13), at Panel 8-1-A, by way of Red TRIP Button. (Acc Crit)	
	ſ>	4 47	\	IFM the Sellender or	CV
	Į/·	4.1]		A VA SE SO (400 C. DUMO DIAD DICT DNI. A/D.	
			A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHM POWER DIST PNL A UV/BKR TRIPPED is in ALARM (Red).	18

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	Data P	ackag	e: Page of	Date	
1	PHMS	Contro	ol and Alarm Function Tests (continue	ed)	
			r Breaker 2-BKR-268-1/13-A, (Breaker 1 -268-1-A.	3), at Panel	<u>.</u> .
					CV
	[75.	.1] \	VERIFY the following:		
		/	A. 2-XA-55-5C/102-C, PHMS PWR DIS UV/BKR TRIP, CLEARS.	ST PNL A/B	
		Ē	 Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIP NORMAL (Blue). 		
			Breaker 2-BKR-268-1/14-A, (Breaker 14) -268-1-A, by way of Red TRIP Button.(A		
					CV
	[76	.1] \	VERIFY the following:		
		,	A. 2-XA-55-5C/102-C, PHMS PWR DIS UV/BKR TRIP, ALARMS.	ST PNL A/B	
		i	 Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIP ALARM (Red). 		
			T Breaker 2-BKR-268-1/14-A, (Breaker 1 -268-1-A.	4), at Panel	
					CV

[77.1] **VERIFY** the following:

- A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.
- B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL A UV/BKR TRIPPED is in NORMAL (Blue).

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	Data	Packa	ge:	Page		_ (of	Date_	
.1	PHM	S Cont	rol a	and Alar	rm i	١F	Function Tests (continued)		
	[78]						-268-1/15-A, (Breaker 15), at Panel ay of Red TRIP Button. (Acc Crit)	_	***************************************
								_	CV
	[7	8.1]	VEI	RIFY the	∍ fol	ollo	lowing:		
			A.				C/102-C, PHMS PWR DIST PNL A/B RIP, ALARMS.	-	
			B.		R	DI	ent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in Red).	IS -	
	[79]			reaker 2- 8-1-A.	?-Bŀ	3KI	(R-268-1/15-A, (Breaker 15), at Panel	-	
								-	CV
	[7	9.1]	VEI	RIFY the	e fo	ollo	lowing:		
			A.				C/102-C, PHMS PWR DIST PNL A/B RIP, CLEARS.	_	
			В.		R [D	ent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in (Blue).	IS -	
	[80]						-268-1/16-A, (Breaker 16), at Panel ay of Red TRIP Button. (Acc Crit)	-	
								-	CV
	[8]	80.1]	VE	RIFY the	e fo	ollo	lowing:		CV
	_		A.				C/102-C, PHMS PWR DIST PNL A/B RIP, ALARMS.	<u>.</u>	
			B.		ER [D	ent Display Monitor indicates 102-C PHM DIST PNL A UV/BKR TRIPPED is in Red).	IS	

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	Data I	Packa	ge:	Page	of	Date	
6.1	PHMS	Cont	rol a	nd Alarm	Function Tests (continued)		
	[81]			eaker 2-Bl 3-1-A.	KR-268-1/16-A, (Breaker 16), at I	Panel	
						CV	,
	[81	1.1]	VER	RIFY the fo	llowing:		
			A.		C/102-C, PHMS PWR DIST PNI RIP, CLEARS.	. A/B 	
			B.		ent Display Monitor indicates 102 DIST PNL A UV/BKR TRIPPED is (Blue).		
	[82]				-268-1/17-A, (Breaker 17), at Pa ay of Red TRIP Button. (Acc C i		
						— CV	
	[82	2.1]	VEF	RIFY the fo	llowing:		
			A.		5C/102-C, PHMS PWR DIST PNI FRIP, ALARMS.	_ A/B 	
			B.		ent Display Monitor indicates 102 DIST PNL A UV/BKR TRIPPED is Red).		
	[83]			reaker 2-B 8-1-A.	KR-268-1/17-A, (Breaker 17), at l	^o anel ——	
						— CV	
	[8]	3.1]	VFF	RIFY the fo	llowing:	O V	r
	ĮO	J. 1]	А .		5C/102-C, PHMS PWR DIST PNI	Δ/R	
			<i>1</i> 7.		TRIP, CLEARS.	_ , v D	
			B.		ent Display Monitor indicates 102 DIST PNL A UV/BKR TRIPPED is (Blue).		

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Data P	ackaç	e: Page of	Date	
PHMS	Contr	ol and Alarm Function Tests (continu	ed)	
		Breaker 2-BKR-268-1/18-A, (Breaker 18) -268-1-A, by way of Red TRIP Button.(* *	
				CV
[84.	1]	VERIFY the following:		
		A. 2-XA-55-5C/102-C, PHMS PWR DI- UV/BKR TRIP, ALARMS.	ST PNL A/B	
		B. Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIF ALARM (Red).		
		T 2-BKR-268-1/18-A, (Breaker 18), at Pa -268-1-A.	anel	
				CV
[85	.1]	VERIFY the following:		
		A. 2-XA-55-5C/102-C, PHMS PWR DI UV/BKR TRIP, CLEARS.	ST PNL A/B	
		B. Unit 2 Event Display Monitor indicate POWER DIST PNL A UV/BKR TRIFNORMAL (Blue).		
		NOTES		

- Each of the following breakers is equipped with a Red TRIP Button which trips the breaker when turned clockwise.

[86]	TRIP Breaker 2-BKR-268-2/1-B, (Breaker 1), at Panel 2-DPL-268-2-B, by way of Red TRIP Button. (Acc Crit)	

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Data	Packa	ge:	Page	_ of			Date _	
PHM:	S Cont	trol a	and Alarm	Function To	ests (contin	ued)		
8]	6.1]	VE	RIFY the f	ollowing:				
		A.		-5C/102-C, PI TRIP, ALARI		IST PNL A/B	_	· · · · · · · · · · · · · · · · · · ·
		B.		DIST PNL B		ates 102-C PH PPED is in	MS -	
[87]			-BKR-268 8-2-B.	-2/1-B, (Breal	ker 1), at Par	nel	_	
							_	CV
[8	7.1]	VEI	RIFY the f	ollowing:				
		A.		-5C/102-C, P TRIP, CLEAI		IST PNL A/B	-	
		В.		DIST PNL B		ates 102-C PH IPPED is	MS -	
[88]				R-268-2/2-B, way of Red T			-	
							_	
[8]	8.1]	VFI	RIFY the f	ollowing:				CV
0]	.O. 1 ₁	Α.	2-XA-55	J		IST PNL A/B	-	
		B.		DIST PNL B		ates 102-C PH IPPED is in	MS -	
[89]			-BKR-268 8-2-B.	-2/2-B, (Brea	ker 2), at Par	nel		
	Z-DF	L-Z0	'U - ∠"D.				-	

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6.1	PHM	S Con	trol a	and Alarm Function Tests (continued)	
	[8]	9.1]	VE	RIFY the following:	
			A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue).	
	[90]			aker at 2-BKR-268-2/3-B, (Breaker 3), at Panel 8-2-B, by way of Red TRIP Button. (Acc Crit)	
					CV
	[9	0.1]	VE	RIFY the following:	Ov
	Ĺ	o ₁		2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B	
			A.	UV/BKR TRIP, ALARMS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	
	[91]			-BKR-268-2/3-B, (Breaker 3), at Panel 8-2-B.	
					CV
	[9	1.1]	VE	RIFY the following:	
			A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
			B.	Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue).	S
	[92]			aker 2-BKR-268-2/4-B, (Breaker 4), at Panel 68-2-B, by way of Red TRIP Button. (Acc Crit)	
					CV

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	Data Pad	kage: Page of	Date
6.1		ontrol and Alarm Function Tests (continue	-d)

Data i aoit	ago ago or	<i></i>
PHMS Cor	ntrol and Alarm Function Tests (continued)	
[92.1]	VERIFY the following:	
	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	14
	B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	
	SET 2-BKR-268-2/4-B, (Breaker 4), at Panel PL-268-2-B.	
		CV
[93.1]	VERIFY the following:	
	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
	 B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue). 	
	P Breaker 2-BKR-268-2/5-B, (Breaker 5), at Panel PL-268-2-B, by way of Red TRIP Button. (Acc Crit)	
		CV
[94.1]	VERIFY the following:	
	A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	
	SET 2-BKR-268-2/5-B, (Breaker 5), at Panel PL-268-2-B.	
		CV

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6.1	PHMS Cor	trol and Alarm Function Tests (contir	nued)
	[95.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR I UV/BKR TRIP, CLEARS.	DIST PNL A/B
		B. Unit 2 Event Display Monitor indic POWER DIST PNL B UV/BKR TF NORMAL (Blue).	
		Breaker at 2-BKR-268-2/6-B, (Breaker L-268-2-B, by way of Red TRIP Button.	
			CV
	[96.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR I UV/BKR TRIP, ALARMS.	DIST PNL A/B
		 B. Unit 2 Event Display Monitor indices POWER DIST PNL B UV/BKR TF ALARM (Red). 	
		ET 2-BKR-268-2/6-B, (Breaker 6), at Pa L-268-2-B.	nnel
			CV
	[97.1]	VERIFY the following:	OV
		A. 2-XA-55-5C/102-C, PHMS PWR I UV/BKR TRIP, CLEARS.	DIST PNL A/B
		B. Unit 2 Event Display Monitor indic POWER DIST PNL B UV/BKR TF NORMAL (Blue).	
		Breaker 2-BKR-268-2/7-B, (Breaker 7) L-268-2-B, by way of Red TRIP Button.	
			CV
			O V

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6.1	PHMS Con	ntrol and Alarm Function Tests (continued)	
	[98.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
		B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	
		SET 2-BKR-268-2/7-B, (Breaker 7), at Panel PL-268-2-B.	
			CV
	[99.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	•
		B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue).	
		P Breaker 2-BKR-268-2/8-B, (Breaker 8), at Panel PL-268-2-B, by way of Red TRIP Button. (Acc Crit)	
			CV
	[100.1]	VERIFY the following:	OV
		A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
		B. Unit 2 Event Display Monitor indicates 102-C PHMS POWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	
		SET 2-BKR-268-2/8-B, (Breaker 8), at Panel PL-268-2-B.	····
			CV

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PHMS Cont	trol a	and Alarm Function Tests (continued)	
[101.1]	VEI	RIFY the following:	
	A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
	В.	Unit 2 Event Display Monitor indicates 102-C PHPOWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue).	HMS
		aker 2-BKR-268-2/9-B, (Breaker 9), at Panel 8-2-B, by way of Red TRIP Button. (Acc Crit)	
		•	CV
[102.1]	VEI	RIFY the following:	
	A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	B.	Unit 2 Event Display Monitor indicates 102-C PPPOWER DIST PNL B UV/BKR TRIPPED is in ALARM (Red).	HMS
		-BKR-268-2/9-B, (Breaker 9), at Panel 8-2-B.	
[103.1]	VEI	RIFY the following:	CV
	A.	2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	
	B.	Unit 2 Event Display Monitor indicates 102-C PPOWER DIST PNL B UV/BKR TRIPPED is NORMAL (Blue).	HMS
		aker 2-BKR-268-2/10-B, (Breaker 10), at Panel 8-2-B, by way of Red TRIP Button. (Acc Crit)	<u></u>
		•	

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	Data Packa	age: Pa	ge (of	Date _	
6.1	PHMS Con	trol and	Alarm F	unction Tests (continued)		
	[104.1]	VERIF	Y the folk	owing:		
				C/102-C, PHMS PWR DIST PNL RIP, ALARMS.	. A/B -	
		P		nt Display Monitor indicates 102- ST PNL B UV/BKR TRIPPED is ed).		
		ET 2-BK PL-268-2		10-B, (Breaker 10), at Panel	_	
					-	CV
	[105.1]	VERIF	Y the follo	owing:		
				C/102-C, PHMS PWR DIST PNL RIP, CLEARS.	. A/B -	
		P		nt Display Monitor indicates 102- IST PNL B UV/BKR TRIPPED is Blue).		
				268-2/11-B, (Breaker 11), at Par by of Red TRIP Button. (Acc Cr		
					_	
						CV
	[106.1]	VERIF	Y the follo	owing:		
				C/102-C, PHMS PWR DIST PNL RIP, ALARMS.	. A/B -	
		P		nt Display Monitor indicates 102- IST PNL B UV/BKR TRIPPED is ed).		.
	-	6 ET 2-BK PL-268-2		11-B, (Breaker 11), at Panel	-	
					-	
						CV

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6.1	PHMS Control	and Alaı	rm Function	Tests (continued)		
	[107.1] VE	RIFY the	following:			
	A.		5-5C/102-C R TRIP, CLE	PHMS PWR DIST PNL A EARS.	/B -	
	B.	POWE		y Monitor indicates 102-C . B UV/BKR TRIPPED is	PHMS -	
				2-B, (Breaker 12), at Panel d TRIP Button. (Acc Crit)	-	
					-	CV
	[108.1] V E	RIFY the	following:			
	A.		55-5C/102-C R TRIP, ALA	PHMS PWR DIST PNL A ARMS.	/B -	
	B.	POWE		y Monitor indicates 102-C . B UV/BKR TRIPPED is in		
	[109] RESET 2 2-DPL-20		68-2/12-B, (E	reaker 12), at Panel	_	
					_	CV
	[109.1] VE	RIFY the	e following:			
	A.		55-5C/102-C R TRIP, CLI	, PHMS PWR DIST PNL A EARS.	/B -	
	В.	POWE		y Monitor indicates 102-C . B UV/BKR TRIPPED is	PHMS	
				3-B, (Breaker 13), at Panel d TRIP Button. (Acc Crit)	- -	
					_	
					_	CV

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6.1	PHMS Con	rol and Alarm Function Tests (continued)	
	[110.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIST UV/BKR TRIP, ALARMS.	PNL A/B
		B. Unit 2 Event Display Monitor indicates POWER DIST PNL B UV/BKR TRIPPE ALARM (Red).	
		ET 2-BKR-268-2/13-B, (Breaker 13), at Pane L-268-2-B.	<u> </u>
			CV
	[111.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIST UV/BKR TRIP, CLEARS.	PNL A/B
		B. Unit 2 Event Display Monitor indicates POWER DIST PNL B UV/BKR TRIPPE NORMAL (Blue).	
		Breaker 2-BKR-268-2/14-B, (Breaker 14), at L-268-2-B, by way of Red TRIP Button. (Ac	
			CV
	[112.1]	VERIFY the following:	
		A. 2-XA-55-5C/102-C, PHMS PWR DIST UV/BKR TRIP, ALARMS.	PNL A/B
		B. Unit 2 Event Display Monitor indicates POWER DIST PNL B UV/BKR TRIPPE ALARM (Red).	
		ET 2-BKR-268-2/14-B, (Breaker 14), at Pane L-268-2-B.	·I
			CV
			CV

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6.1	PHMS Con	trol	and Alarm	Function T	ests (continu	ıed)		
	[113.1]	VE	RIFY the fo	ollowing:				
		A.		5C/102-C, P TRIP, CLEA	HMS PWR DI RS.	IST PNL A/B	_	
		B.		DIST PNL B	Monitor indica UV/BKR TRI	tes 102-C PHM PPED is	/IS _	
			The second secon		3, (Breaker 15 RIP Button.	•	-	
							_	CV
	[114.1]	VE	RIFY the fo	ollowing:				
		A.		5C/102-C, P TRIP, ALAR	HMS PWR D MS.	IST PNL A/B	_	
		В.		DIST PNL B	Monitor indica UV/BKR TRI	ites 102-C PHN PPED is in	/IS -	
			-BKR-268- 88-2-B.	2/15-B, (Bre	aker 15), at P	anel	_	· · · · · · · · · · · · · · · · · · ·
							_	CV
	[115.1]	VE	RIFY the fo	ollowing:				OV
		A.		5C/102-C, P TRIP, CLEA	HMS PWR D RS.	IST PNL A/B	_	
		B.		DIST PNL B	Monitor indica UV/BKR TRI	ites 102-C PHN PPED is	/IS	
					3, (Breaker 16 RIP Button.	•	-	

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	Data Packa	age:	Page	_ of	Date	
6.1	PHMS Con	trol a	and Alarm	r Function Tests (continued)		
	[116.1]	VE	RIFY the f	ollowing:		
		A.		-5C/102-C, PHMS PWR DIST PNL TRIP, ALARMS.	. A/B 	
		B.		vent Display Monitor indicates 102- DIST PNL B UV/BKR TRIPPED is (Red).		
			-BKR-268 8-2-B.	-2/16-B, (Breaker 16), at Panel		
					C	V
	[117.1]	VE	RIFY the f	ollowing:		
		A.		-5C/102-C, PHMS PWR DIST PNL TRIP, CLEARS.	. A/B 	
		B.		vent Display Monitor indicates 102 DIST PNL B UV/BKR TRIPPED is L (Blue).		
				R-268-2/17-B, (Breaker 17), at Pa way of Red TRIP Button. (Acc Cr		
	[440 4]	VE	DIEV the f	'allowing.	С	V
	[110.1]	VE	RIFY the f	ollowing.		
		A.		-5C/102-C, PHMS PWR DIST PNL TRIP, ALARMS.	. A/B 	
		В.		vent Display Monitor indicates 102 DIST PNL B UV/BKR TRIPPED is (Red).		
			2-BKR-268 38-2-B.	-2/17-B, (Breaker 17), at Panel		

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	Data Pac	kage:	Page _	of	Ε)ate
3.1	PHMS Co	ntrol	and Ala	rm Function Tests (continue	ed)	
	[119.1]] VE	RIFY the	e following:		
		A.		55-5C/102-C, PHMS PWR DIS CR TRIP, CLEARS.	ST PNL A/B	
		B.	POWE	Event Display Monitor indicate ER DIST PNL B UV/BKR TRIP IAL (Blue).		
				BKR-268-2/18-B, (Breaker 18) by way of Red TRIP Button. (A		
						CV
	[120.1]] VE	RIFY the	e following:		
		A.		55-5C/102-C, PHMS PWR DIS KR TRIP, ALARMS.	ST PNL A/B	
		B.	POWE	Event Display Monitor indicate ER DIST PNL B UV/BKR TRIP M (Red).		
			-BKR-26 8-2-B.	68-2/18-B, (Breaker 18), at Pa	nel	
						CV

A. 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B

POWER DIST PNL B UV/BKR TRIPPED is

Unit 2 Event Display Monitor indicates 102-C PHMS

UV/BKR TRIP, CLEARS.

NORMAL (Blue).

[121.1] **VERIFY** the following:

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6.1	PHMS Control and Alarm Function Tests (continued)	
	[122] PLACE MAIN Breaker 2-BKR-268-1/M1-A at Panel 2-DPL-268-1-A in the OFF position. (Acc Crit)	
		CV
	[122.1] VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	[123] PLACE MAIN Breaker 2-BKR-268-1/M1-A at Panel 2-DPL-268-1-A in the ON position.	
		CV
	[123.1] VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, is CLEAR.	
	[124] PLACE MAIN Breaker 2-BKR-268-2/M1-B at Panel 2-DPL-268-2-B in the OFF position. (Acc Crit)	
		CV
	[124.1] VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
	[125] PLACE MAIN Breaker 2-BKR-268-2/M1-B at Panel 2-DPL-268-2-B in the ON position.	
		CV
	[125.1] VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, is CLEAR.	
	[126] PLACE Breaker 2-BKR-268-1/1-A, Breaker 1, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	F	
		CV

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	Data I	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[127]	PLACE Breaker 2-BKR-268-1/2-A, Breaker 2, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[128]	PLACE Breaker 2-BKR-268-1/3-A, Breaker 3, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[129]	PI ACE Broaker 2 BKP 268 1/4 A Broaker 4 at Hydrogen	CV
	[129]	PLACE Breaker 2-BKR-268-1/4-A, Breaker 4, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[130]	PLACE Breaker 2-BKR-268-1/5-A, Breaker 5, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[131]	PLACE Breaker 2-BKR-268-1/6-A, Breaker 6, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[132]	PLACE Breaker 2-BKR-268-1/7-A, Breaker 7, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	CV
			CV

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	Data F	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[133]	PLACE Breaker 2-BKR-268-1/8-A, Breaker 8, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[134]	PLACE Breaker 2-BKR-268-1/9-A, Breaker 9, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[135]	Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF	CV
		position.	
			CV
	[136]	PLACE Breaker 2-BKR-268-1/11-A, Breaker 11, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
	[137]	PLACE Breaker 2-BKR-268-1/12-A, Breaker 12, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	CV
	[138]	PLACE Breaker 2-BKR-268-1/13-A, Breaker 13, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	CV
			CV

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	Data	Package: Page of	Date
6.1	PHMS	S Control and Alarm Function Tests (continued)	
	[139]	PLACE Breaker 2-BKR-268-1/14-A, Breaker 14, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[140]	PLACE Breaker 2-BKR-268-1/15-A, Breaker 15, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[141]	PLACE Breaker 2-BKR-268-1/16-A, Breaker 16, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[142]	PLACE Breaker 2-BKR-268-1/17-A, Breaker 17, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[143]	PLACE Breaker 2-BKR-268-1/18-A, Breaker 18, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the OFF position.	
			CV
	[144]	PLACE Breaker 2-BKR-268-2/1-B, Breaker 1, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV

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	Data I	Package: Page of	Date
6.1	PHMS	Control and Alarm Function Tests (continued)	
	[145]	PLACE Breaker 2-BKR-268-2/2-B, Breaker 2, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV
	[146]	PLACE Breaker 2-BKR-268-2/3-B, Breaker 3, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
	[147]	PLACE Breaker 2-BKR-268-2/4-B, Breaker 4, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	CV
		position.	
	[148]	PLACE Breaker 2-BKR-268-2/5-B, Breaker 5, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	CV
	[149]	PLACE Breaker 2-BKR-268-2/6-B, Breaker 6, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
	[150]	PLACE Breaker 2-BKR-268-2/7-B, Breaker 7, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV

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	Data	Package: Page of	Date
6.1	PHMS	S Control and Alarm Function Tests (continued)	
	[151]	PLACE Breaker 2-BKR-268-2/8-B, Breaker 8, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV
	[152]	PLACE Breaker 2-BKR-268-2/9-B, Breaker 9, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV
	[153]	PLACE Breaker 2-BKR-268-2/10-B, Breaker 10, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV
	[154]	PLACE Breaker 2-BKR-268-2/11-B, Breaker 11, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	<u></u>
			CV
	[155]	PLACE Breaker 2-BKR-268-2/12-B, Breaker 12, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV
	[156]	PLACE Breaker 2-BKR-268-2/13-B, Breaker 13, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the OFF position.	
			CV

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	Data F	Package:	Page	_ of		Date _	
6.1	PHMS	Control a	nd Alarm	Function	Tests (continued)		
	[157]				14-B, Breaker 14, at H DPL-268-2-B, in the C	•	
						-	CV
	[158]				15-B, Breaker 15, at l DPL-268-2-B, in the C	•	
						-	<u></u>
	[159]				/16-B, Breaker 16, at H DPL-268-2-B, in the C	, ,	CV
						_	
	[160]				/17-B, Breaker 17, at H DPL-268-2-B, in the C	•	CV
						-	CV
	[161]				/18-B, Breaker 18, at l DPL-268-2-B, in the C		
						_	
	[162]				ent Board 2A1-A, Com ON position.	npt 9E	CV
				,		-	
						-	CV
	[163]		•		ght on Hydrogen Mitiga 3-1-A, is OFF.	ation _	

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	Data	Packa	ge: Page of	Date
6.1	PHMS	S Cont	trol and Alarm Function Tests (continued)	
	[164]	Hand	IFY the following light indications at Panel 2-M-10, Iswitch 2-HS-268-73, H2 IGNITERS GROUP A: Crit)	
		Α. (Green Light ON.	
		B. I	Red Light OFF.	
	[165]		CE Handswitch 2-HS-268-73, H2 IGNITERS GROUP A, i DN position.	in
	[10	65.1]	VERIFY the following light indications at Panel 2-M-10, Handswitch 2-HS-268-73, H2 IGNITER GROUP A. (Acc Crit)	
			A. Green Light OFF.	
			B. Red Light ON.	
	[1	65.2]	VERIFY Red, POWER ON, Light is ON at 480V C&A Bldg Vent Board 2A1-A, Compt 9E, Breaker 2-BKR-268-1-A. (Acc Crit)	
	[166]		CE 480V C&A Bldg Vent Board 2B1-B, Compt 12C, ker 2-BKR-268-2-B in the ON position.	
				CV
	[167]		IFY Red, POWER ON, Light on Hydrogen Mitigation sformer Panel, 2-DXF-268-2-B, is OFF.	
	[168]	Hand	IFY the following light indications at Panel 2-M-10, dswitch 2-HS-268-74, H2 IGNITERS GROUP B: Crit)	
		Α.	Green Light ON.	
		R	Pod Light OEE	

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Data	Package: Page of	Date
6.1 PHM	S Control and Alarm Function Tests (continued)	
[169]	PLACE Handswitch 2-HS-268-74, H2 IGNITERS GROUP B, it the ON position.	n
[1	69.1] VERIFY the following light indications at Panel 2-M-10, Handswitch 2-HS-268-74, H2 IGNITERS GROUP B. (Acc Crit)	
	B. Green Light OFF.	
	C. Red Light ON.	
[1	69.2] VERIFY Red, POWER ON, Light is ON at 480V C&A Bldg Vent Board 2B1-B, Compt 12C, Breaker 2-BKR-268-2-B. (Acc Crit)	
[170]	VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, in MCR is CLEAR.	
[171]	PLACE AC POWER Breaker CB1, 2-BKR-268-1A-A, at Hydrogen Mitigation Transformer Panel, 2-DXF-268-1-A, in th OFF position.	е
		CV
[172]	VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, ALARMS.	
[173]	PLACE AC POWER Breaker CB1, 2-BKR-268-1A-A, at Hydrogen Mitigation Transformer Panel, 2-DXF-268-1-A, in the ON position.	e
		CV
F4 7 41	VEDIEVO VA EE EOMOO O DUBAO DIAMO DIOT DAU AMO	Cv
[174]	VERIFY 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.	

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5.1	PHMS Control and Alarm Function Tests (continued)				
	· F	PLACE AC POWER Breaker CB1, 2-BKR-268- Hydrogen Mitigation Transformer Panel, 2-DXF DFF position.			
		·	_		

[177]	PLACE AC POWER Breaker CB1, 2-BKR-268-2A-B, at
	Hydrogen Mitigation Transformer Panel, 2-DXF-268-2-B, in the
	ON position.

[176] VERIFY Window 102-C, PHMS PWR DIST PNL A/B UV/BKR

TRIP, ALARMS.

- [178] **VERIFY** 2-XA-55-5C/102-C, PHMS PWR DIST PNL A/B UV/BKR TRIP, CLEARS.
- [179] **PLACE** the following Handswitches at MCR Panel 2-M-10 in the OFF position:
 - A. Handswitch 2-HS-268-73, H2 IGNITERS GROUP A.
 - B. Handswitch 2-HS-268-74, H2 IGNITERS GROUP B.

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6.2	6.2 Hydrogen Igniter Functional Tests - Train A					
		NOTE				
Sul	bsections 6.2	and 6.3 may be performed concurrently.				
		ERIFY prerequisites listed in Section 4.0 for Save been completed.	Subsection 6.2			
	[2] ENSURE the following PHMS Supply Breaker, Breaker 2-BKR-268-1-A, PERMANENT HYDROGEN MITIGATION SYSTEM 2-DXF-268-1-A, at Compt 9E of Board 2A1-A, is in the ON position.					
			CV			
	·	NOTE				
Hy	drogen Mitiga	ation Distribution Panel 2-DPL-268-1-A is loca	ted at COL A12V EL782.			
	N	LACE Breaker 2-BKR-268-1/1-A, Breaker 1, a litigation Distribution Panel 2-DPL-268-1-A, in osition.	• •			
			CV			
	N	LACE Breaker 2-BKR-268-1/2-A, Breaker 2, a litigation Distribution Panel 2-DPL-268-1-A, in osition.				

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6.2	Hydro		
	[5]	PLACE Breaker 2-BKR-268-1/3-A, Breaker 3, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV
	[6]	PLACE Breaker 2-BKR-268-1/4-A, Breaker 4, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV
	[7]	PLACE Breaker 2-BKR-268-1/5-A, Breaker 5, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position	
	[8]	PLACE Breaker 2-BKR-268-1/6-A, Breaker 6, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
	[9]	PLACE Breaker 2-BKR-268-1/7-A, Breaker 7, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
	[10]	PLACE Breaker 2-BKR-268-1/8-A, Breaker 8, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV

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6.2	Hydro		
	[11]	PLACE Breaker 2-BKR-268-1/9-A, Breaker 9, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV
	[12]	PLACE Breaker 2-BKR-268-1/10-A, Breaker 10, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV
	[13]	PLACE Breaker 2-BKR-268-1/11-A, Breaker 11, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV
	[14]	PLACE Breaker 2-BKR-268-1/12-A, Breaker 12, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
	[15]	PLACE Breaker 2-BKR-268-1/13-A, Breaker 13, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
	[16]	PLACE Breaker 2-BKR-268-1/14-A, Breaker 14, at Hydrogen Mitigation Distribution Panel 2-DPL-268-1-A, in the ON position.	
			CV

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6.2	2 Hydrogen Igniter Functional Tests - Train A (continued)			
	M	LACE Breaker 2-BKR-268-1/15-A, Breaker 15 litigation Distribution Panel 2-DPL-268-1-A, in osition.	• • •	
			CV	
	M	LACE Breaker 2-BKR-268-1/16-A, Breaker 16 litigation Distribution Panel 2-DPL-268-1-A, in osition.	•	
			CV	
	M	LACE Breaker 2-BKR-268-1/17-A, Breaker 17 litigation Distribution Panel 2-DPL-268-1-A, in osition.	•	
			CV	
		NOTE		
Brea	aker 18, 2-Bl	KR-268-1/18-A, is a spare breaker.		
		CAUTION		
The	_	eps energize the hydrogen igniters creating fir	•	
		the following steps, inspect each igniter to en 2 feet of the igniters.	sure no flammable material is	
 All entrances to the Unit 2 reactor building must be posted with personnel to brie those entering the building after operations announce that the igniters will be energized. 				

[20] NOTIFY operations to announce that Hydrogen Igniter Heaters will be energized in the Containment, AND

RECEIVE concurrence to proceed.

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6.2	Hydr	ogen	ogen Igniter Functional Tests - Train A (continued)					
	[21]		ACE Handswitch 2-H ON position at MCR			S GROUP A	A, in	
			CORD time.					
	[22]		CORD Phase-to-Phas nel 2-DPL-268-1-A, A		tage measur	ements at		
		VE	RIFY voltage is betwe	en 230.36	6 V _{AC} and 23	3.82 V _{AC} .		
		A.						
			M&TE _			Cal Due	Date	
				A-B		V_{AC}		
							(230.36-233.82 V _{AC}	
		В.						
			M&TE _			Cal Due	Date	
				В-С		V _{AC}		
							(230.36-233.82 V _{AC}	
		C.						
			M&TE _			Cal Due	Date	
				C-A		V_{AC}		
							(230 36-233 82 V _{AC}	

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6.2	Hydr	ogen	Ignite	er Functional Tests - T	rain A (conti	nued)	
	[23]		-	itage measurement in 6. Ac, THEN	2[22] is NOT	230.26 to	
		boa	rd A1	potentiometer R13 in 2- A for Phase A, A1B for F so that each phase is 23	hase B, and	A1C for	
		REC	ORD	as-left voltages for eacl	n phase belov	v:	
			A.	Phase A to Phase B:			
						V _{AC}	
			B.	Phase B to Phase C:			
						V _{AC}	
			C.	Phase C to Phase A:			
						V _{AC}	

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6.2 Hydr	ogen	Igniter Functional	Tests - Train A (contin	nued)	
			NOTE		
Voltage meas		nents in the following	g steps are to be taken	to circuit neut	ral and not to
[24]		CORD Phase-to-Ne nel 2-DPL-268-1-A, A	utral bus voltage measu AND	rements at	
	VE	RIFY voltage is betw	veen 132 and 135 V _{AC} .		
	A.				
		M&TE		Cal Due l	Date
			A-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
	В.				
		M&TE		Cal Due	Date
			B-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
	C.				
		M&TE		Cal Due	Date
			CNEUTDAI	٧	(132 - 135 \/)

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6.2 Hydrog	gen Igr	niter Functional Tests	s - Train A (contir	nued)	
		N	OTES		
1) Breaker#	18 is a	spare breaker.			
		p verifies both igniters at the breaker.	are energized by	measuring	a current greater
3) If the curre operable.	ent read	ding is between 3.7 an	d 4.4 amperes on	e igniter is	considered to be
1 -	_	between 4.4 and 7.4 ir troubleshooting to re		n indetern	ninable nature and
1	through	f 7.4 amperes or greanth #17 in any order) at Film of 5 minutes from tienth M&TE	Panel 2-DPL-268-	I-A after a ep 6.2[21].	•
BREAKER NUM	/BER	AMPERES	BREAKER NU	MBER	AMPERES
1			10		
2			11		
3			12		
4			13		
5			14		
6			15		
7			16		
<u>8</u> 9			17		
[26]	the OF	E Handswitch 2-HS-26 F position, AND RD time:		S GROUF	PA, in
	Time _				

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6.2	Hydr	ogen Igniter Functional Tests - Train A (continue	ed)
	[27]	WHEN the hydrogen igniters have been allowed to least 30 minutes, THEN	o cool for at
		PLACE Handswitch 2-HS-268-73, H2 IGNITERS the ON position, AND	GROUP A, in
		RECORD time.	
		Time	

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6.2 Hydrogen Igniter Functional Tests - Train A (continued)

NOTES

- 1) Measurements of igniter temperatures are by line-of-sight view (profile or oblique) using optical thermography and should indicate a stabilized temperature. Directly head-on (end) views of the hydrogen igniter may measure lower than actual temperature and should be avoided. See Appendix C, Temperature Conversion Chart, for conversion from °C to °F, if required.
- 2) Steps 6.2[28] and 6.2[29] are performed concurrently by breaker number.
- 3) Igniter Component ID numbers are typical of the following example: (#1 is 2-HTR-268-0001 and #66 is 2-HTR-268-0066).
 - [28] **WHEN** the hydrogen igniters have warmed up 5 minutes to allow the current to the igniters to stabilize, **THEN**

MEASURE and **RECORD** each of the following hydrogen igniter heater temperatures (in any order by breaker number) using an optical infrared thermometer or a contact thermometer: (See Figures 1 thru 5 for igniter locations)

HYDROGEN IGNITER HEATER	TEMPERATURE	HYDROGEN IGNITER HEATER	TEMPERATURE	BREAKER NUMBER
#1	۰F	#32	°F	BKR #1
#2	°F	#23	۰F	BKR #2
#5	°F	#6	Ļ	BKR #3
#7	٩ -	#8	°F	BKR #4
#13	°F	#14	°F	- BKR #5
#15	°F	#16	°F	BKR #6
#21	°F	#22	°F	BKR #7
#25	°F	#53	°F	BKR #8
#24	°F	#29	°F	BKR #9
#30	°F	#31	°F	BKR #10
#35	°F	#36	°F	BKR #11
#26	°F	#33	°F	BKR #12
#34	°F	#42	°F	BKR #13
#49	°F	#50	°F	BKR #14
#54	°F	#55	°F	BKR #15
#27	°F	#28	°F	BKR #16
#65	°F	#66	°F	BKR #17

M&TE		Cal Due Date	

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6.2	Hydroger	ı Igniter Fı	unctional Tests - Trai	n A (conti	nued)
		<u></u>	NOTES		
1)	measuremen	ts as close	rformed concurrently was possible to the timbreaker number.		2[28] in a manner to obtain iter temperatures are
2)	Power Factor	of 1.0 is a	ssumed for calculation	۱.	
			total load wattage for A Breaker as follows:		I
	VOL	TMETER	M&TE	·	Cal Due Date
	AM	METER	M&TE		Cal Due Date
	[29.1]		RD Volts and Amps me 268-1/1-A, (Breaker 1)		s for
			VOLTS	A	MPS
	[29.2]		PLY Volts and Amps m s step, AND	neasureme	nts recorded in
		RECOF (Breake	RD total load wattage for 1).	or 2-BKR-2	68-1/1-A,
			Watts		
				Calculati	ons Performed by:
				Calculati	ons Verified by:
	[29.3]		RD Volts and Amps me 268-1/2-A, (Breaker 2)		s for
			VOLTS	A	MPS

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6.2	Hydrogen	Igniter Functional Tests - Train A (continued)	
	[29.4]	MULTIPLY Volts and Amps measurements rec previous step, AND	orded in
		RECORD total load wattage for 2-BKR-268-1/2 (Breaker 2).	-A,
		Watts	
		Calculations Pe	erformed by:
		Calculations Ve	erified by:
	[29.5]	RECORD Volts and Amps measurements for 2-BKR-268-1/3-A, (Breaker 3).	
		VOLTS AMPS	
	[29.6]	MULTIPLY Volts and Amps measurements rec previous step, AND	orded in
		RECORD total load wattage for 2-BKR-268-1/3 (Breaker 3).	-A,
		Watts	
		Calculations Pe	erformed by:
		Calculations Ve	erified by:
	[29.7]	RECORD Volts and Amps measurements for 2-BKR-268-1/4-A, (Breaker 4).	
		VOLTS AMPS	

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6.2	Hydrogen I	Igniter Functional Tests - Train A (continued)	
	[29.8]	MULTIPLY Volts and Amps measurements recorded in previous step, AND	
		RECORD total load wattage for 2-BKR-268-1/4-A, (Breaker 4).	
		Watts	
		Calculations Performed by:	
		Calculations Verified by:	
	[29.9]	RECORD Volts and Amps measurements for 2-BKR-268-1/5-A, (Breaker 5).	
		VOLTS AMPS	
	[29.10]	MULTIPLY Volts and Amps measurements recorded in previous step, AND	
		RECORD total load wattage for 2-BKR-268-1/5-A, (Breaker 5).	
		Watts	
		Calculations Performed by:	
		Calculations Verified by:	<u> </u>
	[29.11]	RECORD Volts and Amps measurements for 2-BKR-268-1/6-A, (Breaker 6).	
		VOLTS AMPS	

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Hydrogen	Igniter Functional Tests - Train A (conti	nued)
[29.12]	MULTIPLY Volts and Amps measureme previous step, AND	nts recorded in
	RECORD total load wattage for 2-BKR-2 (Breaker 6).	268-1/6-A,
	Watts	
	Calculat	ions Performed by:
	Calculat	ions Verified by:
[29.13]	RECORD Volts and Amps measurement 2-BKR-268-1/7-A, (Breaker 7).	ts for
	VOLTS	AMPS
[29.14]	MULTIPLY Volts and Amps measureme previous step, AND	nts recorded in
	RECORD total load wattage for 2-BKR-2 (Breaker 7).	268-1/7-A,
	Watts	

[29.15] **RECORD** Volts and Amps measurements for 2-BKR-268-1/8-A, (Breaker 8).

VOLTS

Calculations Performed by:

Calculations Verified by:

AMPS

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6.2	Hydrogen I	Igniter Functio	nal Tests - Tra	ain A (continued)	
	[29.16]	MULTIPLY Vo	•	measurements recorded in	
		RECORD total (Breaker 8).	I load wattage	for 2-BKR-268-1/8-A,	
			_Watts		
				Calculations Performed by:	
				Calculations Verified by:	,
	[29.17]	RECORD Volt 2-BKR-268-1/9	•	easurements for 9).	
			VOLTS	AMPS	
	[29.18]	MULTIPLY Vo	•	measurements recorded in	
		RECORD tota (Breaker 9).	I load wattage	for 2-BKR-268-1/9-A,	
			_Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.19]	RECORD Volt 2-BKR-268-1/		easurements for 10).	
			VOLTS	AMPS	

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6.2	Hydrogen I	gniter Functio	onal Tests - Tra	ain A (continued)	
	[29.20]	MULTIPLY Voprevious step	•	measurements recorded in	
		RECORD tota (Breaker 10).	al load wattage	for 2-BKR-268-1/10-A,	
		340 5-	_ Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.21]		ts and Amps m /11-A, (Breaker	easurements for 11).	
			VOLTS	AMPS	
	[29.22]	MULTIPLY Voprevious step	•	measurements recorded in	_
		RECORD total (Breaker 11).	al load wattage	for 2-BKR-268-1/11-A,	
			_ Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.23]		lts and Amps m /12-A, (Breaker	neasurements for 12).	
			VOLTS	AMPS	

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6.2	Hydrogen l	Igniter Functio	onal Tests - Tra	ain A (continued)	
	[29.24]	MULTIPLY V previous step	•	measurements recorded in	
		RECORD tota (Breaker 12).	al load wattage	for 2-BKR-268-1/12-A,	
			_ Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.25]		lts and Amps m /13-A, (Breaker	neasurements for 13).	
		<u>.</u>	VOLTS	AMPS	
	[29.26]	MULTIPLY V previous step	•	measurements recorded in	
		RECORD tota (Breaker 13).	al load wattage	for 2-BKR-268-1/13-A,	
			Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.27]		lts and Amps m /14-A, (Breake	neasurements for r 14).	
			VOLTS	AMPS	

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6.2	Hydrogen l	lgniter Functio	nal Tests - Tra	in A (continued)
	[29.28]	MULTIPLY Voprevious step,	•	neasurements recorded in
		RECORD tota (Breaker 14).	il load wattage	for 2-BKR-268-1/14-A,
			_Watts	
				Calculations Performed by:
				Calculations Verified by:
	[29.29]		ts and Amps mand 15-A, (Breaker	easurements for 15).
			VOLTS	AMPS
	[29.30]	MULTIPLY Vo		measurements recorded in
		RECORD tota (Breaker 15).	l load wattage	for 2-BKR-268-1/15-A,
			_Watts	
				Calculations Performed by:
				Calculations Verified by:
	[29.31]		ts and Amps m 16-A, (Breaker	easurements for 16).
			VOLTS	AMPS

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6.2	Hydrogen	Igniter Functional Tests - Train A (conti	nued)
	[29.32]	MULTIPLY Volts and Amps measureme previous step, AND	nts recorded in
		268-1/16-A,	
		Calculat	ions Performed by:
		Calculati	ons Verified by:
	[29.33]	RECORD Volts and Amps measurement 2-BKR-268-1/17-A, (Breaker 17).	ts for
		VOLTS A	MPS
	[29.34]	MULTIPLY Volts and Amps measureme previous step, AND	nts recorded in

RECORD total load wattage for 2-BKR-268-1/17-A,

Calculations Performed by:

Calculations Verified by:

(Breaker 17).

____ Watts

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6.2	2 Hydrogen Igniter Functional Tests - Train A (continued)				
.		NOTE			
	n igniter i er circuit	s verified to be OFF by observing a current less	than 3.7 amperes across the		
	[30]	OPEN 2-BKR-268-1/1-A (Breaker 1).			
			CV		
		A. VERIFY Igniter #1 is observed to be OFF.			
		B. VERIFY Igniter #32 is observed to be OFF			
	[31]	CLOSE 2-BKR-268-1/1-A (Breaker 1).	 		
			CV		
	[32]	OPEN 2-BKR-268-1/2-A (Breaker 2).			
			CV		
		A. VERIFY Igniter #2 is observed to be OFF.			
		B. VERIFY Igniter #23 is observed to be OFF			
	[33]	CLOSE 2-BKR-268-1/2-A (Breaker 2).	·		
			CV		
	[34]	OPEN 2-BKR-268-1/3-A (Breaker 3).			
			CV		
		A. VERIFY Igniter #5 is observed to be OFF.			
		B. VERIFY Igniter #6 is observed to be OFF.	<u></u>		

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6.2	Hydro	gen Igniter Functional Tests - Train A (continued)	
	[35]	CLOSE 2-BKR-268-1/3-A (Breaker 3).	
			CV
	[36]	OPEN 2-BKR-268-1/4-A (Breaker 4).	
			CV
		A. VERIFY Igniter #7 is observed to be OFF.	-
		B. VERIFY Igniter #8 is observed to be OFF.	
	[37]	CLOSE 2-BKR-268-1/4-A (Breaker 4).	
			CV
	[38]	OPEN 2-BKR-268-1/5-A (Breaker 5).	
			CV
		A. VERIFY Igniter #13 is observed to be OFF.	
		B. VERIFY Igniter #14 is observed to be OFF.	
	[39]	CLOSE 2-BKR-268-1/5-A (Breaker 5).	
			CV
	[40]	OPEN 2-BKR-268-1/6-A (Breaker 6).	
			CV
		A. VERIFY Igniter #15 is observed to be OFF.	
		B. VERIFY Igniter #16 is observed to be OFF.	<u> </u>

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6.2	Hydro	ogen Igniter Functional Tests - Train A (continued)	
	[41]	CLOSE 2-BKR-268-1/6-A (Breaker 6).	
	[42]	OPEN 2 RKD 269 1/7 A (Brooker 7)	CV
	[42]	OPEN 2-BKR-268-1/7-A (Breaker 7).	`
			CV
		A. VERIFY Igniter #21 is observed to be OFF.	
		B. VERIFY Igniter #22 is observed to be OFF.	
	[43]	CLOSE 2-BKR-268-1/7-A (Breaker 7).	
			CV
	[44]	OPEN 2-BKR-268-1/8-A (Breaker 8).	01
	r1	0. 1. 1. 2 D. a. (2. 00 1/0 / 1 (2. 00 a. 0).	
			CV
		A. VERIFY Igniter #25 is observed to be OFF.	
		B. VERIFY Igniter #53 is observed to be OFF.	
	[45]	CLOSE 2-BKR-268-1/8-A (Breaker 8).	
			CV
	[46]	OPEN 2-BKR-268-1/9-A (Breaker 9).	
	_	·	
			CV
		A. VERIFY Igniter #24 is observed to be OFF.	
		B. VERIFY Igniter #29 is observed to be OFF.	

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6.2	Hydr	ogen Igniter Functional Tests - Train A (continued)	
	[47]	CLOSE 2-BKR-268-1/9-A (Breaker 9).	
			CV
	[48]	OPEN 2-BKR-268-1/10-A (Breaker 10).	
			CV
		A. VERIFY Igniter #30 is observed to be OFF.	
		B. VERIFY Igniter #31 is observed to be OFF.	
	[49]	CLOSE 2-BKR-268-1/10-A (Breaker 10).	
			CV
	[50]	OPEN 2-BKR-268-1/11-A (Breaker 11).	
			CV
		A. VERIFY Igniter #35 is observed to be OFF.	
		B. VERIFY Igniter #36 is observed to be OFF.	***
	[51]	CLOSE 2-BKR-268-1/11-A (Breaker 11).	
			CV
	[52]	OPEN 2-BKR-268-1/12-A (Breaker 12).	
			CV
		A. VERIFY Igniter #26 is observed to be OFF.	
		B. VERIFY Igniter #33 is observed to be OFF.	

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6.2	Hydr	ogen Igniter Functional Tests - Train A (continued)	
	[53]	CLOSE 2-BKR-268-1/12-A (Breaker 12).	
			CV
	[54]	OPEN 2-BKR-268-1/13-A (Breaker 13).	
			CV
		A. VERIFY Igniter #34 is observed to be OFF.	
		B. VERIFY Igniter #42 is observed to be OFF.	·
	[55]	CLOSE 2-BKR-268-1/13-A (Breaker 13).	
			CV
	[56]	OPEN 2-BKR-268-1/14-A (Breaker 14).	
			CV
		A. VERIFY Igniter #49 is observed to be OFF.	
		B. VERIFY Igniter #50 is observed to be OFF.	
	[57]	CLOSE 2-BKR-268-1/14-A (Breaker 14).	
			CV
	[58]	OPEN 2-BKR-268-1/15-A (Breaker 15).	
			CV
		A. VERIFY Igniter #54 is observed to be OFF.	
		B. VERIFY Igniter #55 is observed to be OFF.	

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.2	Hydro	ogen Igniter Functional Tests - Train A (contin	lued)	
	[59]	CLOSE 2-BKR-268-1/15-A (Breaker 15).		
				CV
	[60]	OPEN 2-BKR-268-1/16-A (Breaker 16).		
				CV
		A. VERIFY Igniter #27 is observed to be OFF.	<u> </u>	
		B. VERIFY Igniter #28 is observed to be OFF.		
	[61]	CLOSE 2-BKR-268-1/16-A (Breaker 16).		
				CV
	[62]	OPEN 2-BKR-268-1/17-A (Breaker 17).		
				CV
		A. VERIFY Igniter #65 is observed to be OFF		
		B. VERIFY Igniter #66 is observed to be OFF		
	[63]	CLOSE 2-BKR-268-1/17-A (Breaker 17).		
				CV
	<u></u>	NOTE		

[64]	VERIFY each igniter temperature recorded in step6.2[28] is 1741.2°F or greater. (Acc Crit)	c
[65]	VERIFY wattages recorded in Step 6.2[29] do not individually exceed 1335.3 watts. (Acc Crit)	

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6.2	Hydr	ogen Igniter	Functional	Tests - Train A (continued)	
	[66]		Phase-to-Pha L-268-1-A, A	ise bus voltage m	easurements at	
		VERIFY vol	tage is betwe	een 230.36 V _{AC} a	nd 233.82 V _{AC} .	
		A.				
			M&TE _		Cal Due	Date
				A-B	V_{AC}	
						(230.36-233.82 V _{AC})
		В.				
			M&TE _		Cal Due	Date
				B-C	V _{AC}	
						(230.36-233.82 V _{AC})
					•	
		C.				
			M&TE _	 	Cal Due	Date
				C-A	V_{AC}	
						(230.36-233.82 V _{AC})

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6.2	Hydro	ogen Igniter Functional Tests - Train A (continued)	
	[67]	IF any voltage measurement in 6.2[66] is NOT 230.26 to 233.82 V_{AC} , THEN	
		ADJUST potentiometer R13 in 2-DXF-268-268-1-A on contriboard A1A for Phase A, A1B for Phase B, and A1C for Phase C so that each phase is 230.26 to 233.82 V _{AC} , AND	rol
		RECORD as-left voltages for each phase below:	
		A. Phase A to Phase B:	
		V _{AC}	
		B. Phase B to Phase C:	
		V _{AC}	
		C. Phase C to Phase A:	
		V _{AC}	

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6.2	Hydr	ogen	Igniter Fur	nctional	Tests - Train A (cont	inued)	
	[68]		CORD Phas nel 2-DPL-26		utral bus voltage meas AND	urements at	
		VE	RIFY voltage	e is betw	veen 132 and 135 V_{AC} .		
		A.					
				M&TE		Cal Due	Date
					A-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		B.					
				M&TE		Cal Due	Date
					B-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		C.					
				м&те		Cal Due	Date
					C-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
	[69]		ACE Hands		HS-268-73, H2 IGNITE	RS GROUP A	., in

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6.3 Hydro	gen Igniter Functional Tests - Train B	
	NOTE	
Subsections 6.	2 and 6.3 may be performed concurrently	
	VERIFY prerequisites listed in Section 4.0 for Shave been completed.	Subsection 6.3
	ENSURE the following PHMS Supply Breaker, 2-BKR-268-2-B, PERMANENT HYDROGEN M SYSTEM 2-DXF-268-2-B, at Compt 12C of Both the ON position.	MITIGATION
		CV
	NOTE	
Hydrogen Mitig	gation Distribution Panel 2-DPL-268-2-B is loca	ated at COL A12V, EL 782'.
	PLACE Breaker 2-BKR-268-2/1-B, Breaker 1, Mitigation Distribution Panel 2-DPL-268-2-B, ir position.	
		CV
	PLACE Breaker 2-BKR-268-2/2-B, Breaker 2, Mitigation Distribution Panel 2-DPL-268-2-B, ir position.	•
		CV

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6.3	Hydr	ogen Igniter Functional Tests - Train B (continued)	
	[5]	PLACE Breaker 2-BKR-268-2/3-B, Breaker 3, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	
	[6]	PLACE Breaker 2-BKR-268-2/4-B, Breaker 4, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	
			CV
	[7]	PLACE Breaker 2-BKR-268-2/5-B, Breaker 5, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	
	[8]	PLACE Breaker 2-BKR-268-2/6-B, Breaker 6, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	
	[9]	PLACE Breaker 2-BKR-268-2/7-B, Breaker 7, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	
	[10]	PLACE Breaker 2-BKR-268-2/8-B, Breaker 8, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON position.	CV
			CV

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6.3	Hydro	ogen Igniter Functional Tests - Train B (contir	nued)	
	[11]	PLACE Breaker 2-BKR-268-2/9-B, Breaker 9, a Mitigation Distribution Panel 2-DPL-268-2-B, in position.		
			-	CV
	[12]	PLACE Breaker 2-BKR-268-2/10-B, Breaker 10 Mitigation Distribution Panel 2-DPL-268-2-B, in position.		
			-	CV
	[13]	PLACE Breaker 2-BKR-268-2/11-B, Breaker 11 Mitigation Distribution Panel 2-DPL-268-2-B, in position.		
			-	
	[14]	PLACE Breaker 2-BKR-268-2/12-B, Breaker 12 Mitigation Distribution Panel 2-DPL-268-2-B, in position.		CV
			-	CV
	[15]	PLACE Breaker 2-BKR-268-2/13-B Breaker 13	3 at Hydrogen	ÓV

Mitigation Distribution Panel 2-DPL-268-2-B, in the ON

PLACE Breaker 2-BKR-268-2/14-B, Breaker 14, at Hydrogen Mitigation Distribution Panel 2-DPL-268-2-B, in the ON

CV

CV

position.

position.

[16]

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6.3 H	ydrogen l	Igniter Functional Tests - Train B (continued)				
[1		CE Breaker 2-BKR-268-2/15-B, Breaker 15, at Hydrogen gation Distribution Panel 2-DPL-268-2-B, in the ON tion.				
			CV			
[1	_	CE Breaker 2-BKR-268-2/16-B, Breaker 16, at Hydrogen gation Distribution Panel 2-DPL-268-2-B, in the ON tion.				
			CV			
[1	_	CE Breaker 2-BKR-268-2/17-B, Breaker 17, at Hydrogen gation Distribution Panel 2-DPL-268-2-B, in the ON tion.				
			CV			
NOTE						
Breaker 1	Breaker 18, 2-BKR-268-1/18-A, is a spare breaker.					

CAUTION

The following steps energize the hydrogen igniters creating fire and safety hazard.

- Before the following steps, inspect each igniter to ensure no flammable material is within 2 feet of the igniters.
- All entrances to the Unit 2 reactor building must be posted with personnel to brief those entering the building after operations announce that the igniters will be energized.

[20]	NOTIFY operations to announce that Hydrogen Igniter Heaters will be energized in the Containment, AND	
	RECEIVE concurrence to proceed.	

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6.3	Hydr	ogen	Igniter Functional	Tests - T	rain B (contir	nued)	
	[21]		ACE Handswitch 2-H MRC Panel 2-M-10, ir				,
			CORD time.				
	[22]		CORD Phase-to-Pha nel 2-DPL-268-2-B, A		oltage measur	ements at	
		VE	RIFY voltage is betwe	en 230.3	66 V _{AC} and 23	3.82 V _{AC} .	
		A.					
			M&TE _			Cal Due I	Date
				A-B		V _{AC}	
						_	(230.36-233.82 V _{AC})
		В.					
			M&TE _			Cal Due l	Date
				В-С		V _{AC}	(230.36-233.82 V _{AC})
		•					
		C.	M&TE _			Cal Due	Date
				C-A		V_{AC}	

 V_{AC}

(230.36-233.82 V_{AC})

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6.3	Hydr	ogen Ignite	er Functional Tests - Train E	3 (conti	nued)
	[23]	IF any vol 233.82 V	Itage measurement in 6.3[22] AC, THEN	is NOT	230.26 to
		board A1/	potentiometer R13 in 2-DXF-2 A for Phase A, A1B for Phase so that each phase is 230.26	B, and	A1C for
		RECORD	as-left voltages for each pha	se belov	v:
		A.	Phase A to Phase B:		
					V _{AC}
		B.	Phase B to Phase C:		
					V _{AC}
		C.	Phase C to Phase A:		

_ V_{AC}

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6.3	Hydro	ogen Igi	niter Fun	ctional	Tests - Train B (c	ontinued)	
	[24]		RD Phas 2-DPL-26		utral bus voltage m and	easurements at	
		VERIF	Y voltage	is betv	veen 132 and 135 \	AC.	
		A.					
				M&TE		Cal Due	Date
					A-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		B.					
				M&TE		Cal Due	Date
					B-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		C.					
				M&TE		Cal Due	Date
					C-NEUTRAL	V _{AC}	(132 - 135 V _{AC})

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6.3	Hydroger	n Igniter Functional Tes	ts - Train B (contir	nued)	
			NOTE		
1)	_	g step verifies both igniter peres at the breaker.	s are energized by	measuring a	a current greater
2)	If the current operable.	reading is between 3.7 a	and 4.4 amperes on	e igniter is c	onsidered to be
3)		ings between 4.4 and 7.4 urther troubleshooting to i		an indetermi	nable nature and
4)	Breaker #18	is a spare breaker.			
		ough #17 in any order) at nimum of 5 minutes from M&TE			Date
BRE	AKER NUMB	ER AMPERES	BREAKER NU	MBER	AMPERES
	1		10		
	2		11		·
	3		12		
	4		13		
	5		14		
	6		15		
	7		16		
	8		17		
	9				
	the	ACE Handswitch 2-HS-2 OFF position, AND	68-74, H2 IGNITER	S GROUP	B, in

Time _____

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6.3	Hydr	ogen Igniter Functional Tests - Train B (cont	inued)
	[27]	WHEN the hydrogen igniters have been allowed least 30 minutes, THEN	ed to cool for at
		PLACE Handswitch 2-HS-268-74, H2 IGNITE the ON position, AND	RS GROUP B, in
		RECORD time. Time	

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6.3 Hydrogen Igniter Functional Tests - Train B (continued)

NOTES

- Measurements of igniter temperatures are by line-of-sight view (profile or oblique) using optical thermography and should indicate a stabilized temperature. Directly head-on (end) views of the hydrogen igniter may measure lower than actual temperature and should be avoided. See Appendix C, Temperature Conversion Chart, for conversion from °C to °F if required.
- 2) Steps 6.3[28] and 6.3[29] are performed concurrently by breaker number.
- 3) Igniter Component ID numbers are typical of the following example: (#3 is 2-HTR-268-0003 and #68 is 2-HTR-268-0068).
 - [28] WHEN the hydrogen igniters have warmed up 5 minutes to allow the current to the igniters to stabilize, THEN

MEASURE and **RECORD** each of the following hydrogen igniter heater temperatures (in any order by breaker number) using an optical infrared thermometer or a contact thermometer: (See Figures 1 thru 5 for igniter locations)

HYDROGEN IGNITER HEATER	TEMPERATURE	HYDROGEN IGNITER HEATER	TEMPERATURE	BREAKER NUMBER
#3	°F	#48	Ļ	BKR #1
#4	우	#37	۰F	BKR #2
#9	°F	#10	÷	BKR #3
#11	°F	#12	°F	BKR #4
#17	۰F	#18	°F	BKR #5
#19	°F	#20	٥F	BKR #6
#38	°F	#39	°F	BKR #7
#43	°F	#44	°F	BKR #8
#41	°F	#59	°F	BKR #9
#45	°F	#46	°F	BKR #10
#40	°F	#47	°F	BKR #11
#51	°F	#52	°F	BKR #12
#56	°F	" #57	°F	BKR #13
#58	°F	#60	°F	BKR #14
#61	°F	#62	°F	BKR #15
#63	°F	#64	°F	BKR #16
#67	°F	#68	°F	BKR #17

°F	#68		°F		BKR #17
M&TE	•		Cal Due I	Date	

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6.3	Hydroger	lgniter Function	al Tests - Train B (cont	inued)					
	NOTES								
1)	The following step is performed concurrently with Step 6.3[28] in a manner to obtain measurements as close as possible to the time when igniter temperatures are measured by indicated breaker number.								
2)	•								
	[29] CALCULATE total load wattage for each Panel 2-DPL-268-2-B Breaker as follows: (Acc Crit)								
	VOLTMETER M&TE Cal Due Date _								
	AMMETER M&TE			Cal Due Date					
	[29.1]	RECORD Volts 2-BKR-268-2/1-	and Amps measuremer -B, (Breaker 1).	•					
			VOLTS	AMPS					
	[29.2]	MULTIPLY Voltoprevious step, A	ts and Amps measureme	ents recorded in					
	RECORD total load wattage for 2-BKR-268-2/1-B, (Breaker 1).								
			Watts						
			Calcula	tions Performed by:					
			Calcula	tions Verified by:					
	[29.3]	RECORD Volts 2-BKR-268-2/2-	and Amps measuremer -B, (Breaker 2).	nts for					
			VOLTS	AMPS					

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[29.4]	MULTIPLY Volts and Amps measurements recorded in previous step, AND			
	RECORD total load wattage for 2-BKR-268-2/2-B, (Breaker 2).			
	Watts			
		Calculations Performed by:		
		Calculations Verified by:		
[29.5]	9.5] RECORD Volts and Amps measurements for 2-BKR-268-2/3-B, (Breaker 3).			
	VOLTS	AMPS		
[29.6]	MULTIPLY Volts and Amps n previous step, AND	neasurements recorded in		
	RECORD total load wattage f (Breaker 3).	or 2-BKR-268-2/3-B,		
	Watts			
		Calculations Performed by:		
		Calculations Verified by:		
[29.7]	RECORD Volts and Amps me 2-BKR-268-2/4-B, (Breaker 4			
	VOLTS	AMPS		

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6.3	Hydrogen Igniter Functional Tests - Train B (continued)					
	[29.8]	MULTIPLY Volts and Amps measurements recorded in previous step, AND				
		RECORD tota (Breaker 4).	al load wattage	for 2-BKR-268-2/4-B,		
			Watts			
				Calculations Performed by:		
				Calculations Verified by:		
	[29.9]		lts and Amps m /5-B, (Breaker 5	easurements for i).		
			VOLTS	AMPS		
	[29.10]	MULTIPLY V		measurements recorded in		
		RECORD total (Breaker 5).	al load wattage	for 2-BKR-268-2/5-B,		
			Watts			
				Calculations Performed by:		
				Calculations Verified by:		
	[29.11]		lts and Amps m /6-B, (Breaker 6	easurements for 8).		
			VOLTS	AMPS		
						

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6.3	Hydrogen	Igniter Functional Tests - Train B (conti	nued)
	[29.12]	MULTIPLY Volts and Amps measureme previous step, AND	nts recorded in
		RECORD total load wattage for 2-BKR-2 (Breaker 6).	268-2/6-B,
		Watts	
		Calculat	ions Performed by:
		Calculat	ions Verified by:
	[29.13]	RECORD Volts and Amps measuremen 2-BKR-268-2/7-B, (Breaker 7).	ts for
		VOLTS	AMPS
	[29.14]	MULTIPLY Volts and Amps measureme previous step, AND	ents recorded in
		RECORD total load wattage for 2-BKR-2 (Breaker 7).	268-2/7-B,
		Watts	
		Calculat	ions Performed by:
		Calculat	ions Verified by:
	[29.15]	RECORD Volts and Amps measuremen 2-BKR-268-2/8-B, (Breaker 8).	ts for
		VOLTS A	AMPS

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6.3	Hydrogen I	Hydrogen Igniter Functional Tests - Train B (continued)				
	[29.16] MULTIPLY Volts and Amps measurements recorded in previous step, AND					
		RECORD total (Breaker 8).	l load wattage fo	or 2-BKR-268-2/8-B,		
			_ Watts			
				Calculations Performed by:		
				Calculations Verified by:		
	[29.17]		s and Amps me 9-B, (Breaker 9)			
			VOLTS	AMPS		
	[29.18]	MULTIPLY Vo	•	easurements recorded in		
		RECORD tota (Breaker 9).	l load wattage fo	or 2-BKR-268-2/9-B,		
			Watts			
				Calculations Performed by:		
				Calculations Verified by:		
	[29.19]		ts and Amps me 10-B, (Breaker 1			
			VOLTS	AMPS		

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6.3	Hydrogen I	gniter Functi	onal Tests - Tr	ain B (continued)
	[29.20]	MULTIPLY \ previous step		measurements recorded in
		RECORD tot (Breaker 10)		for 2-BKR-268-2/10-B,
			Watts	
				Calculations Performed by:
				Calculations Verified by:
	[29.21]		olts and Amps m 2/11-B, (Breaker	neasurements for 11).
			VOLTS	AMPS
	[29.22]	MULTIPLY \ previous step	_	measurements recorded in
		RECORD to	_	for 2-BKR-268-2/11-B,
		•	Watts	
				Calculations Performed by:
				Calculations Verified by:
	[29.23]		olts and Amps n 2/12-B, (Breake	neasurements for 12).
			VOLTS _	AMPS

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6.3	Hydrogen l	lgniter Functio	onal Tests - Tra	ain B (continued)	
	[29.24]	MULTIPLY V previous step	•	measurements recorded in	
		RECORD tota (Breaker 12).	_	for 2-BKR-268-2/12-B,	
			_ Watts		
				Calculations Performed by:	
				Calculations Verified by:	
	[29.25]		lts and Amps m /13-B, (Breaker	neasurements for 13).	
		· · · · · ·	VOLTS	AMPS	
	[29.26]	MULTIPLY V previous step		measurements recorded in	
		RECORD tota (Breaker 13).	_	for 2-BKR-268-2/13-B,	
			Watts		
	ı			Calculations Performed by:	
				Calculations Verified by:	
	[29.27]		lts and Amps m /14-B, (Breaker	neasurements for - 14).	
			VOLTS	AMPS	

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6.3	Hydrogen i	gniter Functio	onal Tests - Trai	n B (continued)	
	[29.28]	9.28] MULTIPLY Volts and Amps measurements recorded in previous step, AND			
		RECORD tota (Breaker 14).	al load wattage fo	or 2-BKR-268-2/14-B,	
			_ Watts		
				Calculations Performed b	y:
				Calculations Verified by:	
	[29.29]		ts and Amps me /15-B, (Breaker ′		
			VOLTS	AMPS	
	[29.30]	MULTIPLY Vo	•	easurements recorded in	
		RECORD tota (Breaker 15).	al load wattage fo	or 2-BKR-268-2/15-B,	
			_ Watts		
				Calculations Performed b	y:
				Calculations Verified by:	
	[29.31]		its and Amps me /16-B, (Breaker '		
			VOLTS	AMPS	

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6.3	Hydrogen	Igniter Functional Tests - Train B (conti	nued)
	[29.32]	MULTIPLY Volts and Amps measurement previous step, AND	nts recorded in
		RECORD total load wattage for 2-BKR-2 (Breaker 16).	68-2/16-B,
		Watts	
		Calculati	ons Performed by:
		Calculati	ons Verified by:
	[29.33]	RECORD Volts and Amps measurement 2-BKR-268-2/17-B, (Breaker 17).	s for
		VOLTS A	MPS
	[29.34]	MULTIPLY Volts and Amps measurement previous step, AND	nts recorded in
		RECORD total load wattage for 2-BKR-2 (Breaker 17).	68-2/17-B,

Calculations Performed by:

Calculations Verified by:

_____ Watts

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6.3 H	lydro	ogen Igniter Functional Tests - Train B (continued)		
		NOTE		
Each igni		s verified to be OFF by observing a current less than 3.7 amperes acr	oss the	
[3	30]	OPEN 2-BKR-268-2/1-B (Breaker 1).		
		<u>-</u>	CV	
		A. VERIFY Igniter #3 is observed to be OFF.	· · · · · · · · · · · · · · · · · · ·	
		B. VERIFY Igniter #48 is observed to be OFF.		
[3	31]	CLOSE 2-BKR-268-2/1-B (Breaker 1).		
		<u>-</u>	CV	
[3	32]	OPEN 2-BKR-268-2/2-B (Breaker 2).		
		A. VERIFY Igniter #4 is observed to be OFF.		
		B. VERIFY Igniter #37 is observed to be OFF.		
[3	33]	CLOSE 2-BKR-268-2/2-B (Breaker 2).		
			CV	
[S	34]	OPEN 2-BKR-268-2/3-B (Breaker 3).		
			CV	
		A. VERIFY Igniter #9 is observed to be OFF.		
		B. VERIFY Igniter #10 is observed to be OFF.		

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6.3	Hydr	ogen Igniter Functional Tests - Train B (continued)	
	[35]	CLOSE 2-BKR-268-2/3-B (Breaker 3).	
			CV
	[36]	OPEN 2-BKR-268-2/4-B (Breaker 4).	
			CV
		A. VERIFY Igniter #11 is observed to be OFF.	
		B. VERIFY Igniter #12 is observed to be OFF.	
	[37]	CLOSE 2-BKR-268-2/4-B (Breaker 4).	
	F0.01		CV
	[38]	OPEN 2-BKR-268-2/5-B (Breaker 5).	
			CV
		A. VERIFY Igniter #17 is observed to be OFF.	
,		B. VERIFY Igniter #18 is observed to be OFF.	
	[39]	CLOSE 2-BKR-268-2/5-B (Breaker 5).	
	[40]	ODEN 2 DIZD 269 2/6 D (Drocker 6)	CV
	[40]	OPEN 2-BKR-268-2/6-B (Breaker 6).	
			CV
		A. VERIFY Igniter #19 is observed to be OFF.	
		B. VERIFY Igniter #20 is observed to be OFF.	

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6.3	Hydro	ogen Igniter Functional Tests - Train B (continued)	
	[41]	CLOSE 2-BKR-268-2/6-B (Breaker 6).	
	IC N.1	OPEN 2 PVD 269 2/7 P (Procker 7)	CV
	[42]	OPEN 2-BKR-268-2/7-B (Breaker 7).	
			CV
		A. VERIFY Igniter #38 is observed to be OFF.	
		B. VERIFY Igniter #39 is observed to be OFF.	
	[43]	CLOSE 2-BKR-268-2/7-B (Breaker 7).	
			—CV
	[44]	OPEN 2-BKR-268-2/8-B (Breaker 8).	CV
	[44]	OF EN 2-BAR-200-2/0-B (Bleaker 6).	-
			CV
		A. VERIFY Igniter #43 is observed to be OFF.	
		B. VERIFY Igniter #44 is observed to be OFF.	
	[45]	CLOSE 2-BKR-268-2/8-B (Breaker 8).	
			—CV
	[46]	OPEN 2-BKR-268-2/9-B (Breaker 9).	OV
	[40]	OF LIN 2-DAR-200-2/3-D (DIEARE) 9).	
			CV
		A. VERIFY Igniter #41 is observed to be OFF.	
		B. VERIFY Igniter #59 is observed to be OFF.	

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6.3	Hydr	ogen Igniter Functional Tests - Train B (continued)	
	[47]	CLOSE 2-BKR-268-2/9-B (Breaker 9).	
			CV
	[48]	OPEN 2-BKR-268-2/10-B (Breaker 10).	
		A. VERIFY Igniter #45 is observed to be OFF.	
		B. VERIFY Igniter #46 is observed to be OFF.	
	[49]	CLOSE 2-BKR-268-2/10-B (Breaker 10).	
			CV
	[50]	OPEN 2-BKR-268-2/11-B (Breaker 11).	
			CV
		A. VERIFY Igniter #40 is observed to be OFF.	
		B. VERIFY Igniter #47 is observed to be OFF.	
	[51]	CLOSE 2-BKR-268-2/11-B (Breaker 11).	
			CV
	[52]	OPEN 2-BKR-268-2/12-B (Breaker 12).	. 10-11-0
			CV
		A. VERIFY Igniter #51 is observed to be OFF.	
		B. VERIFY Igniter #52 is observed to be OFF.	
	[53]	CLOSE 2-BKR-268-2/12-B (Breaker 12).	
			CV

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6.3	Hydro	ogen Igniter Functional Tests - Train B (continued)	
[[54]	OPEN 2-BKR-268-2/13-B (Breaker 13).	
			CV
		A VEDIEV Invitor #EC in absorbed to be OFF	CV
		A. VERIFY Igniter #56 is observed to be OFF.	t-
		B. VERIFY Igniter #57 is observed to be OFF.	
	[55]	CLOSE 2-BKR-268-2/13-B (Breaker 13).	
			CV
	[56]	OPEN 2-BKR-268-2/14-B (Breaker 14).	
	[]		
			CV
		A. VERIFY Igniter #58 is observed to be OFF.	
		B. VERIFY Igniter #60 is observed to be OFF.	H
	[57]	CLOSE 2-BKR-268-2/14-B (Breaker 14).	
			CV
	[58]	OPEN 2-BKR-268-2/15-B (Breaker 15).	
			CV
		A. VERIFY Igniter #61 is observed to be OFF.	
		B. VERIFY Igniter #62 is observed to be OFF.	
	[59]	CLOSE 2-BKR-268-2/15-B (Breaker 15).	
		(2 2	
			CV

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.3	Hydr	ogen Igniter Functional Tests - Train B (contir	nued)	
	[60]	OPEN 2-BKR-268-2/16-B (Breaker 16).	-	
			_	CV
		A. VERIFY Igniter #63 is observed to be OFF		
		B. VERIFY Igniter #64 is observed to be OFF	· _	
	[61]	CLOSE 2-BKR-268-2/16-B (Breaker 16).	-	
			_	CV
	[62]	OPEN 2-BKR-268-2/17-B (Breaker 17).	-	
			_	CV
		A. VERIFY Igniter #67 is observed to be OFF	· _	
		B. VERIFY Igniter #68 is observed to be OFF		
	[63]	CLOSE 2-BKR-268-2/17-B (Breaker 17).	-	
			_	CV

NOTE

Breaker 18, 2-BKR-268-2/18-B, is a spare breaker.

- [64] **VERIFY** each igniter temperature recorded in Step 6.3[28] is 1741.2°F or greater. (**Acc Crit**)
- [65] VERIFY wattages recorded in Step 6.3[29] do not individually exceed 1335.3 watts. (Acc Crit)

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6.3	Hydr	ogen	Igniter Functional Tests - Train B	(continued)	
	[66]		CORD Phase-to-Phase bus voltage n nel 2-DPL-268-2-B, AND	neasurements at	
		VE	RIFY voltage is between 230.36 V _{AC} a	and 233.82 V _{AC} .	
		A.			
			M&TE	Cal Due Date	
			A-B	V_{AC}	
				(230.3	36-233.82 V _{AC})
				-	
		В.			
			M&TE	Cal Due Date	
			B-C	V _{AC}	
				(230.3	36-233.82 V _{AC})
				-	
		C.			
			M&TE	Cal Due Date	
			C-A	V _{AC}	
				(230.5	36-233.82 V _{AC})

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Unit 2			SYSTEM	Rev. 0000 Page 117 of 123		
	Data	Package:	Page of		Date	
6.3	Hydro	ogen Ignit	er Functional Tests - T	rain B (contir	nued)	
	[67]	IF any vo 233.82 V	ltage measurement in 6. _{AC} , THEN	3[66] is NOT	230.26 to	
		board A1	potentiometer R13 in 2- A for Phase A, A1B for F so that each phase is 23	Phase B, and A	A1C for	
		RECORD	as-left voltages for eac	h phase belov	v:	
		A.	Phase A to Phase B:			
					V _{AC}	
		В.	Phase B to Phase C:			
					V _{AC}	
		C.	Phase C to Phase A:			
					V _{AC}	

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Unit 2			SYSTEM		Rev. 0000 Page 118 of 123	
	Data	Pack	kage: Page of	·		Date
6.3	Hydro	ogen	Igniter Functional	Tests - Train B (conti	nued)	
	[68]		CORD Phase-to-Nemel 2-DPL-268-2-B, A	utral bus voltage measi AND	urements at	
		VE	RIFY voltage is betw	een 132 and 135 V _{AC} .		
		A.				
			M&TE		Cal Due	Date
				A-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		В.				
			M&TE		Cal Due	Date
				B-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
		C.				
			M&TE		Cal Due	Date
				C-NEUTRAL	V _{AC}	(132 - 135 V _{AC})
	[69]		ACE Handswitch 2-l OFF position.	HS-268-74, H2 IGNITE	RS GROUP E	3, in

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WBN P		PERMANENT HYDROGEN MITIGATION SYSTEM	2-PTI-268-01 Rev. 0000 Page 119 of 123
	Data I	Package: Page of	Date
7.0	POST	PERFORMANCE ACTIVITIES	
	[1]	NOTIFY the Shift Manager (SM) of the test con System alignment.	npletion and
	[2]	VERIFY that Post-test calibration of the M&TE quantitative acceptance criteria has been satisf performed and the results RECORDED on Mea Test Equipment (M&TE) Log.	actorily

CV

8.0 RECORDS

A. QA Records

Completed Test Package

B. Non QA Records

None

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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	REVISION/CHANGES	INITIAL AND DATE. (N/A for no change)
WBN2-83-4001		
FSAR Section 6.2.5A Table 14.2-1 Sht 40 of 89		
2-TSD-268-01		
WBN-VTM-N431-0090		
WBN-VTM-P319-0010		

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Appendix B (Page 1 of 1)

TEMPORARY CONDITION LOG

Data Package: Page of	Date
NOTE	
These steps will be N/A'd if no temporary condition existed. may be made as necessary.	Additional copies of this table

	TEMPORARY	PEI	RFORMED	RETUR	NED TO NORMAL
ITEM NUMBER	CONDITION DESCRIPTION	Step Number	Perf. By/Date CV By/Date	Step Number	Returned By/Date CV By/Date
-					
		,			
					

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Table 1 (Page 1 of 2)

TEMPERATURE CONVERSION CHART

Data Package: Page of Date	
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NOTE

The relation between degrees Fahrenheit and degrees Centigrade (Celsius) is expressed by the following formula: $^{\circ}C = 5/9 \ (^{\circ}F - 32) \ \text{or} \ ^{\circ}F = 9/5 \ (^{\circ}C) + 32$

DEGREES	DEGREES	DEGREES	DECREE	DEGREES	DEGREES
(°C)	(°F)		DEGREES (°F)		(°F)
		, , , , , , , , , , , , , , , , , , ,			
862 °C = 1583.6 °F		887 °C = 1628.6 °F		912 °C = 1673.6 °F	
863 °C = 1585.4 °F		888 °C = 1630.4 °F		913 °C = 1675.4 °F	
864 °C = 1587.2 °F		889 °C = 1632.2 °F		914 °C = 1677.2 °F	
865 °C = 1589.0 °F		890 °C = 1634.0 °F		915 °C = 1679.0 °F	
	1590.8 °F		1635.8 °F		1680.8 °F
867 °C =	1592.6 °F	892 °C =	1637.6 °F	917 °C =	1682.6 °F
868 °C =	1594.4 °F	893 °C =	1639.4 °F	918 °C =	1684.4 °F
869 °C =	1596.2 °F	894 °C =	1641.2 °F	919 °C =	1686.2 °F
870 °C =	1598.0 °F	895 °C =	1643.0 °F	920 °C =	1688.0 °F
871 °C =	1599.8 °F	896 °C =	1644.8 °F	921 °C =	1689.8 °F
872 °C =	1601.6 °F	897 °C =	1646.6 °F	922 °C =	1691.6 °F
873 °C =	1603.4 °F	898 °C =	1648.4 °F	923 °C =	1693.4 °F
874 °C =	1605.2 °F	899 °C =	1650.2 °F	924 °C =	1695.2 °F
875 °C =	1607.0 °F	900 °C =	1652.0 °F	925 °C =	1697.0 °F
876 °C =	1608.8 °F	901 °C =	1653.8 °F	926 °C =	1698.8 °F
877 °C =	1610.6 °F	902 °C =	1655.6 °F	927 °C =	1700.6 °F
878 °C =	1612.4 °F	903 °C =	1657.4 °F	928 °C =	1702.4 °F
879 °C =	1614.2 °F	904 °C =	1659.2 °F	929 °C =	1704.2 °F
880 °C =	1616.0 °F	905 °C =	1661.0 °F	930 °C =	1706.0 °F
881 °C =	1617.8 °F	906 °C =	1662.8 °F	931 °C =	1707.8 °F
882 °C =	1619.6 °F	907 °C =	1664.6 °F	932 °C =	1709.6 °F
883 °C =	1621.4 °F	908 °C =	1666.4 °F	933 °C =	1711.4 °F
884 °C =	1623.2 °F	909 °C =	1668.2 °F	934 °C =	1713.2 °F
885 °C =	1625.0 °F	910 °C =	1670.0 °F	935 °C =	1715.0 °F
886 °C =	1626.8 °F	911 °C =	1671.8 °F	936 °C =	1716.8 °F
				L	

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Table 1 (Page 2 of 2)

TEMPERATURE CONVERSION CHART

Data Package:	Page of	Date
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NOTE

The relation between degrees Fahrenheit and degrees Centigrade (Celsius) is expressed by the following formula: $^{\circ}C = 5/9$ ($^{\circ}F - 32$) or $^{\circ}F = 9/5$ ($^{\circ}C$) + 32

DEGREES	DEGREES	DEGREES	DEGREES	DEGREES	DEGREES	
(°C)	(°F)	(°C)	(°F)	(°C)	(°F)	
937 °C = 1718.6 °F		962 °C = 1763.6 °F		987 °C = 1808.6 °F		
938 °C = 1720.4 °F		963 °C = 1765.4 °F		988 °C = 1810.4 °F		
939 °C = 1722.2 °F		964 °C = 1767.2 °F		989 °C = 1812.2 °F		
940 °C = 1724.0 °F		965 °C = 1769.0 °F		990 °C = 1814.0 °F		
941 °C = 1725.8 °F		966 °C = 1770.8 °F		991 °C = 1815.8 °F		
942 °C = 1727.6 °F		967 °C = 1772.6 °F		992 °C = 1817.6 °F		
943 °C = 1729.4 °F		968 °C = 1774.4 °F		993 °C = 1819.4 °F		
944 °C = 1731.2 °F		969 °C =	1776.2 °F	994 °C = 1821.2 °F		
945 °C = 1733.0 °F		970 °C =	1778.0 °F	995 °C = 1823.0 °F		
946 °C = 1734.8 °F		971 °C = 1779.8 °F		996 °C = 1824.8 °F		
947 °C = 1736.6 °F		972 °C = 1781.6 °F		997 °C = 1826.6 °F		
948 °C = 1738.4 °F		973 °C = 1783.4 °F		998 °C = 1828.4 °F		
949 °C =	1740.2 °F	974 °C = 1785.2 °F		999 °C = 1830.2 °F		
950 °C = 1742.0 °F		975 °C = 1787.0 °F		1000 °C = 1832.0 °F		
951 °C = 1743.8 °F		976 °C = 1788.8 °F		1001 °C = 1833.8 °F		
952 °C = 1745.6 °F		977 °C = 1790.6 °F		1002 °C = 1835.6 °F		
953 °C =	= 1747.4 °F 978 °C = 1792		1792.4 °F	1003 °C = 1837.4 °F		
954 °C = 1749.2 °F		979 °C = 1794.2 °F		1004 °C = 1839.2 °F		
955 °C = 1751.0 °F		980 °C = 1796.0 °F		1005 °C = 1841.0 °F		
956 °C = 1752.8 °F		981 °C = 1797.8 °F		1006 °C = 1842.8 °F		
957 °C = 1754.6 °F		982 °C = 1799.6 °F		1007 °C = 1844.6 °F		
958 °C = 1756.4 °F		983 °C = 1801.4 °F		1008 °C = 1846.4 °F		
959 °C = 1758.2 °F		984 °C = 1803.2 °F		1009 °C = 1848.2 °F		
960 °C = 1760.0 °F		985 °C = 1805.0 °F		1010 °C = 1850.0 °F		
961 °C = 1761.8 °F		986 °C = 1806.8 °F		1011 °C = 1851.8 °F		