

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

**TITLE:** CONTAINMENT SPRAY PUMP VALVE LOGIC TEST

**Instruction No:** 2-PTI-072-01

**Revision No:** 0

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PREOPERATIONAL STARTUP MANAGER

**TEST RESULTS APPROVAL**

**JTG MEETING No:** \_\_\_\_\_  
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PREOPERATIONAL STARTUP MANAGER

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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	2/1/13	All	Initial revision. Created from microfilm copy of Unit 1 PTI-072-01, Rev 0 and CN-01 through CN-05.

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## **1.0 INTRODUCTION**

### **1.1 Test Objectives**

This test is being performed to demonstrate the operability of the Containment Spray System (CSS) under conditions as close to design as possible.

The Containment Spray (CS) Headers will not be tested in this PTI and will be verified under 2-PTI-072-02.

### **1.2 Scope**

Verify System 72, CSS components function according to design requirements and required safety functions. This includes the following:

- A. Pump and valve logic will be tested
- B. CS pumps will be operated to verify miniflow conditions
- C. Proper CS pump operation at design flow conditions through the recirculation test flow path, miniflow path, and heat exchangers
- D. Proper operation of CSS motor operated valves under no-load conditions
- E. Proper operation of the CS pump breakers
- F. Proper operation of transfer switch alarms
- G. Proper operation of the CS system motor operated valves interlocks

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## **2.0 REFERENCES**

### **2.1 Performance References**

- A. SMP-9.0, Conduct Of Test
- B. SMP-15.0, Status And Control Of Isolation Devices
- C. 2-TOP-072-01, Temporary Operating Plan for Containment Spray
- D. 2-TOP-074-01, Temporary Operating Plan for Residual Heat Removal
- E. 2-PTI-999-01, Operation Vibration Testing
- F. TI-300, Electrical Arc Flash Personal Protective Equipment & Protective Boundary Matrices
- G. SOI-30.05, Auxiliary Building HVAC Systems
- H. TVA Safety Manual Procedure 801, Confined Space Entry
- I. TVA Safety Manual Procedure 1021, Working on / or Near Energized Electrical Equipment
- J. GOI-7, Generic Equipment Operating Guidelines

### **2.2 Developmental References**

- A. Unit 2 Final Safety Analysis Report - Amendment 109
  - 1. Table 14.2-1, Sheet 25 of 89, Containment Spray System Test Summary
- B. Drawings
  - 1. Flow Diagrams
    - a. 2-47W812-1, Rev 10 (CC)  
Flow Diagram Containment Spray System
    - b. 2-47W811-1, Rev 12 (CC)  
Flow Diagram Safety Injection System
    - c. 2-47W810-1, Rev 8 (CC)  
Flow Diagram Residual Heat Removal System

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## 2.2 Developmental References (continued)

### 2. Electrical

- a. 2-45W760-72-1, Rev 3 (CC)  
Wiring Diagrams Containment Spray System Schematic Diagram
- b. 2-45W760-72-2, Rev 2 (CC)  
Wiring Diagrams Containment Spray System Schematic Diagram
- c. 2-45W760-72-3, Rev 1 (CC)  
Wiring Diagrams Containment Spray System Schematic Diagram
- d. 2-45W760-72-4, Rev 1 (CC)  
Wiring Diagrams Containment Spray System Schematic Diagram
- e. 1-45W760-211-13, Rev 14 (CC)  
Wiring Diagram 6900V Shutdown Power 2A-A Schematic Diagrams
- f. 1-45W760-211-15, Rev 24 (CC)  
Wiring Diagrams 6900V Shutdown Power 2B-B Schematic Diagrams
- g. 2-45W760-270-2, Rev 2 (CC)  
Wiring Diagrams Miscellaneous System Schematic Diagrams
- h. 2-45W760-30-19, Rev 2 (CC)  
Wiring Diagrams Ventilating System Schematic Diagrams
- i. 2-45W600-57-6, Rev 2 (CC)  
Wiring Diagrams Separation, Misc Aux Relays Schematic Diagram
- j. 1-45W760-55-1A, Rev 14 (CC)  
Wiring Diagrams Annunciator System Schematic Diagrams
- k. 1-45W760-55-2A, Rev 12 (CC)  
Wiring Diagrams Annunciator System Schematic Diagrams
- l. 1-45W760-55-3A, Rev 3 (CC)  
Wiring Diagrams Annunciator System Schematic Diagrams
- m. 45N2645-5, Rev G (AC)  
Wiring Diagrams Unit Control Board - Panel 2-M-6 Connection  
Diagrams SH-5
- n. 45N2645-9, Rev 12 (AD)  
Wiring Diagrams Unit Control Board - Panel 2-M-6 Connection  
Diagrams SH-9

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## **2.2 Developmental References (continued)**

- o. 45N2676-5, Rev L (AC)  
Wiring Diagrams Solid State Protection Sys Train "A" Connection  
Diagrams SH-5  
  
(1) 54255-096, Rev 0
- p. 45N2677-5, Rev 9 (AD)  
Wiring Diagrams Solid State Protection Sys Train "B" Connection  
Diagrams SH-5
- q. 45W2766-1, R17 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2A1-A Connection Diagram
- r. 45W2766-2, R20 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2A1-A Connection Diagram  
  
(1) 54255-017, Rev 1
- s. 45W2766-3, R12 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2A1-A Connection Diagram  
  
(1) 54255-014, Rev 0  
  
(2) 54255-015, Rev 1  
  
(3) 54255-036, Rev 1  
  
(4) 54255-045, Rev 0  
  
(5) 54255-070, Rev 0  
  
(6) 54255-098, Rev 0
- t. 45W2768-2, Rev 16 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2B1-B Connection Diagram
- u. 45W2768-3, Rev 20 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2B1-B Connection Diagram  
  
(1) 54255-011, Rev 1  
  
(2) 54255-084, Rev 0



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## 2.2 Developmental References (continued)

- v. 45W2768-5, Rev 14 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2B1-B Connection Diagram  
(1) 54255-010, Rev 1
- w. 45W2768-6, Rev 10 (AD)  
Wiring Diagrams 480V Reactor MOV BD 2B1-B Connection Diagram  
(1) 54255-010, Rev 1
- x. 45W2770-5, Rev 12 (AD)  
Wiring Diagrams 480V Cont & Aux Bldg Vent BD 2A1-A Connection Diagram  
(1) 54255-050, Rev 1  
(2) 54255-052, Rev 1
- y. 45W2772-5, Rev 13(AD)  
Wiring Diagrams 480V Cont & Aux Bldg Vent BD 2B1-B Connection Diagram  
(1) 54255-059, Rev 1  
(2) 54255-061, Rev 1

### 3. Mechanical

None

### 4. Logic/Control

None

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## **2.2 Developmental References (continued)**

### **5. Annunciator**

- a. 2-45B655-1B, Rev 1 (CC)  
Main Control Room Annunciator Inputs Window Box XA-55-1B
- b. 2-45B655-6D, Rev 2 (CC)  
Main Control Room Annunciator Inputs Window Box XA-55-6D
- c. 2-45B655-6F, Rev 0 (CC)  
Main Control Room Annunciator Inputs Window Box XA-55-6F
- d. 2-45B655-E1B, Rev 0 (CC)  
Annunciator Window Box XA-55-1B Engraving
- e. 2-45B655-E6D, Rev 1 (CC)  
Annunciator Window Box XA-55-6D Engraving
- f. 2-45B655-E6F, Rev 0 (CC)  
Annunciator Window Box XA-55-6F Engraving

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## 2.2 Developmental References (continued)

### 6. Vendor Drawing

- a. 0126D4453, Rev 907 (AD), 6900V Shutdown Board 2A-A, compartment 13  
Metal-Clad Switchgear Connection Diagram, (Contract No. 74-84376)
- b. 0126D4512, Rev 907 (AD), 6900V Shutdown Board 2B-B, compartment 13  
Metal-Clad Switchgear Connection Diagram, (Contract No. 74-84376)
- c. 8756D77 Sheet 6, Rev 3 (MD),  
Safeguards Test Cabinet, (Contract No. 71C62-54114-1)
- d. 7246D11 Sheet 56, Rev 6 (MD)  
Solid State Protection System Interconnection Diagram, (Contract No. 71C62-54114-1)
- e. 7246D11 Sheet 23, Rev 7 (MD)  
Solid State Protection System Interconnection Diagram, (Contract No. 71C62-54114-1)
- f. 1082H70 Sheet 19, Rev AF (MD)  
Containment Pressure
- g. 1082H70 Sheet 20A, Rev AP (MD)  
Containment Pressure

### C. Documents

#### 1. Vendor Manuals

- a. WBN-VTM-W120-0050, Containment Spray Pump Vendor Manual, Rev 5

#### 2. Surveillance Instructions

- a. 1-SI-99-644-A, Rev 0007, Response Time Test - Containment Spray Relay K644 - Train A

#### 3. System Description

- a. WBN2-72-4001, System Description for Containment Heat Removal Spray System, Rev 1

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## **2.2 Developmental References (continued)**

4. Setpoint Scaling Documents
  - a. 2-F-72-13 Rev 0
  - b. 2-F-72-34 Rev 0
  - c. 2-62-72-34-A Rev 0
  - d. 2-62-72-13-B Rev 0
5. Test Scoping Documents
  - a. 2-TSD-030A-1, Rev. 0002 Select Auxiliary Building ESF Coolers and HELB Detection
  - b. 2-TSD-72-1, Rev. 0003 Containment Heat Removal Spray System
6. Other
  - a. Cameron Hydraulic Data, 19th edition

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### 3.0 PRECAUTIONS AND LIMITATIONS

- A. The following pump/motor operating limitations apply during performance of this test:

#### CS Pumps

<b>Motor Bearings</b>	Max. 185°F from bearing thermocouple Max. 140°F when read from housing surface
<b>Motor Stator</b>	Max. 126°F greater than ambient
<b>Pump Bearings</b>	Max 160°F inboard bearing Max 165°F outboard bearing
<b>Vibration</b>	Max 1 mil, peak to peak at 1775 Hz

- B. GOI-7, Section 5.2.5, Motor Operating and Starting Limitations should be observed when starting CS Pumps.
- C. Do NOT operate pumps without a flowpath established.
- D. Do NOT exceed CS Pump runout limit of 4950 gpm.
- E. Do NOT exceed 4750 gpm during full flow testing of the CS Pumps to ensure Maximum Heat Exchanger tube side flow is avoided.
- F. 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.
- G. 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.
- H. Observe all Radiation Protection (RP) requirements when working in or near radiological areas.
- I. Test personnel will coordinate with Unit 1 Operations when manipulating Unit 1 equipment.

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### 3.0 PRECAUTIONS AND LIMITATIONS (continued)

- J. System water chemistry is within system specifiable parameters especially for fluids supplied from external sources.
- K. Standard precautions shall be followed for working in confined spaces in accordance with TVA Safety Manual Procedure 801.
- L. Standard precautions shall be followed for working around energized electrical equipment in accordance with TVA Safety Manual Procedure 1021 and TI-300.
- M. Water from the Refueling Water Storage Tank (RWST) must NOT be allowed to enter the Containment Sump.
- N. Water flow through CS and Residual Heat Removal (RHR) Spray Header isolation Valves 2-FCV-72-39, 2-FCV-72-2, 2-FCV-72-40, and 2-FCV-72-41 must NOT be permitted. Ensure these valves are locked closed and under administrative control. Valves can be tested only when system is at static conditions.
- O. Ensure the CS Pumps are properly filled, vented, and the adequate Net Positive Suction Head (NPSH) is available prior to operation.
- P. The CS test line is orificed to prevent pump run-out while performing a full-flow test. Only one pump at a time may be tested with this arrangement.
- Q. Discrepancies between component ID tags and the description in a procedure/instruction do not require a Test Deficiency Notice (TDN), in accordance with SMP-14.0, if the UNIDs match, exclusive of place keeping zeros and train designators (e.g.; 2-HS-31-468 vs. 2-HS-031-0468) and the noun description is sufficient to identify the component. If the component label needs to be changed, a Tag Request Form (TR Card) should be processed in accordance with TI-12.14. Make an entry in the CTL and continue testing.
- R. All open problems are to be tracked by a corrective action document and entered on the appropriate system punchlist.
- S. Problems identified during the test shall be annotated on the Chronological Test Log from SMP-9.0 including a description of the problem, the procedure step when/where the problem was identified, corrective action steps taken to resolve the problem, and the number of the corrective action document, if one was required.
- T. Ensure there are no adverse effects to the operation of Unit 1 structures, systems, or components.

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### **3.0 PRECAUTIONS AND LIMITATIONS (continued)**

- U. During the performance of this procedure visual observation of piping and components is required. This includes steady state and transient operations with visual confirmation that vibration is not excessive.
- V. If the vibration is determined to be excessive the Test Engineer shall initiate a TDN.
- W. MCC run lights are only lit while the motor is operating. Any steps requiring observation of run lights may have to be repeated if the light verification is missed.

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## 4.0 PREREQUISITE ACTIONS

### NOTE

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

## 4.1 Preliminary Actions

- [1] **EVALUATE** open items in Watts Bar Integrated Task Equipment List (WITEL), **AND**  
  
**ENSURE** they will NOT adversely affect the test performance and results. \_\_\_\_\_
- [2] **VERIFY** current revisions and change paper for referenced drawings has been reviewed and determined NOT to adversely affect the test performance, **AND**  
  
**ATTACH** documentation of current drawing revision numbers and change paper that were reviewed to the data package. \_\_\_\_\_
- [3] **ENSURE** changes to the references listed on Appendix A, have been reviewed, and determined NOT to adversely affect the test performance. \_\_\_\_\_
- [4] **VERIFY** the test/performance copy of this Preoperational Test Instruction (PTI) is the current revision including any change notices and as needed, each test person assisting in this test has the current revision including any change notices. \_\_\_\_\_
- [5] **ENSURE** outstanding Design Change Notices (DCN's), Engineering Document Construction Releases (EDCR's) or Temporary Alterations (TA's) do NOT adversely impact testing, **AND**  
  
**ATTACH** documentation of DCN's, EDCR's and TA's that were reviewed to the data package. \_\_\_\_\_



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#### 4.1 Preliminary Actions (continued)

[6] **ENSURE** required Component Testing has been completed prior to start of test.

A. Subsection 6.1

\_\_\_\_\_

B. Subsection 6.2

\_\_\_\_\_

C. Subsection 6.3

\_\_\_\_\_

D. Subsection 6.4

\_\_\_\_\_

E. Subsection 6.5

\_\_\_\_\_

F. Subsection 6.6

\_\_\_\_\_

G. Subsection 6.7

\_\_\_\_\_

H. Subsection 6.8

\_\_\_\_\_

I. Subsection 6.9

\_\_\_\_\_

J. Subsection 6.10

\_\_\_\_\_

K. Subsection 6.11

\_\_\_\_\_

L. Subsection 6.12

\_\_\_\_\_

[7] **VERIFY** System cleanliness as required for the performance of this test has been completed in accordance with SMP-7.0 for piping systems.

A. Subsection 6.11

\_\_\_\_\_

B. Subsection 6.12

\_\_\_\_\_

[8] **ENSURE** confined space entry form is completed AND confined space personnel are available to support this test.

A. Subsection 6.3

\_\_\_\_\_

B. Subsection 6.4

\_\_\_\_\_

[9] **ENSURE** the CS pump startup strainers have been removed after flushing.

WO # \_\_\_\_\_

\_\_\_\_\_

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#### 4.1 Preliminary Actions (continued)

[10] **ENSURE** communications are available for areas where testing is to be conducted. \_\_\_\_\_

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

#### NOTE

Selecting 'Points' from the top menu of the ICS screen, then 'By Plant System', then 072, will show all the computer points in Appendix F.

[12] **ENSURE** the Plant Computer is available, **AND**

**VERIFY** the following in Appendix F:

A. The QUAL for each computer point is GOOD or ALM \_\_\_\_\_

B. The description for each computer point is correct \_\_\_\_\_

[13] **ENSURE** the following systems are operational and have been placed in service to the extent necessary to perform this test:

A. System 030A, Auxiliary Building Room and Area Coolers - CS Pump room coolers \_\_\_\_\_

B. System 055, Plant Annunciator- System Annunciator Testing \_\_\_\_\_

C. System 063, Safety Injection System - Valve alignment for off-normal valve position Annunciator testing \_\_\_\_\_

D. System 067, Essential Raw Cooling Water System-Cooling Water for CS heat exchanger and room coolers \_\_\_\_\_

E. System 070, Component Cooling Water System - Cooling Water to CS Pump oil coolers \_\_\_\_\_

F. System 074, Residual Heat Removal System - Valve alignment for off-normal valve position Annunciator testing \_\_\_\_\_

G. System 211, 6.9kV Shutdown Boards - Power Supplies for CS Pump motors \_\_\_\_\_

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#### 4.1 Preliminary Actions (continued)

- |      |  |       |
|------|--|-------|
|      | H. System 213, 480V Reactor MOV Boards - Power Supplies for motor operated valves  | _____ |
|      | I. System 214, 480V C&A Bldg Vent Boards - Power Supplies for motor operated valves and CS Pump room coolers                         | _____ |
|      | J. System 235, 120 VAC Vital Power System - For System Control Power   | _____ |
|      | K. System 236, 125 VDC Power System - For System Control Power   | _____ |
|      | L. System 261, Plant Process Computer - CS System computer points.   | _____ |
| [14] | <b>ENSURE</b> all piping supports required for testing are installed and adjusted as required.                                       |       |
|      | _____  |       |
|      | Civil Design   | Date  |
| [15] | <b>ENSURE</b> water chemistry for systems/components with water sources other than normal water sources is appropriate for testing.  | _____ |
| [16] | <b>ENSURE</b> a review of outstanding Clearances has been coordinated with Operations for impact to the test performance, <b>AND</b> |       |
|      | <b>RECORD</b> in Appendix B, Temporary Condition Log if required.  | _____ |
| [17] | <b>OBTAIN</b> copies of the applicable forms from the latest revision of SMP-9.0, <b>AND</b>   |       |
|      | <b>ATTACH</b> to this PTI for use during the performance of this PTI.  | _____ |
| [18] | <b>PERFORM</b> a pretest walkdown on equipment to be tested to ensure no conditions exist that will impact test performance.         | _____ |

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#### 4.1 Preliminary Actions (continued)

[19] **REVIEW** preventive maintenance for system/components covered by this test, **AND**

**VERIFY** no conditions exist that will impact test performance. \_\_\_\_\_

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

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

A. The following Measuring and Test Equipment (M&TE) or equivalent is available:

<b>Equipment</b>	<b>Range</b>	<b>Accuracy</b>	<b>Subsection Use</b>
Two Digital Stopwatches	0 - 60 minutes	$\pm 1.5$ sec/hr	6.1 thru 6.12
Dranetz Pwr Sys Polymeter Model 325 OR Lin Tech Model TM-2 or TM-200	Time Interval Range 0 to 999 sec	$\pm 0.12\%$ or less	6.9 thru 6.10
Panametrics Ultrasonic Flowmeter	transducers calibrated to 0 - 1000 gpm	$\pm 3\%$ of range	6.11 and 6.12
Two Digital Pressure gauges	0 - 100 psig	$\pm 0.5\%$ of span	6.11 and 6.12
Two Digital Pressure gauges	0 - 500 psig	$\pm 0.5\%$ of span	6.11 and 6.12
Digital Differential Pressure Gauge	0 - 150 psid	$\pm 1\%$ of span	6.11 and 6.12

B. The following are available:

1. Analog or Digital Volt Ohm Meter (Continuity Tester) for subsections 6.1 thru 6.10.
2. Single pole/single throw (SPST) Test Switch and Jumper assemblies.
3. 1 inch Drain hose - quantity and length as necessary.
4. 3/4 inch Drain hose - quantity and length as necessary.

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### 4.3 Field Preparations

[1] **PERFORM** the Switch Lineup listed in Appendix C.

- A. Subsection 6.3 \_\_\_\_\_
- B. Subsection 6.4 \_\_\_\_\_
- C. Subsection 6.5 \_\_\_\_\_
- D. Subsection 6.6 \_\_\_\_\_
- E. Subsection 6.7 \_\_\_\_\_
- F. Subsection 6.8 \_\_\_\_\_
- G. Subsection 6.9 \_\_\_\_\_
- H. Subsection 6.10 \_\_\_\_\_

[2] **PERFORM** the Breaker Lineup listed in Appendix D

- A. Subsection 6.1 \_\_\_\_\_
- B. Subsection 6.2 \_\_\_\_\_
- C. Subsection 6.3 \_\_\_\_\_
- D. Subsection 6.4 \_\_\_\_\_
- E. Subsection 6.5 \_\_\_\_\_
- F. Subsection 6.6 \_\_\_\_\_
- G. Subsection 6.7 \_\_\_\_\_
- H. Subsection 6.8 \_\_\_\_\_
- I. Subsection 6.9 \_\_\_\_\_
- J. Subsection 6.10 \_\_\_\_\_
- K. Subsection 6.11 \_\_\_\_\_
- L. Subsection 6.12 \_\_\_\_\_

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### 4.3 Field Preparations (continued)

- [3] **VERIFY** plant instruments, listed on Appendix E, Permanent Plant Instrumentation Log, are placed in service and are within their calibration interval.

A. Subsection 6.11

\_\_\_\_\_

B. Subsection 6.12

\_\_\_\_\_

- [4] **VERIFY** M&TE required for test performance has been (as required) filled, vented, place in service and recorded on Measuring and Test Equipment Log.

A. Subsection 6.1

\_\_\_\_\_

B. Subsection 6.2

\_\_\_\_\_

C. Subsection 6.3

\_\_\_\_\_

D. Subsection 6.4

\_\_\_\_\_

E. Subsection 6.5

\_\_\_\_\_

F. Subsection 6.6

\_\_\_\_\_

G. Subsection 6.7

\_\_\_\_\_

H. Subsection 6.8

\_\_\_\_\_

I. Subsection 6.9

\_\_\_\_\_

J. Subsection 6.10

\_\_\_\_\_

K. Subsection 6.11

\_\_\_\_\_

L. Subsection 6.12

\_\_\_\_\_

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### 4.3 Field Preparations (continued)

[5] **VERIFY** M&TE calibration due dates will support the completion of this test performance.

- A. Subsection 6.1 \_\_\_\_\_
- B. Subsection 6.2 \_\_\_\_\_
- C. Subsection 6.3 \_\_\_\_\_
- D. Subsection 6.4 \_\_\_\_\_
- E. Subsection 6.5 \_\_\_\_\_
- F. Subsection 6.6 \_\_\_\_\_
- G. Subsection 6.7 \_\_\_\_\_
- H. Subsection 6.8 \_\_\_\_\_
- I. Subsection 6.9 \_\_\_\_\_
- J. Subsection 6.10 \_\_\_\_\_
- K. Subsection 6.11 \_\_\_\_\_
- L. Subsection 6.12 \_\_\_\_\_



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#### 4.3 Field Preparations (continued)

<b>NOTES</b>	
1)	Any Annunciator points associated with 2-MUX-55-12 and 2-MUX-55-13 ONLY have master switches at the bottom of each terminal strip.
2)	All points associated with 2-TBK-55-25, 2-TBK-55-26, 2-TBK-55-27, and 2-TKB-55-28 will NOT have individual switches or a master switch.

- [6] **ENSURE** System 55, Annunciator and Sequential Events Recording System applicable TBK switches are ON, the applicable Master Switches are ON, and window software input (s) are ENABLED for the following Annunciator windows.

ANNUNCIATOR	TERMINAL BLOCK	SWITCH	TEST SUBSECTION	INITIALS/DATE
14-D	00	32	6.9, 6.10	
14-E	00	31	6.9, 6.10	
131-F	05	66	6.5, 6.6	
131-F	05	73	6.3, 6.4	
131-F	05	80	6.7, 6.8	
134-E	04	19	6.5, 6.7	
134-E	04	26	6.6, 6.8	
149-A	06	08	6.9	
149-C	06	03	6.3, 6.5, 6.7	
150-A	06	09	6.10	
150-C	06	04	6.4, 6.6, 6.8	

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### 4.3 Field Preparations (continued)

#### NOTE

Step 4.3[7] will not be restored in Section 7.0 if the terminal points are found on plastic. The completion of Subsection 6.1 will allow the points to stay on metal

- [7] **ENSURE** the following terminal points are hard-landed (metal screws and washers) on both vendor and field sides in Panel 2-R-48 (2-FCV-72-34 flow interlocks), **AND**

**UPDATE** SMP-15.0 log to reflect any changes.  
(Subsection 6.1)

- A. TB655, Terminal 1 \_\_\_\_\_
- B. TB655, Terminal 2 \_\_\_\_\_
- C. TB655, Terminal 9 \_\_\_\_\_
- D. TB655, Terminal 10 \_\_\_\_\_

#### NOTE

Step 4.3[8] will not be restored in Section 7.0 if the terminal points are found on plastic. The completion of Subsection 6.2 will allow the points to stay on metal

- [8] **ENSURE** the following terminal points are hard-landed (metal screws and washers) on both vendor and field sides in Panel 2-R-51 (2-FCV-72-13 flow interlocks), **AND**

**UPDATE** SMP-15.0 log to reflect any changes.  
(Subsection 6.2)

- A. TB655, Terminal 1 \_\_\_\_\_
- B. TB655, Terminal 2 \_\_\_\_\_
- C. TB655, Terminal 9 \_\_\_\_\_
- D. TB655, Terminal 10 \_\_\_\_\_

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#### 4.3 Field Preparations (continued)

- [9] **ENSURE** the Refueling Water Storage Tank (RWST) level is greater than or equal to 45%, as indicated on 2-LI-063-050, SIS RWST LEVEL IND, on Panel 2-M-6. (does NOT apply to Subsection 6.9 and 6.10)

\_\_\_\_\_

- [10] **ENSURE** a Work Order has been issued to permit removal and reinstallation of Junction Box covers, 2-JB-292-771 (676/A11T), 2-JB-292-1155. (Subsection 6.3)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

- [11] **ENSURE** a Work Order has been issued to permit removal and reinstallation of Junction Box covers; 2-JB-292-770 (676/A11T), 2-JB-292-1156 covers. (Subsection 6.4)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

- [12] **ENSURE** a Work Order has been issued to permit removal and reinstallation of Junction Box cover, 2-JB-292-1360. (Subsection 6.5)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

- [13] **ENSURE** a Work Order has been issued to permit removal and reinstallation of Junction Box cover, 2-JB-292-1362-B. (Subsection 6.6)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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### 4.3 Field Preparations (continued)

[14] **RECORD** the as found position in Appendix B, **AND**

**ENSURE** the following terminal points are hard-landed (metal screws and washers) on both vendor and field sides in Panel 2-R-52: (Subsection 6.7)

A. TB834, Terminal 3

\_\_\_\_\_

B. TB834, Terminal 4

\_\_\_\_\_

C. TB834, Terminal 6

\_\_\_\_\_

D. TB834, Terminal 7 (field wires only)

\_\_\_\_\_

E. TB834, Terminal 8

\_\_\_\_\_

[15] **RECORD** the as found position in Appendix B, **AND**

**ENSURE** the following terminal points are hard-landed (metal screws and washers) on both vendor and field sides in Panel 2-R-53: (Subsection 6.8)

A. TB834, Terminal 3

\_\_\_\_\_

B. TB834, Terminal 4

\_\_\_\_\_

C. TB834, Terminal 6

\_\_\_\_\_

D. TB834, Terminal 7 (field wires only)

\_\_\_\_\_

E. TB834, Terminal 8

\_\_\_\_\_

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### 4.3 Field Preparations (continued)

[16] **PERFORM** the following to install test switch  
 "K643 Spray Signal-A" (Subsection 6.9, 6.11)

A. **LABEL** open test switch "K643 Spray Signal-A" \_\_\_\_\_

B. **RECORD** in Appendix B the as found position, including  
 whether on plastic or metal, of TB639-11 and TB639-12 in  
 cabinet R-48 for relay K643 \_\_\_\_\_

C. **LIFT** and **LABEL** wire from field side of TB639-11 in  
 cabinet R-48 \_\_\_\_\_

CV

D. **BOLT** and **TAPE** wire to one side of  
 "K643 Spray Signal-A" \_\_\_\_\_

E. **LIFT** and **LABEL** wire from field side of TB639-12 in  
 cabinet R-48 \_\_\_\_\_

CV

F. **BOLT** and **TAPE** wire to other side of  
 "K643 Spray Signal-A" \_\_\_\_\_

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#### 4.3 Field Preparations (continued)

- [17] **PERFORM** the following to install test switch  
"K643 Spray Signal-B" (Subsection 6.10, 6.12)

- A. **LABEL** open test switch "K643 Spray Signal-B" \_\_\_\_\_
- B. **RECORD** in Appendix B the as found position, including  
whether on plastic or metal, of TB639-11 and TB639-12 in  
cabinet R-51 for relay K643 \_\_\_\_\_
- C. **LIFT** and **LABEL** wire from field side of TB639-11 in  
cabinet R-51 \_\_\_\_\_

CV

- D. **BOLT** and **TAPE** wire to one side of  
"K643 Spray Signal-B" \_\_\_\_\_
- E. **LIFT** and **LABEL** wire from field side of TB639-12 in  
cabinet R-51 \_\_\_\_\_

CV

- F. **BOLT** and **TAPE** wire to other side of  
"K643 Spray Signal-B" \_\_\_\_\_

- [18] **INSTALL** 0 to 100 psig test pressure gauge at 2-PI-72-33 test  
tee (676/A9U) (Subsection 6.11)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

- [19] **INSTALL** 0 to 500 psig test pressure gauge at 2-PI-72-32 test  
tee (676/A9U) (Subsection 6.11)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 31 of 249</b>
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#### 4.3 Field Preparations (continued)

[20] **INSTALL** 0 to 1000 GPM Ultrasonic Flowmeter on CS  
Pump 2A-A miniflow piping. (Subsection 6.11)

\_\_\_\_\_

[21] **INSTALL** 0 to 100 psig test pressure gauge at 2-PI-72-16 test  
tee (676/A9T) (Subsection 6.12)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

[22] **INSTALL** 0 to 500 psig test pressure gauge at 2-PI-72-15 test  
tee (676/A9T) (Subsection 6.12)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

[23] **INSTALL** 0 to 1000 GPM Ultrasonic Flowmeter on CS  
Pump 2B-B miniflow piping. (Subsection 6.12)

\_\_\_\_\_

[24] **INSTALL** 0 to 150 psid differential pressure test gauge at  
2-FI-72-5 test tees (713/A12V) (Subsection 6.11, 6.12)

WO # \_\_\_\_\_

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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#### 4.3 Field Preparations (continued)

[25] **ENSURE** a clearance has been placed on the following equipment:

- 2-HS-74-10A in the STOP PULL-TO-LOCK (Subsection 6.5) \_\_\_\_\_
- 2-BKR-74-10 in the OPEN position (Subsection 6.5) \_\_\_\_\_
- 2-HS-74-20A in the STOP PULL-TO-LOCK (Subsection 6.6) \_\_\_\_\_
- 2-BKR-74-20 in the OPEN position (Subsection 6.6) \_\_\_\_\_
- 2-HS-72-27A in the STOP PULL-TO-LOCK (Subsection 6.7) \_\_\_\_\_
- 2-BKR-72-27 in the OPEN position (Subsection 6.7) \_\_\_\_\_
- 2-HS-72-10A in the STOP PULL-TO-LOCK (Subsection 6.8) \_\_\_\_\_
- 2-BKR-72-10 (Subsection 6.8) \_\_\_\_\_
- 2-BKR-72-39 in the OPEN position (Subsection 6.9) \_\_\_\_\_
- 2-BKR-72-2 in the OPEN position (Subsection 6.10) \_\_\_\_\_

[26] **CONFIGURE** the polymeter to accept a start signal with the presence of voltage and a stop signal with continuity (close contact). (Subsection 6.9, 6.10) \_\_\_\_\_



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### 4.3 Field Preparations (continued)

<b>NOTES</b>	
1) 2)	Appendix M shows a typical setup for Steps 4.3[27] and 4.3[28]. Long connectors will be required for Steps 4.3[27] and 4.3[28] since they will have to reach from logic relay panel to the breaker compartment.

[27] **CONNECT** the polypmeter with the start signal in parallel with the 2-02-72-27 CSP ST points L1 and L2 and the stop signal across any set of 52STA normally closed contacts.  
(Subsection 6.9)

[28] **CONNECT** the polypmeter with the start signal in parallel with the 2-02-72-10 CSP ST points L1 and L2 and the stop signal across any set of 52STA normally closed contacts.  
(Subsection 6.10)

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#### 4.4 Approvals and Notifications

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

\_\_\_\_\_  
Preoperational Startup Manager  
Signature

\_\_\_\_\_  
Date

- [2] **OBTAIN** the Unit 2 Unit Supervisor's (US/SRO) or Shift Manager's (SM) authorization.

\_\_\_\_\_  
U2 US/SRO/SM Signature

\_\_\_\_\_  
Date

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

\_\_\_\_\_  
U1 US/SRO/SM Signature

\_\_\_\_\_  
Date

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## 5.0 ACCEPTANCE CRITERIA

- [1] Containment Spray Pumps 2A-A and 2B-B capacity is greater than or equal to 4000 gpm at 435 feet head. (Steps 6.11[34], 6.12[34])
- [2] Containment Spray Pumps 2A-A and 2B-B start and reach test line full flow in less than or equal to 5 seconds. (Steps 6.11[40], 6.12[40])
- [3] Containment Spray System Train A and B miniflow paths provide Containment Spray Pump 2A-A and 2B-B flow rates of greater than or equal to 500 gpm. (450-550 gpm) (Steps 6.11[35], 6.12[35])
- [4] Annunciator window 149-C, 480 RX MOV BD 2A1-A/2A2-A, ALARMS when the transfer switches are placed in the AUX position for the following valves:

VALVE NUMBER	STEP NUMBER
2-FCV-72-39	6.7[29]
2-FCV-72-40	6.5[44]B
2-FCV-72-44	6.3[84]

- [5] Annunciator window 150-C, 480 RX MOV BD 2B1-B/2B2-B, ALARMS when the transfer switches are placed in the AUX position for the following valves:

VALVE NUMBER	STEP NUMBER
2-FCV-72-2	6.8[29]
2-FCV-72-41	6.6[44]B
2-FCV-72-45	6.4[84]

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## 5.0 ACCEPTANCE CRITERIA (continued)

- [6] Annunciator window 131-F, ESF COMPONENT NOT NORMAL, ALARMS when any of the following components are not in the normal ESF alignment:

VALVE NUMBER	POSITION	STEP NUMBER
2-FCV-72-2	FULLY OPEN	6.8[18]D
2-FCV-72-39	FULLY OPEN	6.7[18]D
2-FCV-72-40	FULLY OPEN	6.5[33]D
2-FCV-72-41	FULLY OPEN	6.6[33]D
2-FCV-72-44	FULLY OPEN	6.3[75]B
2-FCV-72-45	FULLY OPEN	6.4[75]B

- [7] Annunciator window 134-E, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, ALARMS when any of the following components are not in the normal ESF alignment:

VALVE NUMBER	POSITION	STEP NUMBER
2-FCV-72-2	NOT FULLY CLOSED	6.8[18]B
2-FCV-72-39	NOT FULLY CLOSED	6.7[18]B
2-FCV-72-40	NOT FULLY CLOSED	6.5[33]B
2-FCV-72-41	NOT FULLY CLOSED	6.6[33]B

- [8] The following System 72 motor operated valves will operate with the thermal overloads tripped and thermal overload protective device bypass in effect as well as NOT operating with the overload protective device bypass reset:

VALVE NUMBER	STEP (OPERATE)	STEP (NOT OPERATE)
2-FCV-72-2	6.8[74]	6.8[71]
2-FCV-72-21	6.4[26]	6.4[22]
2-FCV-72-22	6.3[26]	6.3[22]
2-FCV-72-39	6.7[75]	6.7[71]
2-FCV-72-40	6.5[65]	6.5[61]
2-FCV-72-41	6.6[65]	6.6[61]
2-FCV-72-44	6.3[112]	6.3[108]
2-FCV-72-45	6.4[112]	6.4[108]

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## 5.0 ACCEPTANCE CRITERIA (continued)

- [9] The following components can be operated from the main control room (MCR) and switchgear (SWG) (as applicable).

Valve No.	MCR	SWG
2-FCV-72-2	6.8[19], 6.8[25]	6.8[35], 6.8[40]
2-FCV-72-13	6.2[17]B, 6.2[20]A	N/A
2-FCV-72-21	6.4[12]A, 6.4[15]A	N/A
2-FCV-72-22	6.3[12]A, 6.3[15]A	N/A
2-FCV-72-34	6.1[17]B, 6.1[20]A	N/A
2-FCV-72-39	6.7[19], 6.7[25]	6.7[35], 6.7[40]
2-FCV-72-40	6.5[34], 6.5[40]	6.5[48]A, 6.5[52]A
2-FCV-72-41	6.6[34], 6.6[40]	6.6[48]A, 6.6[52]A
2-FCV-72-44	6.3[50], 6.3[63]	6.3[91], 6.3[96]
2-FCV-72-45	6.4[50], 6.4[63]	6.4[91], 6.4[96]
2-PMP-72-10, CS Pump 2B-B	6.10[19]A, 6.10[22]A	6.10[45]A, 6.10[50]
2-PMP-72-27, CS Pump 2A-A	6.9[19]A, 6.9[22]A	6.9[45]A, 6.9[50]

- [10] Indication lights at the main control room and switchgear (as applicable) indicate the correct position.

Valve No.	MCR	SWG
2-FCV-72-2	6.8[18], 6.8[24], 6.8[31]	6.8[18], 6.8[24]
2-FCV-72-13	6.2[17], 6.2[20]	N/A
2-FCV-72-21	6.4[12], 6.4[15]	N/A
2-FCV-72-22	6.3[12], 6.3[15]	N/A
2-FCV-72-34	6.1[17], 6.1[20]	N/A
2-FCV-72-39	6.7[18], 6.7[24], 6.7[31]	6.7[18], 6.7[24]
2-FCV-72-40	6.5[33], 6.5[39], 6.5[44]A	6.5[33], 6.5[39]
2-FCV-72-41	6.6[33], 6.6[39], 6.6[44]A	6.6[33], 6.6[39]
2-FCV-72-44	6.3[75], 6.3[80], 6.3[86]	6.3[75], 6.3[80]
2-FCV-72-45	6.4[75], 6.4[80], 6.4[86]	6.4[75], 6.4[80]
2-PMP-72-10, CS Pump 2B-B	6.10[19], 6.10[22], 6.10[40]B	6.10[19], 6.10[22]
2-PMP-72-27, CS Pump 2A-A	6.9[19], 6.9[22], 6.9[40]B	6.9[19], 6.9[22]

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 38 of 249</b>
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## 5.0 ACCEPTANCE CRITERIA (continued)

- [11] The Plant Integrated Computer System (ICS) input reflects the correct status for the following valves.

<b>Valve No.</b>	<b>BKR</b>	<b>FCV</b>
2-FCV-72-2	6.8[5], 6.8[8]	6.8[10], 6.8[20]
2-FCV-72-13	6.2[4], 6.2[12]	6.2[15], 6.2[18]
2-FCV-72-21	6.4[5], 6.4[7]	6.4[10], 6.4[13]
2-FCV-72-22	6.3[5], 6.3[7]	6.3[10], 6.3[13]
2-FCV-72-34	6.1[4], 6.1[12]	6.1[15], 6.1[18]
2-FCV-72-39	6.7[5], 6.7[8]	6.7[10], 6.7[20]
2-FCV-72-40	6.5[5], 6.5[7]	6.5[9], 6.5[35]
2-FCV-72-41	6.6[5], 6.6[7]	6.6[9], 6.6[35]
2-FCV-72-44	6.3[66], 6.3[68]	6.3[69], 6.3[76]
2-FCV-72-45	6.4[66], 6.4[68]	6.4[69], 6.4[76]

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 39 of 249</b>
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## 5.0 ACCEPTANCE CRITERIA (continued)

[12] The following valves have stroke times within the specified time period:

<b>Valve No.</b>	<b>Specific Requirements</b>	<b>Verification Steps</b>
2-FCV-72-2	Less than or equal to 21.5 sec.	6.8[44]A, 6.8[45]A
2-FCV-72-13	Less than or equal to 10 sec.	6.2[21]A, 6.2[22]A
2-FCV-72-21	Less than or equal to 14.6 sec.	6.4[16]A, 6.4[17]A
2-FCV-72-22	Less than or equal to 14.6 sec.	6.3[16]A, 6.3[17]A
2-FCV-72-34	Less than or equal to 10 sec.	6.1[21]A, 6.1[22]A
2-FCV-72-39	Less than or equal to 21.5 sec.	6.7[44]A, 6.7[45]A
2-FCV-72-40	Less than or equal to 15 sec.	6.5[55]A, 6.5[56]A
2-FCV-72-41	Less than or equal to 15 sec.	6.6[55]A, 6.6[56]A
2-FCV-72-44	Less than or equal to 20 sec.	6.3[102]A, 6.3[103]A
2-FCV-72-45	Less than or equal to 20 sec.	6.4[102]A, 6.4[103]A

- [13] Annunciator Window 149-A, 6.9 SD BD 2A-A, ALARMS when the transfer switch for CS PUMP 2A-A is in the AUX position (Step 6.9[40]C).
- [14] Annunciator Window 150-A, 6.9 SD BD 2B-B, ALARMS when the transfer switch for CS PUMP 2B-B is in the AUX position (Step 6.10[40]C).
- [15] Annunciator 14-E, M-1 THROUGH M-6 MOTOR TRIPOUT, ALARMS when a CS pump trips on instantaneous over current.  
(Steps 6.9[87], 6.9[101], 6.9[122], 6.9[134], 6.9[146], 6.10[87], 6.10[101], 6.10[122], 6.10[134], 6.10[146])

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 40 of 249</b>
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## 5.0 ACCEPTANCE CRITERIA (continued)

- [16] Annunciator 14-D, M-1 THRU M-6 MOTOR OVERLOAD, ALARMS on a simulated overload of each CS pump  
(Steps 6.9[76], 6.9[113], 6.10[76], 6.10[113])
- [17] The Plant Integrated Computer System (ICS) input reflects the correct status for the following pumps.

<b>Valve No.</b>	<b>BKR</b>	<b>Pump</b>
2-PMP-72-27	6.9[8], 6.9[14]	6.9[20], 6.9[23]
2-PMP-72-10	6.10[8], 6.10[14]	6.10[20], 6.10[23]

- [18] The following coolers START automatically upon receipt of pump START signal from their respective pump:
- A. 2-PMCL-30-177 (Step 6.9[19]B)
  - B. 2-PMCL-30-178 (Step 6.10[19]B)
- [19] Containment Spray Header Isolation Valves 2-FCV-72-39 and 2-FCV-72-2 OPEN in response to a (Simulated) Containment spray actuation signal and when the respective CS pump is (Simulated) running in less than or equal to 28 sec.  
(Steps 6.7[50]A, 6.7[50]C, 6.7[59]A, 6.7[59]C, 6.8[50]A, 6.8[50]C, 6.8[59]A, 6.8[59]C)
- [20] Containment Spray Pump Breakers 2-BKR-72-27 and 2-BKR-72-10 CLOSE 184 seconds (182.5-185.5 sec) after Switchgear power is restored.  
(Steps 6.9[65]A, 6.10[65]A)
- [21] Containment Spray Pump Breakers 2-BKR-72-27 and 2-BKR-72-10 CLOSE on a simulated Containment Spray actuation signal. (Steps 6.9[58], 6.10[58])
- [22] Containment Sump Suction to Containment Spray Pump 2A-A suction Valve 2-FCV-72-44 can only be opened when Refueling Water Storage Tank (RWST) to Containment Spray Pump 2A-A Suction, Valve 2-FCV-72-22, is FULLY CLOSED. (Steps 6.3[35], 6.3[41], 6.3[50])
- [23] Containment Sump Suction to Containment Spray Pump 2B-B Suction Valve 2-FCV-72-45 can only be opened when Refueling Water Storage Tank (RWST) to Containment Spray Pump 2B-B Suction, Valve 2-FCV-72-21, is FULLY CLOSED. (Steps 6.4[35], 6.4[41], 6.4[50])



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 41 of 249</b>
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## **5.0 ACCEPTANCE CRITERIA (continued)**

- [24] Containment Spray Pump 2A-A Suction Valve 2-FCV-72-22 can only be opened when Refueling Water Storage Tank (RWST) to Containment Sump Suction to Containment Spray Pump 2A-A Suction, Valve 2-FCV-72-44, is FULLY CLOSED. (Steps 6.3[12]A, 6.3[56], 6.3[61])
- [25] Containment Spray Pump 2B-B Suction Valve 2-FCV-72-21 can only be opened when Refueling Water Storage Tank (RWST) to Containment Sump Suction to Containment Spray Pump 2B-B Suction, Valve 2-FCV-72-45, is FULLY CLOSED. (Steps 6.4[12]A, 6.4[56], 6.4[61])
- [26] Containment Spray Mini-Flow Valves 2-FCV-72-13 and 2-FCV-72-34 OPEN 13.5 seconds after the corresponding Containment Spray Pump is running, and the discharge flow of the pump is still below the low setpoint. (Steps 6.1[34]A, 6.2[34]A)
- [27] Containment Spray Mini-Flow Valves 2-FCV-72-13 and 2-FCV-72-34 CLOSE if the discharge flow of the pump is greater than or equal to the high setpoint. (Steps 6.1[28], 6.2[28])
- [28] Containment Spray Mini-Flow Valves 2-FCV-72-13 and 2-FCV-72-34 CLOSE when the corresponding Containment Spray Pump is not running. (Steps 6.1[36], 6.2[36])
- [29] RHR Spray Header Isolation Valve 2-FCV-72-40 can only be opened when Containment Sump to RHR Pump 2A Isolation Valve 2-FCV-63-72, is FULLY OPEN. (Steps 6.5[16], 6.5[21], 6.5[34])
- [30] RHR Spray Header Isolation Valve 2-FCV-72-41 can only be opened when Containment Sump to RHR Pump 2B Isolation Valve 2-FCV-63-73, is FULLY OPEN. (Steps 6.6[16], 6.6[21], 6.6[34])

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 42 of 249</b>
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## 6.0 PERFORMANCE

**NOTES**

1) The Subsections of this test are to be performed per the flow diagram below

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graph TD
    6.1[6.1] --- 6.2[6.2]
    6.2 --- 6.3[6.3]
    6.3 --- 6.4[6.4]
    6.4 --- 6.5[6.5]
    6.5 --- 6.6[6.6]
    6.6 --- 6.7[6.7]
    6.7 --- 6.8[6.8]
    6.8 --- 6.9[6.9]
    6.9 --- 6.10[6.10]
    6.5 --- 6.11[6.11]
    6.6 --- 6.12[6.12]
  
```

However, Sections 6.1 through 6.10 may NOT be performed simultaneously unless authorized by the Test Director.

2) 2-TOP-072-01 can used throughout this procedure as directed by the Test Director for activities such as filling, draining, and venting.

### 6.1 2-FCV-72-34 Logic/Stroke Timing

(Containment Spray Train A Miniflow Valve) (692 A11V PIPE CH)

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.1 have been completed.
- [2] **ENSURE** Breaker 2-BKR-72-34, CSP 2A-A MINIFLOW (2-FCV-72-34), 480V RX MOV BD 2A1-A, Compt 10F, is OPEN.
- [3] **INSTALL** Test Switch "CS-A Pump Run" in the CLOSED position on Terminal Strip DD, across Terminals 8 and 9 at Board 2-BD-211-A, 6.9kV SHUTDOWN BOARD 2A-A, Cubicle 13.

CV

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 43 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

- [4] **VERIFY** ICS point FD2181 displays "PWR OFF".  
**(Acc Crit 5.0[11])** \_\_\_\_\_  
CV
- [5] **LIFT** Wire 10F03 from Terminal 1 of Terminal Block TB655 in  
Panel 2-R-48. \_\_\_\_\_  
CV
- [6] **LIFT** Wire 10F02 from Terminal 2 of Terminal Block TB655 in  
Panel 2-R-48. \_\_\_\_\_  
CV
- [7] **INSTALL** Test Switch "CS-A LOW FLOW" in the OPEN  
position across Lifted Wires 10F03 and 10F02 at Terminal  
Block TB655 in Panel 2-R-48. \_\_\_\_\_  
CV
- [8] **LIFT** Wire 10F04 from Terminal 9 of Terminal Block TB655 in  
Panel 2-R-48. \_\_\_\_\_  
CV
- [9] **LIFT** Wire 10FC2 from Terminal 10 of Terminal Block TB655 in  
Panel 2-R-48. \_\_\_\_\_  
CV
- [10] **INSTALL** Test Switch "CS-A HIGH FLOW" in the OPEN  
position across Lifted Wires 10F04 and 10FC2 at Terminal  
Block TB655 in Panel 2-R-48. \_\_\_\_\_  
CV
- [11] **CLOSE** Breaker 2-BKR-72-34, CSP 2A-A MINIFLOW  
(2-FCV-72-34), 480V RX MOV BD 2A1-A, Compt 10F. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 44 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

- [12] **VERIFY** ICS point FD2181 displays "PWR ON".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [13] **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A  
MINI FLOW, to the CLOSE position at 2-M-6. \_\_\_\_\_
- [14] **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A  
MINI FLOW, is CLOSED. \_\_\_\_\_
- [15] **VERIFY** ICS point FD2182 displays "NOT OPE".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [16] **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A  
MINI FLOW, to the OPEN position, **AND**
- WHILE valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI  
FLOW, is opening, **PLACE** Handswitch 2-HS-72-34A, CNTMT  
SPRAY PMP A MINI FLOW, to CLOSE, **AND**
- RELEASE.** \_\_\_\_\_
- [17] **VERIFY** the following:
- A. RED run light is LIT at Board 2-MCC-213-A1-A, 480V  
REACTOR MOV BOARD 2A1-A, compartment 10F,  
during valve travel. \_\_\_\_\_
- B. Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW,  
is OPEN (locally). **(Acc Crit 5.0[9])** \_\_\_\_\_
- C. RED light LIT at Handswitch 2-HS-72-34A CNTMT,  
SPRAY PMP A MINI FLOW. **(Acc Crit 5.0[10])** \_\_\_\_\_
- D. GREEN light NOT LIT at Handswitch 2-HS-72-34A,  
CNTMT SPRAY PMP A MINI FLOW. **(Acc Crit 5.0[10])** \_\_\_\_\_
- [18] **VERIFY** ICS point FD2182 displays "OPEN".  
**(Acc Crit 5.0[11])** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 45 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

- [19] **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, is closing, **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW, to OPEN, **AND**

**RELEASE.**

- [20] **VERIFY** the following:

- A. Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, is CLOSED (locally). **(Acc Crit 5.0[9])**
- B. RED light NOT LIT at Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW. **(Acc Crit 5.0[10])**
- C. GREEN light LIT at Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW. **(Acc Crit 5.0[10])**

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 46 of 249
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed positions.
- 2) Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[21] **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A  
MINI FLOW, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI  
FLOW. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-34,  
CNTMT SPRAY PMP A MINI FLOW. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 47 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

[22] **PLACE** Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[23] **VERIFY** Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, is CLOSED by light indication at Handswitch 2-HS-72-34A, CNTMT SPRAY PMP A MINI FLOW. \_\_\_\_\_

[24] **CLOSE** Test Switch "CS-A LOW FLOW" in Panel 2-R-48, TB655. \_\_\_\_\_

[25] **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW OPENS. \_\_\_\_\_

[26] **OPEN** Test Switch "CS-A LOW FLOW" in Panel 2-R-48, TB655. \_\_\_\_\_

[27] **CLOSE** Test Switch "CS-A HIGH FLOW" in Panel 2-R-48, TB655. \_\_\_\_\_

[28] **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, CLOSSES (**Acc Crit 5.0[27]**). \_\_\_\_\_

[29] **OPEN** Test Switch "CS-A PUMP RUN" on Terminal Strip DD at Board 2-BD-211-A, 6.9kV SHUTDOWN BOARD 2A-A, Cubicle 13. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 48 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

- [30] **OPEN** Test Switch "CS-A HIGH FLOW" in Panel 2-R-48, TB655. \_\_\_\_\_
- [31] **CLOSE** Test Switch "CS-A LOW FLOW" in Panel 2-R-48, TB655. \_\_\_\_\_
- [32] **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, remains CLOSED. \_\_\_\_\_

### NOTES

- 1) In the following step the time delay of Time Delay Relay 62 will be verified. Timing begins with the closure of Test Switch "CS-A PUMP RUN" and stops when local valve movement is observed.
- 2) The range listed is the allowable value from NESSD 2-62-72-34 rounded to the nearest tenth.

- [33] **SIMULTANEOUSLY CLOSE** Test Switch "CS-A PUMP RUN",  
**AND**

**START** the stopwatch. \_\_\_\_\_

- [34] **STOP** the stopwatch when local movement of Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, is observed. \_\_\_\_\_

- A. **RECORD** time delay observed in previous step.  
**(Acc Crit 5.0[26])** \_\_\_\_\_

\_\_\_\_\_ seconds (12.8 to 14.2 secs)

M&TE \_\_\_\_\_

Cal Due Date \_\_\_\_\_

- B. **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, is OPEN. \_\_\_\_\_

- [35] **OPEN** Test Switch "CS-A PUMP RUN" on Terminal Strip DD at Board 2-BD-211-A, 6.9kV SHUTDOWN BOARD 2A-A, Cubicle 13. \_\_\_\_\_

- [36] **VERIFY** locally Valve 2-FCV-72-34, CNTMT SPRAY PMP A MINI FLOW, CLOSSES **(Acc Crit 5.0[28])**. \_\_\_\_\_



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 49 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

- [37] **OPEN** Breaker 2-BKR-72-34, CSP 2A-A MINIFLOW (2-FCV-72-34), 480V RX MOV BD 2A1-A, Compt 10F. \_\_\_\_\_
- [38] **REMOVE** Test Switch "CS-A PUMP RUN" from Terminal Strip DD, Terminals 8 and 9 at Board 2-BD-211-A, 6.9kV SHUTDOWN BOARD 2A-A, Cubicle 13. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [39] **REMOVE** Test Switch "CS-A LOW FLOW" at Terminal Block TB655 in Panel 2-R-48. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [40] **LAND** Wire 10F03 on Terminal 1 of Terminal Block TB655 in Panel 2-R-48. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [41] **LAND** Wire 10F02 on Terminal 2 of Terminal Block TB655 in Panel 2-R-48. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [42] **REMOVE** Test Switch "CS-A HIGH FLOW" at Terminal Block TB655 in Panel 2-R-48. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [43] **LAND** Wire 10F04 on Terminal 9 of Terminal Block TB655 in Panel 2-R-48. \_\_\_\_\_
- \_\_\_\_\_
- CV

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 50 of 249</b>
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## 6.1 2-FCV-72-34 Logic/Stroke Timing (continued)

[44] **LAND** Wire 10FC2 on Terminal 10 of Terminal Block TB655 in Panel 2-R-48.

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CV

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 51 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing

(Containment Spray Train B Miniflow Valve) (692 A11V PIPE CH)

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.2 have been completed. \_\_\_\_\_
- [2] **ENSURE** Breaker 2-BKR-72-13, CSP 2B-B MINIFLOW (2-FCV-72-13), 480V RX MOV BD 2B1-B, Compt 9F, is OPEN. \_\_\_\_\_
- [3] **INSTALL** Test Switch "CS-B PUMP RUN" in the CLOSED position on Terminal Strip DD, across Terminal 8 and 9 at Board 2-BD-211-B, 6.9kV SHUTDOWN BOARD 2B-B, Cubicle 13. \_\_\_\_\_  
\_\_\_\_\_ CV \_\_\_\_\_
- [4] **VERIFY** ICS point FD2333 displays "PWR OFF".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [5] **LIFT** wire 9F03 from Terminal 1 of Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_  
\_\_\_\_\_ CV \_\_\_\_\_
- [6] **LIFT** wire 9F02 from Terminal 2 of Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_  
\_\_\_\_\_ CV \_\_\_\_\_
- [7] **INSTALL** Test Switch "CS-B LOW FLOW" in the OPEN position across Lifted Wires 9F03 and 9F02 at Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_  
\_\_\_\_\_ CV \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 52 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

- [8] **LIFT** Wire 9F04 from Terminal 9 of Terminal Block TB655 in Panel 2-R-51.

CV

- [9] **LIFT** Wire 9FC2 from Terminal 10 of Terminal Block TB655 in Panel 2-R-51.

CV

- [10] **INSTALL** Test Switch "CS-B HIGH FLOW" in the OPEN position across Lifted Wires 9F04 and 9FC2 at Terminal Block TB655 in Panel 2-R-51.

CV

- [11] **CLOSE** Breaker 2-BKR-72-13, CSP 2B-B MINIFLOW (2-FCV-72-13), 480V RX MOV BD 2B1-B, Compt 9F.

- [12] **VERIFY** ICS point FD2333 displays "PWR ON".  
(Acc Crit 5.0[11])

- [13] **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW, to the CLOSE position at 2-M-6.

- [14] **VERIFY** locally Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is CLOSED.

- [15] **VERIFY** ICS point FD2334 displays "NOT OPE".  
(Acc Crit 5.0[11])

- [16] **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW, to the OPEN position, **AND**

WHILE valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is opening, **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW, to CLOSE **AND**

**RELEASE.**

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 53 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

[17] **VERIFY** the following:

- A. RED run light is LIT at Board 2-MCC-213-B1, 480V REACTOR MOV BOARD 2B1-B, Compartment 9F, during valve travel. \_\_\_\_\_
- B. Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is OPEN (locally). (**Acc Crit 5.0[9]**) \_\_\_\_\_
- C. RED light LIT at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- D. GREEN light NOT LIT at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. (**Acc Crit 5.0[10]**) \_\_\_\_\_

[18] **VERIFY** ICS point FD2334 displays "OPEN".  
(**Acc Crit 5.0[11]**) \_\_\_\_\_

[19] **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW to the CLOSE position, **AND**

WHILE valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is closing, **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW, to OPEN **AND**

**RELEASE.** \_\_\_\_\_

[20] **VERIFY** the following:

- A. Valve 2-FCV-72-13 CNTMT SPRAY PMP B MINI FLOW is CLOSED (locally). (**Acc Crit 5.0[9]**) \_\_\_\_\_
- B. RED light NOT LIT at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- C. GREEN light LIT at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. (**Acc Crit 5.0[10]**) \_\_\_\_\_

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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed positions.
- 2) Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[21] **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B  
MINI FLOW, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI  
FLOW. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-13,  
CNTMT SPRAY PMP B MINI FLOW. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 55 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

[22] **PLACE** Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 10$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[23] **VERIFY** Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is CLOSED by light indication at Handswitch 2-HS-72-13A, CNTMT SPRAY PMP B MINI FLOW. \_\_\_\_\_

[24] **CLOSE** Test Switch "CS-B LOW FLOW" in Panel 2-R-51, TB655. \_\_\_\_\_

[25] **VERIFY** locally Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW OPENS. \_\_\_\_\_

[26] **OPEN** Test Switch "CS-B LOW FLOW" in Panel 2-R-51, TB655. \_\_\_\_\_

[27] **CLOSE** Test Switch "CS-B HIGH FLOW" in Panel 2-R-51, TB655. \_\_\_\_\_

[28] **VERIFY** locally Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, CLOSSES (**Acc Crit 5.0[27]**). \_\_\_\_\_

[29] **OPEN** Test Switch "CS-B PUMP RUN" on Terminal Strip DD at Board 2-BD-211-B, 6.9kV SHUTDOWN BOARD 2B-B, Cubicle 13. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 56 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

[30] **OPEN** Test Switch "CS-B HIGH FLOW" in Panel 2-R-51, TB655. \_\_\_\_\_

[31] **CLOSE** Test Switch "CS-B LOW FLOW" in Panel 2-R-51, TB655. \_\_\_\_\_

[32] **VERIFY** locally Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, remains CLOSED. \_\_\_\_\_

### NOTES

- 1) In the following step the time delay of Time Delay Relay 62 will be verified. Timing begins with the closure of Test Switch "CS-B PUMP RUN" and stops when local valve movement is observed.
- 2) The range listed is the allowable value from NESSD 2-62-72-13 rounded to the nearest tenth.

[33] **SIMULTANEOUSLY CLOSE** Test Switch "CS-B PUMP RUN",  
**AND**

**START** the stopwatch \_\_\_\_\_

[34] **STOP** the stopwatch when local movement of Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is observed. \_\_\_\_\_

A. **RECORD** time delay observed in previous step.  
**(Acc Crit 5.0[26])** \_\_\_\_\_

\_\_\_\_\_ seconds (12.8 to 14.2 secs)

M&TE \_\_\_\_\_

Cal Due Date \_\_\_\_\_

B. **VERIFY** locally Valve 2-FCV-72-13, CNTMT SPRAY PMP B MINI FLOW, is OPEN. \_\_\_\_\_

[35] **OPEN** Test Switch "CS-B PUMP RUN" on Terminal Strip DD at Board 2-BD-211-B, 6.9kV SHUTDOWN BOARD 2B-B, Cubicle 13. \_\_\_\_\_

[36] **VERIFY** locally Valve 2-FCV-72-13 CNTMT SPRAY PMP B MINI FLOW CLOSING **(Acc Crit 5.0[28])**. \_\_\_\_\_



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 57 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

- [37] **OPEN** Breaker 2-BKR-72-13, CSP 2B-B MINIFLOW (2-FCV-72-13), 480V RX MOV BD 2B1-B, Compt 9F. \_\_\_\_\_
- [38] **REMOVE** Test Switch "CS-B PUMP RUN" from Terminal Strip DD, Terminals 8 and 9 at Board 2-BD-211-B, 6.9kV SHUTDOWN BOARD 2B-B, Cubicle 13. \_\_\_\_\_
- \_\_\_\_\_ CV
- [39] **REMOVE** Test Switch "CS-B LOW FLOW" at Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_
- \_\_\_\_\_ CV
- [40] **LAND** Wire 9F03 on Terminal 1 of Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_
- \_\_\_\_\_ CV
- [41] **LAND** Wire 9F02 on Terminal 2 of Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_
- \_\_\_\_\_ CV
- [42] **REMOVE** Test Switch "CS-B HIGH FLOW" at Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_
- \_\_\_\_\_ CV
- [43] **LAND** Wire 9F04 on Terminal 9 of Terminal Block TB655 in Panel 2-R-51. \_\_\_\_\_
- \_\_\_\_\_ CV

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 58 of 249</b>
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## 6.2 2-FCV-72-13 Logic/Stroke Timing (continued)

[44] **LAND** Wire 9FC2 on Terminal 10 of Terminal Block TB655 in Panel 2-R-51.

\_\_\_\_\_

\_\_\_\_\_

CV

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 59 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing

(RWST to Containment Spray Pump 2A-A Suction Valve 2-FCV-72-22) (680 A11U PIPE CH), and (Containment Sump to Containment Spray Pump 2A-A Suction Valve 2-FCV-72-44) (692 A13V VLV VAULT)

#### NOTE

Performance of this section will require entry into confined spaces for access to 2-FCV-72-44.

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.3 have been completed. \_\_\_\_\_
- [2] **ENSURE** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B, is CLOSED \_\_\_\_\_
- [3] **ENSURE** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is CLOSED. \_\_\_\_\_
- [4] **ENSURE** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E, is OPEN. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2183 displays "PWR OFF".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [6] **CLOSE** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, COMPT 7E. \_\_\_\_\_
- [7] **VERIFY** ICS point FD2183 displays "PWR ON".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [8] **ENSURE** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, is CLOSED from 2-HS-72-22A at 2-M-6. \_\_\_\_\_
- [9] **VERIFY** locally Valve 2-FCV-72-22 is CLOSED. \_\_\_\_\_
- [10] **VERIFY** ICS point FD2184 displays "CLOSED".  
(Acc Crit 5.0[11]) \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 60 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [11] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position, **AND**

WHILE valve 2-FCV-72-22 is opening, **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to CLOSE, **AND**

**RELEASE.**

- [12] **VERIFY** the following:

- A. Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, is OPEN (locally). (**Acc Crit 5.0[9] & 5.0[24]**)
- B. RED light is LIT at Handswitch 2-HS-72-22A RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[10]**)
- C. GREEN light is NOT LIT at Handswitch 2-HS-72-22A. (**Acc Crit 5.0[10]**)

- [13] **VERIFY** ICS point FD2184 displays "NOT CLS". (**Acc Crit 5.0[11]**)

- [14] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, is closing,

**PLACE** Handswitch 2-HS-72-22A to OPEN, **AND**

**RELEASE.**

- [15] **VERIFY** the following:

- A. Valve 2-FCV-72-22 RWST TO CNTMT SPRAY PMP A SUCTION is CLOSED (locally). (**Acc Crit 5.0[9]**)
- B. RED light is NOT LIT at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[10]**)
- C. GREEN light is LIT at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[10]**)

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 61 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

<b>NOTES</b>	
1)	The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and closed positions.
2)	Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[16] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 62 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[17] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[18] **OPEN** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E. \_\_\_\_\_

[19] **MANUALLY TRIP** the thermal overload for 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E. \_\_\_\_\_

[20] **CLOSE** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E. \_\_\_\_\_

[21] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position. \_\_\_\_\_

[22] **VERIFY** locally Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, remains CLOSED (**Acc Crit 5.0[8]**). \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 63 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[23] **ENSURE** that actuation of the Relay K5 in the next step will not adversely affect the other associated valves: 2-FCV-72-39, 2-FCV-72-40, 2-FCV-72-44, and 2-FCV-74-1.

[24] **DEPRESS** and **HOLD** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A to simulate Overload Bypass.

CV

[25] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position.

[26] **VERIFY** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, OPENS by RED light LIT at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION (**Acc Crit 5.0[8]**).

[27] **RELEASE** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A.

[28] **OPEN** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E.

[29] **RESET** the thermal overload for 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E.

[30] **CLOSE** Breaker 2-BKR-72-22, RWST TO CSP 2A-A (2-FCV-72-22), 480V C & A VENT BD 2A1-A, Compt 7E.

#### NOTE

The following steps will verify Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, closed interlock for 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT.

[31] **VERIFY** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, is OPEN by RED light LIT at Handswitch 2-HS-72-22A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT.

[32] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is CLOSED.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 64 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [33] **VERIFY** NO CONTINUITY at Junction Box 2-JB-292-1155 (692/A12V) Terminal Block TB Terminal 5 (Wire 13B01 (white) and Terminal 11 (Wire 13BSM (Black)). \_\_\_\_\_
- [34] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position at 2-M-6. \_\_\_\_\_
- [35] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains CLOSED (Acc Crit 5.0[22]). \_\_\_\_\_
- [36] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [37] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CS PMP A SUCT. \_\_\_\_\_
- [38] **MANUALLY CLOSE** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, until RED and GREEN lights LIT is observed at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. \_\_\_\_\_
- [39] **VERIFY** NO CONTINUITY at Junction Box 2-JB-292-1155 (692/A12V) Terminal Block TB Terminal 5 (Wire 13B01 (white) and Terminal 11 (Wire 13BSM (Black)). \_\_\_\_\_
- [40] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position at 2-M-6. \_\_\_\_\_
- [41] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains CLOSED (Acc Crit 5.0[22]). \_\_\_\_\_



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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [42] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [43] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [44] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the CLOSED position, **AND**
- VERIFY** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, travels to the CLOSED position by GREEN light LIT indication at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. \_\_\_\_\_
- [45] **VERIFY** CONTINUITY at Junction Box 2-JB-292-1155 (692/A12V) Terminal Block TB Terminal 5 (Wire 13B01 (White) and Terminal 11 (Wire 13BSM (Black)). \_\_\_\_\_

#### NOTE

The following steps will verify Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCTION, closed interlocks for Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION.

- [46] **VERIFY** CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04 in Junction Box 2-JB-292-771-A (676/A11T)). \_\_\_\_\_
- [47] **VERIFY** CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-771-A (676/A11T). \_\_\_\_\_
- [48] **IF** Train A CS suction piping is filled with water, **THEN**
- DRAIN** Train A CS suction piping per 2-TOP-072-01. \_\_\_\_\_
- [49] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position. \_\_\_\_\_
- [50] **VERIFY** locally valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, travels to the OPEN position. (Acc Crit 5.0[9] & 5.0[22]) \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 66 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [51] **VERIFY** RED light is LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [52] **VERIFY** GREEN light is NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [53] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-771-A (676/A11T). \_\_\_\_\_
- [54] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-771-A (676/A11T). \_\_\_\_\_
- [55] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position. \_\_\_\_\_
- [56] **VERIFY** Valve 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, remains CLOSED by observing GREEN light LIT at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION. (**Acc Crit 5.0[24]**). \_\_\_\_\_
- [57] **MANUALLY CLOSE** Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, until the RED and GREEN lights are LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_
- [58] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-771-A (676/A11T). \_\_\_\_\_
- [59] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-771-A (676/A11T). \_\_\_\_\_
- [60] **PLACE** Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION, to the OPEN position. \_\_\_\_\_
- [61] **VERIFY** 2-FCV-72-22, RWST TO CNTMT SPRAY PMP A SUCTION, remains CLOSED by observing GREEN light LIT at Handswitch 2-HS-72-22A, RWST TO CNTMT SPRAY PMP A SUCTION (**Acc Crit 5.0[24]**). \_\_\_\_\_
- [62] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the CLOSE position. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 67 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [63] **VERIFY** 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, travels to the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. **(Acc Crit 5.0[9])**

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- [64] **ENSURE** Handswitch 2-XS-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is in the NORMAL position at Board 2-MCC-213-A1, 480V REACTOR MOV BOARD 2A1-A, Compartment 13B.

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- [65] **OPEN** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B.

---
- [66] **VERIFY** ICS point FD2185 displays "PWR OFF".  
**(Acc Crit 5.0[11])**

---
- [67] **CLOSE** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B.

---
- [68] **VERIFY** ICS point FD2185 displays "PWR ON".  
**(Acc Crit 5.0[11])**

---
- [69] **VERIFY** ICS point FD2186 displays "NOT OPE".  
**(Acc Crit 5.0[11])**

---
- [70] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL; is CLEAR.

---
- [71] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is NORMAL (Blue).

---
- [72] **PLACE** Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position, then to NORMAL on Board 2-MCC-213-A1, Compartment 13B.

---
- [73] **VERIFY** Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B.

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<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 68 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [74] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position, **AND**

WHILE valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is opening, **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to CLOSE **AND RELEASE**.

- [75] **VERIFY** the following:

- A. During valve travel the RED run light is LIT at Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B.
- B. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, ALARMS (**Acc Crit 5.0[6]**).
- C. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is in ALARM (RED).
- D. RED light is LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. (**Acc Crit 5.0[10]**)
- E. GREEN light is NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. (**Acc Crit 5.0[10]**)
- F. RED light is LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. (**Acc Crit 5.0[10]**)
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. (**Acc Crit 5.0[10]**)
- H. Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is OPEN locally.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 69 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[76] **VERIFY** ICS point FD2186 displays "OPEN".  
**(Acc Crit 5.0[11])**

\_\_\_\_\_

[77] **PLACE** Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT  
 SPRAY PMP A SUCT, to the CLOSE position then to  
 NORMAL at Board 2-MCC-213-A1, Compartment 13B.

\_\_\_\_\_

[78] **VERIFY** Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT  
 SPRAY PMP A SUCT, remains in the OPEN position by RED  
 light LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO  
 CNTMT SPRAY PMP A SUCT.

\_\_\_\_\_

[79] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT  
 SPRAY PMP A SUCT, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-44, CNTMT SUMP TO CNTMT  
 SPRAY PMP A SUCT, is closing, **PLACE**  
 Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY  
 PMP A SUCT, to OPEN, **AND**

**RELEASE.**

\_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 70 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[80] **VERIFY** the following:

- A. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS. \_\_\_\_\_
- B. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is NORMAL (Blue). \_\_\_\_\_
- C. RED light is NOT LIT at Handswitch 2-HS-72-44A CNTMT SUMP TO CNTMT SPRAY PMP A SUCT.  
(Acc Crit 5.0[10]) \_\_\_\_\_
- D. GREEN light is LIT at Handswitch 2-HS-72-44A CNTMT SUMP TO CNTMT SPRAY PMP A SUCT.  
(Acc Crit 5.0[10]) \_\_\_\_\_
- E. RED light is NOT LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B.  
(Acc Crit 5.0[10]) \_\_\_\_\_
- F. GREEN light LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B.  
(Acc Crit 5.0[10]) \_\_\_\_\_
- G. Valve 2-FCV-72-44 CNTMT SUMP TO CNTMT SPRAY PMP A SUCT is CLOSED locally. \_\_\_\_\_

[81] **ENSURE** Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, is CLEAR. \_\_\_\_\_

[82] **ENSURE** Event Display Monitor reports 149-C 480 RX MOV BD 2A1-A/2A2-A XS IN AUX is NORMAL (Blue). \_\_\_\_\_

[83] **PLACE** Handswitch 2-XS-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, in the Aux position on Board 2-MCC-213-A1, compartment 13B. \_\_\_\_\_

[84] **VERIFY** Annunciator Window 149-C, 480 RX MOV BD 2A1-A/2A2-A, ALARMS (Acc Crit 5.0[4]). \_\_\_\_\_

[85] **VERIFY** Event Display Monitor reports 149-C 480 RX MOV BD 2A1-A/2A2-A XS IN AUX is in ALARM (RED). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 71 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

- [86] **VERIFY** RED and GREEN lights are OFF at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- [87] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position. \_\_\_\_\_
- [88] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains CLOSED. \_\_\_\_\_
- [89] **PLACE** Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position then to NORMAL. \_\_\_\_\_
- [90] **VERIFY** the following:
- A. RED light is LIT at Handswitch 2-HS-72-44C CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. \_\_\_\_\_
  - B. GREEN light is NOT LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. \_\_\_\_\_
  - C. RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT [2-M-6]. \_\_\_\_\_
- [91] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is OPEN. (**Acc Crit 5.0[9]**) \_\_\_\_\_
- [92] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the CLOSE position [2-M-6]. \_\_\_\_\_
- [93] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains OPEN. \_\_\_\_\_
- [94] **PLACE** Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B, to the CLOSE position, then to NORMAL. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 72 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[95] **VERIFY** the following:

- A. RED light is NOT LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. \_\_\_\_\_
- B. GREEN light is LIT at Handswitch 2-HS-72-44C, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, at Board 2-MCC-213-A1, Compartment 13B. \_\_\_\_\_
- C. RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT [2-M-6]. \_\_\_\_\_

[96] **VERIFY** locally Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, is CLOSED. (**Acc Crit 5.0[9]**) \_\_\_\_\_

[97] **PLACE** Handswitch 2-XS-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the NORMAL position on Board 2-MCC-213-A1, Compartment 13B. \_\_\_\_\_

[98] **VERIFY** Annunciator Window 149-C, 480 RX MOV BD 2A1-A/2A2-A, CLEARS. \_\_\_\_\_

[99] **VERIFY** Event Display Monitor reports 149-C 480 RX MOV BD 2A1-A/2A2-A XS IN AUX is NORMAL (Blue). \_\_\_\_\_

[100] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_

[101] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_



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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

NOTES	
1)	The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed position.
2)	Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[102] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at HANDSWITCH  
2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A  
SUCT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-44,  
CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 74 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[103] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at HANDSWITCH 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[104] **OPEN** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B. \_\_\_\_\_

[105] **MANUALLY TRIP** the thermal overload for 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B. \_\_\_\_\_

[106] **CLOSE** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B. \_\_\_\_\_

[107] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position. \_\_\_\_\_

[108] **VERIFY** Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT (**Acc Crit 5.0[8]**). \_\_\_\_\_

[109] **ENSURE** that actuation of the Relay K5 in the next step will not adversely affect the other associated valves: 2-FCV-72-22, 2-FCV-72-39, 2-FCV-72-40, and 2-FCV-74-1. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 75 of 249</b>
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### 6.3 2-FCV-72-22, and 2-FCV-72-44 Logic /Stroke Timing (continued)

[110] **DEPRESS** and **HOLD** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-1 to simulate Overload Bypass.

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CV

[111] **PLACE** Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, to the OPEN position.

[112] **VERIFY** Valve 2-FCV-72-44, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT, OPENS by RED light LIT at Handswitch 2-HS-72-44A, CNTMT SUMP TO CNTMT SPRAY PMP A SUCT (**Acc Crit 5.0[8]**).

[113] **RELEASE** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-1.

[114] **OPEN** Breaker 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B.

[115] **RESET** the thermal overload for 2-BKR-72-44, CNTMT SUMP TO CSP 2A-A SUCTION (2-FCV-72-44), 480V RX MOV BD 2A1-A, Compt 13B.

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 76 of 249</b>
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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing

(RWST to Containment Spray Pump 2B-B Suction Valve 2-FCV-72-21) (682 A11T PIPE CH), and (Containment Sump to Containment Spray Pump 2B-B Suction Valve 2-FCV-72-45) (692 A13V VLV VAULT)

##### NOTE

Performance of this section will require entry into confined spaces for access to 2-FCV-72-45.

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.4 have been completed. \_\_\_\_\_
- [2] **ENSURE** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E, is CLOSED. \_\_\_\_\_
- [3] **ENSURE** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, is CLOSED. \_\_\_\_\_
- [4] **ENSURE** Breaker 2-BKR-72-21, RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E, is OPEN. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2335 displays "PWR OFF".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [6] **CLOSE** Breaker 2-BKR-72-21, RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_
- [7] **VERIFY** ICS point FD2335 displays "PWR ON".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [8] **ENSURE** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, is CLOSED from 2-HS-72-21A at 2-M-6. \_\_\_\_\_
- [9] **VERIFY** locally Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, is CLOSED. \_\_\_\_\_
- [10] **VERIFY** ICS point FD2336 displays "CLOSED".  
**(Acc Crit 5.0[11])** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 77 of 249</b>
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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [11] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the OPEN position, **AND**

WHILE valve 2-FCV-72-21 is opening, **PLACE** Handswitch 2-HS-72-21A RWST TO CNTMT SPRAY PMP B SUCTION to CLOSE, **AND**

**RELEASE.**

- [12] **VERIFY** the following:

- A. Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, is OPEN (locally) (**Acc Crit 5.0[9] & 5.0[25]**).
- B. RED light is LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. (**Acc Crit 5.0[10]**)
- C. GREEN light is NOT LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. (**Acc Crit 5.0[10]**)

- [13] **VERIFY** ICS point FD2336 displays "NOT CLS". (**Acc Crit 5.0[11]**)

- [14] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-21 is closing, **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION to OPEN, **AND**

**RELEASE.**

- [15] **VERIFY** the following:

- A. Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, is CLOSED (locally). (**Acc Crit 5.0[9]**)
- B. RED light is NOT LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. (**Acc Crit 5.0[10]**)
- C. GREEN light is LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. (**Acc Crit 5.0[10]**)

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

##### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and closed positions.
- 2) Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[16] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY  
PMP B SUCTION, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY  
PMP B SUCTION. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-21,  
RWST TO CNTMT SPRAY PMP B SUCTION. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 79 of 249</b>
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**6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)**

- [17] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the CLOSE position. \_\_\_\_\_

- A. **RECORD** remote closing time at  
Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY  
PMP B SUCTION. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

- B. **RECORD** local closing time at Valve 2-FCV-72-21, RWST  
TO CNTMT SPRAY PMP B SUCTION. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 14.6$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

- [18] **OPEN** Breaker 2-BKR-72-21, RWST TO CSP 2B-B  
(2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_

- [19] **MANUALLY TRIP** the thermal overload for 2-BKR-72-21,  
RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD  
2B1-B, Compt 7E. \_\_\_\_\_

- [20] **CLOSE** Breaker 2-BKR-72-21, RWST TO CSP 2B-B  
(2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_

- [21] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY  
PMP B SUCTION, to the OPEN position. \_\_\_\_\_

- [22] **VERIFY** locally Valve 2-FCV-72-21, RWST TO CNTMT  
SPRAY PMP B SUCTION, remains CLOSED  
(**Acc Crit 5.0[8]**). \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [23] **ENSURE** that actuation of the Relay K5 in the next step will not adversely affect the other associated valves: 2-FCV-63-172, 2-FCV-63-175, 2-FCV-67-67, and 2-FCV-72-2 \_\_\_\_\_
- [24] **DEPRESS** and **HOLD** the armature of Relay K5 located in back of Panel 16D on 480V RX MOV BD 2B1-B to simulate Overload Bypass. \_\_\_\_\_
- \_\_\_\_\_
- CV
- [25] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the OPEN position. \_\_\_\_\_
- [26] **VERIFY** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, OPENS by RED light LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION **(Acc Crit 5.0[8])**. \_\_\_\_\_
- [27] **RELEASE** the armature of Relay K5 located in back of Panel 16D on 480V RX MOV BD 2B1-B. \_\_\_\_\_
- [28] **OPEN** Breaker 2-BKR-72-21, RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_
- [29] **RESET** the thermal overload for 2-BKR-72-21, RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_
- [30] **CLOSE** Breaker 2-BKR-72-21, RWST TO CSP 2B-B (2-FCV-72-21), 480V C & A VENT BD 2B1-B, Compt 7E. \_\_\_\_\_

#### NOTE

The following steps will verify Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, closed interlock for 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT.

- [31] **VERIFY** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, is OPEN by RED light LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. \_\_\_\_\_
- [32] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, is CLOSED. \_\_\_\_\_



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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [33] **VERIFY** NO CONTINUITY at Junction Box 2-JB-292-1156 (692/A13V) Terminal Block TB Terminal 5 (Wire 14E01 (white) and Terminal 12 (Wire 14ESM (Black)). \_\_\_\_\_
- [34] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position at 2-M-6. \_\_\_\_\_
- [35] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, remains CLOSED (Acc Crit 5.0[23]). \_\_\_\_\_
- [36] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [37] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [38] **MANUALLY CLOSE** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, until RED and GREEN light LIT is observed at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. \_\_\_\_\_
- [39] **VERIFY** NO CONTINUITY at Junction Box 2-JB-292-1156 (692/A13V) Terminal Block TB Terminal 5 (Wire 14E01 (white) and Terminal 12 (Wire 14ESM (Black)). \_\_\_\_\_
- [40] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position at 2-M-6. \_\_\_\_\_
- [41] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, remains CLOSED (Acc Crit 5.0[23]). \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [42] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [43] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [44] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the CLOSED position, **AND**
- VERIFY** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, travels to the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION. \_\_\_\_\_
- [45] **VERIFY** CONTINUITY at Junction Box 2-JB-292-1156 (692/A13V) Terminal Block TB Terminal 5 (Wire 14E01 (White) and Terminal 12 (Wire 14ESM (Black)). \_\_\_\_\_

#### NOTE

The following steps will verify Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, closed interlocks for Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION.

- [46] **VERIFY** CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04 in Junction Box 2-JB-292-770-A (676/A11T)). \_\_\_\_\_
- [47] **VERIFY** CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-770-A (676/A11T). \_\_\_\_\_
- [48] **IF** Train B CS suction piping is filled with water, **THEN**
- DRAIN** Train B CS suction piping per 2-TOP-072-01. \_\_\_\_\_
- [49] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position \_\_\_\_\_
- [50] **VERIFY** locally valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, travels to the OPEN position (**Acc Crit 5.0[9] & 5.0[23]**). \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [51] **VERIFY** RED light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [52] **VERIFY** GREEN light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [53] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-770-A (676/A11T). \_\_\_\_\_
- [54] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-770-A (676/A11T). \_\_\_\_\_
- [55] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the OPEN position. \_\_\_\_\_
- [56] **VERIFY** Valve 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, remains CLOSED by observing GREEN light LIT at Handswitch 2-HS-72-21A, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT. **(Acc Crit 5.0[25])**. \_\_\_\_\_
- [57] **MANUALLY CLOSE** Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, until the RED and GREEN lights are LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [58] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 6 (Wire 7E02) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-770-A (676/A11T). \_\_\_\_\_
- [59] **VERIFY** NO CONTINUITY at Terminal Block TA across Terminal 7 (Wire 7E03) and Terminal 11 (Wire 7E04) in Junction Box 2-JB-292-770-A (676/A11T). \_\_\_\_\_
- [60] **PLACE** Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION, to the OPEN position. \_\_\_\_\_
- [61] **VERIFY** 2-FCV-72-21, RWST TO CNTMT SPRAY PMP B SUCTION, remains CLOSED by observing GREEN light LIT at Handswitch 2-HS-72-21A, RWST TO CNTMT SPRAY PMP B SUCTION **(Acc Crit 5.0[25])**. \_\_\_\_\_
- [62] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the CLOSE position. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 84 of 249</b>
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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [63] **VERIFY** 2-FCV-72-45 CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION travels to the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [64] **ENSURE** Handswitch 2-XS-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, is in the NORMAL position at Board 2-MCC-213-A1, 480V REACTOR MOV BOARD 2A1-A, Compartment 14E. \_\_\_\_\_
- [65] **OPEN** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E. \_\_\_\_\_
- [66] **VERIFY** ICS point FD2337 displays "PWR OFF". **(Acc Crit 5.0[11])** \_\_\_\_\_
- [67] **CLOSE** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E. \_\_\_\_\_
- [68] **VERIFY** ICS point FD2337 displays "PWR ON". **(Acc Crit 5.0[11])** \_\_\_\_\_
- [69] **VERIFY** ICS point FD2338 displays "NOT OPE". **(Acc Crit 5.0[11])** \_\_\_\_\_
- [70] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL; is CLEAR. \_\_\_\_\_
- [71] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is NORMAL (Blue). \_\_\_\_\_
- [72] **PLACE** Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, to the OPEN position, then to NORMAL on Board 2-MCC-213-B1, Compartment 14E. \_\_\_\_\_
- [73] **VERIFY** Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION at Board 2-MCC-213-B1, Compartment 14E. \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

[74] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position, **AND**

WHILE valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, is opening, **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to CLOSE, **AND**

**RELEASE.**

[75] **VERIFY** the following:

- A. During valve travel the RED run light is LIT at Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Comp 14E.
- B. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, ALARMS (**Acc Crit 5.0[6]**).
- C. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is in ALARM (RED).
- D. RED light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[10]**)
- E. GREEN light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[10]**)
- F. RED light is LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, at Board 2-MCC-213-B1, Compartment 14E. (**Acc Crit 5.0[10]**)
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, at Board 2-MCC-213-B1, Compartment 14E. (**Acc Crit 5.0[10]**)
- H. Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, is OPEN locally.

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**6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)**

[76] **VERIFY** ICS point FD2338 displays "OPEN".  
**(Acc Crit 5.0[11])**

[77] **PLACE** Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT  
 SPRAY PMP B SUCTION, to the CLOSE position then to  
 NORMAL at Board 2-MCC-213-B1, Compartment 14E.

[78] **VERIFY** Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT  
 SPRAY PMP B SUCTION, remains in the OPEN position by  
 RED light LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO  
 CNTMT SPRAY PMP B SUCTION.

[79] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP  
 SUCTION, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-45, CNTMT SUMP TO CNTMT  
 SPRAY PMP B SUCTION, is closing, **PLACE** Handswitch  
 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to  
 OPEN, **AND**

**RELEASE.**

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

[80] **VERIFY** the following:

- A. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS. \_\_\_\_\_
- B. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION LINE UP is NORMAL (Blue). \_\_\_\_\_
- C. RED light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- D. GREEN light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- E. RED light is NOT LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, at Board 2-MCC-213-B1, Compartment 14E. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- F. GREEN light LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, at Board 2-MCC-213-B1, Compartment 14E. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- G. Valve 2-FCV-72-45 CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION is CLOSED, locally. \_\_\_\_\_

[81] **ENSURE** Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, is CLEAR. \_\_\_\_\_

[82] **ENSURE** Event Display Monitor reports 150-C 480 RX MOV BD 2B1-B/2B2-B XS IN AUX is NORMAL (Blue). \_\_\_\_\_

[83] **PLACE** Handswitch 2-XS-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, in the Aux position on Board 2-MCC-213-B1, compartment 14E. \_\_\_\_\_

[84] **VERIFY** Annunciator Window 150-C, 480 RX MOV BD 2B1-B/2B2-B, ALARMS (**Acc Crit 5.0[5]**). \_\_\_\_\_

[85] **VERIFY** Event Display Monitor reports 150-C 480 RX MOV BD 2B1-B/2B2-B XS IN AUX is in ALARM (RED). \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

- [86] **VERIFY** RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- [87] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position. \_\_\_\_\_
- [88] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, remains CLOSED. \_\_\_\_\_
- [89] **PLACE** Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, to the OPEN position then to NORMAL. \_\_\_\_\_
- [90] **VERIFY** the following:
- A. RED light is LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, at Board 2-MCC-213-B1, compartment 14E. \_\_\_\_\_
  - B. GREEN light is NOT LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, at Board 2-MCC-213-B1, compartment 14E. \_\_\_\_\_
  - C. RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_
- [91] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, is OPEN. (**Acc Crit 5.0[9]**) \_\_\_\_\_
- [92] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the CLOSE position. \_\_\_\_\_
- [93] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, remains OPEN. \_\_\_\_\_
- [94] **PLACE** Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, at Board 2-MCC-213-B1, Compartment 14E, to the CLOSE position, then to NORMAL. \_\_\_\_\_



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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

[95] **VERIFY** the following:

- A. RED light is NOT LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION at Board 2-MCC-213-B1, Compartment 14E. \_\_\_\_\_
- B. GREEN light is LIT at Handswitch 2-HS-72-45C, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION at Board 2-MCC-213-B1, Compartment 14E. \_\_\_\_\_
- C. RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION [2-M-6]. \_\_\_\_\_

[96] **VERIFY** locally Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, is CLOSED. (**Acc Crit 5.0[9]**) \_\_\_\_\_

[97] **PLACE** Handswitch 2-XS-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT, to the NORMAL position on Board 2-MCC-213-B1, Compartment 14E. \_\_\_\_\_

[98] **VERIFY** Annunciator Window 150-C, 480 RX MOV BD 2B1-B/2B2-B, CLEARS. \_\_\_\_\_

[99] **VERIFY** Event Display Monitor reports 150-C 480 RX MOV BD 2B1-B/2B2-B XS IN AUX is NORMAL (Blue). \_\_\_\_\_

[100] **VERIFY** GREEN light is LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_

[101] **VERIFY** RED light is NOT LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

NOTES	
1)	The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed position.
2)	Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[102] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at HANDSWITCH 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION.  
(Acc Crit 5.0[12]) \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 20 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT. \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 20 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

[103] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at HANDSWITCH 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 20$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[104] **OPEN** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E. \_\_\_\_\_

[105] **MANUALLY TRIP** the thermal overload for 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E. \_\_\_\_\_

[106] **CLOSE** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E. \_\_\_\_\_

[107] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position. \_\_\_\_\_

[108] **VERIFY** Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[8]**) \_\_\_\_\_

[109] **ENSURE** that actuation of the Relay K6 in the next step will not adversely affect the other associated valves: 2-FCV-74-2, 2-FCV-74-21, 2-FCV-74-24, and 2-FCV-74-35. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 92 of 249</b>
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#### 6.4 2-FCV-72-21, and 2-FCV-72-45 Logic /Stroke Timing (continued)

[110] **DEPRESS** and **HOLD** the armature of Relay K6 located in back of Panel 16D on 480V RX MOV BD 2B1-B to simulate Overload Bypass.

CV

[111] **PLACE** Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION, to the OPEN position.

[112] **VERIFY** Valve 2-FCV-72-45, CNTMT SUMP TO CNTMT SPRAY PMP B SUCTION, OPENS by RED light LIT at Handswitch 2-HS-72-45A, CNTMT SUMP TO CSPMP SUCTION. (**Acc Crit 5.0[8]**)

[113] **RELEASE** the armature of Relay K6 located in back of Panel 16D on 480V RX MOV BD 2B1-B.

[114] **OPEN** Breaker 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E.

[115] **RESET** the thermal overload for 2-BKR-72-45, CNTMT SUMP TO CSP 2B-B SUCTION (2-FCV-72-45), 480V RX MOV BD 2B1-B, Compt 14E.

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 93 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing

(Residual Heat Removal (RHR) Train A Spray Header Isolation Flow Control Valve)  
(723 A11V BIT RM)

### NOTE

Throughout this Subsection, when directed by the Test Director 2-TOP-074-01 may be used for activities such as filling, draining, or venting for Train A RHR piping

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.5 have been completed. \_\_\_\_\_
- [2] **ENSURE** the Valves listed are positioned as follows:
  - A. 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_
  - B. 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is CLOSED. \_\_\_\_\_
  - C. 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_
- [3] **ENSURE** Handswitch 2-XS-72-40, RHR SPRAY HDR A TO CNTMT, to the NORMAL position at Board 2-MCC-213-A1, 480V REACTOR MOV BOARD 2A1-A, Compartment 14A. \_\_\_\_\_
- [4] **ENSURE** Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A, is OPEN. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2187 displays "PWR OFF".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [6] **CLOSE** Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A. \_\_\_\_\_
- [7] **VERIFY** ICS point FD2187 displays "PWR ON".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [8] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is CLOSED. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 94 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

- [9] **VERIFY** ICS point FD2188 displays "NOT OPE".  
**(Acc Crit 5.0[11])** \_\_\_\_\_
- [10] **ENSURE** Breaker 2-BKR-63-72, CNTMT SUMP TO RHR PMP  
A SUCT, is CLOSED at Board 2-MCC-213-A1, 480V  
REACTOR MOV BOARD 2A1-A, Compartment 12B. \_\_\_\_\_
- [11] **PLACE** Handswitch 2-HS-63-72A, CNTMT SUMP TO RHR  
PMP A SUCT, to the CLOSE position on 2-M-6. \_\_\_\_\_
- [12] **VERIFY** locally Valve 2-FCV-63-72, CNTMT SUMP TO RHR  
PMP A SUCT, is CLOSED. \_\_\_\_\_
- [13] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 6 (Wire 14A02) and Terminal 11 (Wire 14A07) in  
Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_
- [14] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 7 (Wire 14A03) and Terminal 11 (Wire 14A07) in  
Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_
- [15] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO  
CNTMT, to the OPEN position. \_\_\_\_\_
- [16] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO  
CNTMT, remains in the CLOSED position **(Acc Crit 5.0[29])**. \_\_\_\_\_
- [17] **MANUALLY OPEN** Valve 2-FCV-63-72, CNTMT SUMP TO  
RHR PMP A SUCT, until RED and GREEN light LIT is  
observed at Handswitch 2-HS-63-72A, CNTMT SUMP TO  
RHR PMP A SUCT. \_\_\_\_\_
- [18] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 6 (Wire 14A02) and Terminal 11 (Wire 14A07) in  
Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 95 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

- [19] **VERIFY** NO CONTINUITY at Terminal Block TB across Terminal 7 (Wire 14A03) and Terminal 11 (Wire 14A07) in Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_
- [20] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the OPEN position. \_\_\_\_\_
- [21] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains in the CLOSED position. **(Acc Crit 5.0[29])** \_\_\_\_\_
- [22] **PLACE** Handswitch 2-HS-63-72A, CNTMT SUMP TO RHR PMP A SUCT, to the OPEN position. \_\_\_\_\_
- [23] **VERIFY** locally Valve 2-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT, is OPEN. \_\_\_\_\_
- [24] **VERIFY** CONTINUITY at Terminal Block TB across Terminal 6 (Wire 14A02) and Terminal 11 (Wire 14A07) in Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_
- [25] **VERIFY** CONTINUITY at Terminal Block TB across Terminal 7 (Wire 14A03) and Terminal 11 (Wire 14A07) in Junction Box 2-JB-292-1360-A (713/A11V). \_\_\_\_\_
- [26] **ENSURE** Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, is CLEAR. \_\_\_\_\_
- [27] **ENSURE** Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is NORMAL (Blue). \_\_\_\_\_
- [28] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, is CLEAR. \_\_\_\_\_
- [29] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is NORMAL (Blue). \_\_\_\_\_
- [30] **PLACE** Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [31] **VERIFY** Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 96 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

- [32] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the OPEN position, **AND**

WHILE valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is opening, **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to CLOSE, **AND**

**RELEASE.**

- [33] **VERIFY** the following:

- A. During valve travel the RED run light is LIT at Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A.
- B. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, ALARMS (**Acc Crit 5.0[7]**).
- C. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is in ALARM (RED).
- D. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, ALARMS (**Acc Crit 5.0[6]**).
- E. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is in ALARM (RED).
- F. RED light is LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**)
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**)
- H. RED light is LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, at Board 2-MCC-213-A1, compartment 14A. (**Acc Crit 5.0[10]**)
- I. GREEN light is NOT LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, at Board 2-MCC-213-A1, compartment 14A. (**Acc Crit 5.0[10]**)



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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

[34] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is OPEN (**Acc Crit 5.0[9] & 5.0[29]**). \_\_\_\_\_

[35] **VERIFY** ICS point FD2188 displays "OPEN".  
(**Acc Crit 5.0[11]**) \_\_\_\_\_

[36] **PLACE** Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

[37] **VERIFY** Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains in the OPEN position by RED light LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_

[38] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is closing, **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to OPEN, **AND**

**RELEASE.** \_\_\_\_\_

[39] **VERIFY** the following:

A. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, CLEARS. \_\_\_\_\_

B. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is NORMAL (Blue). \_\_\_\_\_

C. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS. \_\_\_\_\_

D. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is NORMAL (Blue). \_\_\_\_\_

E. GREEN light is LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_

F. RED light is NOT LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 98 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

- G. GREEN light is LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, at Board 2-MCC-213-A1, Compartment 14A. **(Acc Crit 5.0[10])** \_\_\_\_\_
- H. RED light is NOT LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, at Board 2-MCC-213-A1, Compartment 14A. **(Acc Crit 5.0[10])** \_\_\_\_\_
- [40] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is CLOSED. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [41] **ENSURE** Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, is CLEAR. \_\_\_\_\_
- [42] **ENSURE** Event Display Monitor reports 149C, 480 RX MOV BD 2A1-A/2A2-A XS IN AUX, is NORMAL (Blue). \_\_\_\_\_
- [43] **PLACE** Handswitch 2-XS-72-40, RHR SPRAY HDR A TO CNTMT, in the AUX position at Board 2-MCC-213-A1, Compartment 14A. \_\_\_\_\_
- [44] **VERIFY** the following:
  - A. RED and GREEN lights at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, are NOT LIT. **(Acc Crit 5.0[10])** \_\_\_\_\_
  - B. Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, ALARMS **(Acc Crit 5.0[4])**. \_\_\_\_\_
  - C. Event Display Monitor reports 149-C, 480 RX MOV BD 2A1-A/2A2-A XS IN AUX, is in ALARM (RED). \_\_\_\_\_
- [45] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the OPEN position. \_\_\_\_\_
- [46] **VERIFY** locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains in the CLOSED position. \_\_\_\_\_
- [47] **PLACE** Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 99 of 249</b>
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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

[48] **VERIFY** the following:

- A. Locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, travels to the OPEN position. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. RED light is LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_
- C. GREEN light is NOT LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_
- D. RED and GREEN lights at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, are NOT LIT. \_\_\_\_\_

[49] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the CLOSE position. \_\_\_\_\_

[50] **VERIFY** Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains in the OPEN position. \_\_\_\_\_

[51] **PLACE** Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

[52] **VERIFY** the following:

- A. Locally Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, travels to the CLOSED position. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. GREEN light is LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_
- C. RED light is NOT LIT at Handswitch 2-HS-72-40C, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_

[53] **PLACE** Handswitch 2-XS-72-40, RHR SPRAY HDR A TO CNTMT, in the NORMAL position. \_\_\_\_\_

[54] **VERIFY** the following:

- A. Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, CLEARS. \_\_\_\_\_
- B. Event Display Monitor reports 149C, 480 RX MOV BD 2A1-A/2A2-A XS IN AUX, is NORMAL (Blue). \_\_\_\_\_

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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed position.
- 2) Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with position indication lights status change.

[55] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO  
CNTMT, to the OPEN position. \_\_\_\_\_

- A. **RECORD** remote opening time at  
Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO  
CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

- B. **RECORD** local opening time at Valve 2-FCV-72-40, RHR  
SPRAY HDR A TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

[56] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[57] **OPEN** Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A. \_\_\_\_\_

[58] **MANUALLY TRIP** the thermal overload for 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A. \_\_\_\_\_

[59] **CLOSE** Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A. \_\_\_\_\_

[60] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the OPEN position. \_\_\_\_\_

[61] **VERIFY** Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, remains CLOSED by GREEN light LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT (**Acc Crit 5.0[8]**). \_\_\_\_\_

[62] **ENSURE** that actuation of the Relay K5 in the next step will not adversely affect the other associated valves: 2-FCV-72-22, 2-FCV-72-39, 2-FCV-72-44, and 2-FCV-74-1. \_\_\_\_\_

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## 6.5 2-FCV-72-40 Logic/Stroke Timing (continued)

- [63] **DEPRESS** and **HOLD** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A to simulate Overload Bypass.
- \_\_\_\_\_
- \_\_\_\_\_
- CV
- [64] **PLACE** Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT, to the OPEN position.
- \_\_\_\_\_
- [65] **VERIFY** Valve 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, OPENS by RED light LIT at Handswitch 2-HS-72-40A, RHR SPRAY HDR A TO CNTMT (Acc Crit 5.0[8]).
- \_\_\_\_\_
- [66] **RELEASE** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A.
- \_\_\_\_\_
- [67] **OPEN** Breaker 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A.
- \_\_\_\_\_
- [68] **RESET** the thermal overload for 2-BKR-72-40, RHR SPRAY HDR A ISOL (2-FCV-72-40), 480V RX MOV BD 2A1-A, Compt 14A.
- \_\_\_\_\_
- [69] **PLACE** Handswitch 2-HS-63-72A, CNTMT SUMP TO RHR PMP A SUCT, to the CLOSE position.
- \_\_\_\_\_
- [70] **VERIFY** Valve 2-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT, CLOSES by GREEN light LIT at Handswitch 2-HS-63-72A, CNTMT SUMP TO RHR PMP A SUCT.
- \_\_\_\_\_

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## 6.6 2-FCV-72-41 Logic/Stroke Timing

(Residual Heat Removal (RHR) Train B Spray Header Isolation Flow Control Valve)  
(723 A11V BIT RM)

### NOTE

Throughout this Subsection, when directed by the Test Director 2-TOP-074-01 may be used for activities such as filling, draining, or venting for Train B RHR piping

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.6 have been completed. \_\_\_\_\_
- [2] **ENSURE** the Valves listed are positioned as follows:
  - A. 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_
  - B. 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is CLOSED. \_\_\_\_\_
  - C. 2-FCV-72-40, RHR SPRAY HDR A TO CNTMT, is CLOSED. \_\_\_\_\_
- [3] **ENSURE** Handswitch 2-XS-72-41, RHR SPRAY HDR B TO CNTMT, to the NORMAL position at Board 2-MCC-213-B1, 480V REACTOR MOV BOARD 2B1-B, Compartment 14D. \_\_\_\_\_
- [4] **ENSURE** Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D, is OPEN. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2339 displays "PWR OFF".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [6] **CLOSE** Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D. \_\_\_\_\_
- [7] **VERIFY** ICS point FD2339 displays "PWR ON".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [8] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 104 of 249</b>
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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

- [9] **VERIFY** ICS point FD2340 displays "NOT OPE".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [10] **ENSURE** Breaker 2-BKR-63-73, CNTMT SUMP TO RHR PMP  
B SUCT, is CLOSED at Board 2-MCC-213-B1, 480V  
REACTOR MOV BOARD 2B1-B, Compartment 12D. \_\_\_\_\_
- [11] **PLACE** Handswitch 2-HS-63-73A, CNTMT SUMP TO RHR  
PMP B SUCT, to the CLOSE position on 2-M-6. \_\_\_\_\_
- [12] **VERIFY** locally Valve 2-FCV-63-73, CNTMT SUMP TO RHR  
PMP B SUCT, is CLOSED. \_\_\_\_\_
- [13] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 6 (Wire 14D02) and Terminal 11 (Wire 14D07) in  
Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_
- [14] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 10 (Wire 14D03) and Terminal 11 (Wire 14D07) in  
Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_
- [15] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO  
CNTMT, to the OPEN position. \_\_\_\_\_
- [16] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO  
CNTMT, remains in the CLOSED position. (Acc Crit 5.0[30]) \_\_\_\_\_
- [17] **MANUALLY OPEN** Valve 2-FCV-63-73, CNTMT SUMP TO  
RHR PMP B SUCT, until RED and GREEN light LIT is  
observed at Handswitch 2-HS-63-73A, CNTMT SUMP TO  
RHR PMP B SUCT. \_\_\_\_\_
- [18] **VERIFY** NO CONTINUITY at Terminal Block TB across  
Terminal 6 (Wire 14D02) and Terminal 11 (Wire 14D07) in  
Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_



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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

- [19] **VERIFY** NO CONTINUITY at Terminal Block TB across Terminal 10 (Wire 14D03) and Terminal 11 (Wire 14D07) in Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_
- [20] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the OPEN position. \_\_\_\_\_
- [21] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, remains in the CLOSED position. (**Acc Crit 5.0[30]**) \_\_\_\_\_
- [22] **PLACE** Handswitch 2-HS-63-73A, CNTMT SUMP TO RHR PMP B SUCT, to the OPEN position. \_\_\_\_\_
- [23] **VERIFY** locally Valve 2-FCV-63-73, CNTMT SUMP TO RHR PMP B SUCT, is OPEN. \_\_\_\_\_
- [24] **VERIFY** CONTINUITY at Terminal Block TB across Terminal 6 (Wire 14D02) and Terminal 11 (Wire 14D07) in Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_
- [25] **VERIFY** CONTINUITY at Terminal Block TB across Terminal 10 (Wire 14D03) and Terminal 11 (Wire 14D07) in Junction Box 2-JB-292-1362-B (713/A11V). \_\_\_\_\_
- [26] **ENSURE** Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, is CLEAR. \_\_\_\_\_
- [27] **ENSURE** Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is NORMAL (Blue). \_\_\_\_\_
- [28] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, is CLEAR. \_\_\_\_\_
- [29] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is NORMAL (Blue). \_\_\_\_\_
- [30] **PLACE** Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [31] **VERIFY** Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 106 of 249</b>
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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

- [32] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the OPEN position, **AND**

WHILE valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is opening, **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to CLOSE, **AND**

**RELEASE.**

- [33] **VERIFY** the following:

- A. During valve travel the RED run light is LIT at Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Comp 14D.
- B. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, ALARMS (**Acc Crit 5.0[7]**).
- C. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is in ALARM (RED).
- D. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, ALARMS (**Acc Crit 5.0[6]**).
- E. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is in ALARM (RED).
- F. RED light is LIT at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**)
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**)
- H. RED light is LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT at Board 2-MCC-213-B1, compartment 14D. (**Acc Crit 5.0[10]**)
- I. GREEN light is NOT LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT at Board 2-MCC-213-B1, compartment 14D. (**Acc Crit 5.0[10]**)

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 107 of 249</b>
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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

[34] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is OPEN. **(Acc Crit 5.0[9] & 5.0[30])**

[35] **VERIFY** ICS point FD2340 displays "OPEN".  
**(Acc Crit 5.0[11])**

[36] **PLACE** Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT, to the CLOSE position, then to NORMAL.

[37] **VERIFY** Valve 2-FCV-72-41 RHR SPRAY HDR B TO CNTMT remains in the OPEN position by RED light LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT.

[38] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is closing, **PLACE** Handswitch 2-HS-72-41A RHR SPRAY HDR B TO CNTMT to OPEN, **AND**

**RELEASE.**

[39] **VERIFY** the following:

A. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, CLEARS.

B. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is NORMAL (Blue).

C. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS.

D. Event Display Monitor reports 131-F ESF ABNORMAL RECIRCULATION MODE is NORMAL (Blue).

E. GREEN light is LIT at Handswitch 2-HS-72-41A RHR SPRAY HDR B TO CNTMT. **(Acc Crit 5.0[10])**

F. RED light is NOT LIT at Handswitch 2-HS-72-41A RHR SPRAY HDR B TO CNTMT. **(Acc Crit 5.0[10])**

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 108 of 249</b>
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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

- G. GREEN light is LIT at Handswitch 2-HS-72-41C RHR SPRAY HDR B TO CNTMT, at Board 2-MCC-213-B1, Compartment 14D. **(Acc Crit 5.0[10])** \_\_\_\_\_
- H. RED light is NOT LIT at Handswitch 2-HS-72-41C RHR SPRAY HDR B TO CNTMT at Board 2-MCC-213-B1, Compartment 14D. **(Acc Crit 5.0[10])** \_\_\_\_\_
- [40] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, is CLOSED. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [41] **ENSURE** Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, is CLEAR. \_\_\_\_\_
- [42] **ENSURE** Event Display Monitor reports 150C, 480 RX MOV BD 2B1-B/2B2-B XS IN AUX, is NORMAL (Blue). \_\_\_\_\_
- [43] **PLACE** Handswitch 2-XS-72-41, RHR SPRAY HDR B TO CNTMT, in the AUX position at Board 2-MCC-213-B1, Compartment 14D. \_\_\_\_\_
- [44] **VERIFY** the following:
  - A. RED and GREEN lights at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, are NOT LIT. **(Acc Crit 5.0[10])** \_\_\_\_\_
  - B. Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, ALARMS. **(Acc Crit 5.0[5])** \_\_\_\_\_
  - C. Event Display Monitor reports 150-C, 480 RX MOV BD 2B1-B/2B2-A XS IN AUX, is in ALARM (RED). \_\_\_\_\_
- [45] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the OPEN position. \_\_\_\_\_
- [46] **VERIFY** locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, remains in the CLOSED position. \_\_\_\_\_
- [47] **PLACE** Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 109 of 249</b>
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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

[48] **VERIFY** the following:

- A. Locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, travels to the OPEN position. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. RED light is LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_
- C. GREEN light is NOT LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_
- D. RED and GREEN lights at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT are NOT LIT. \_\_\_\_\_

[49] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_

[50] **VERIFY** Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, remains in the OPEN position. \_\_\_\_\_

[51] **PLACE** Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

[52] **VERIFY** the following:

- A. Locally Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, travels to the CLOSED position. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. GREEN light is LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_
- C. RED light is NOT LIT at Handswitch 2-HS-72-41C, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_

[53] **PLACE** Handswitch 2-XS-72-41, RHR SPRAY HDR B TO CNTMT, in the NORMAL position. \_\_\_\_\_

[54] **VERIFY** the following:

- A. Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, CLEARS. \_\_\_\_\_
- B. Event Display Monitor reports 150C, 480 RX MOV BD 2B1-B/2B2-B XS IN AUX, is NORMAL (Blue). \_\_\_\_\_

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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the Control Switch in both the Open and Closed position.
- 2) Local timing begins with the initiating signal and is concluded with the completion of valve stem movement. Remote timing begins with the initiating signal and is concluded with position indication lights status change.

[55] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO  
CNTMT, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO  
CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-41, RHR  
SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

[56] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 15$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[57] **OPEN** Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D. \_\_\_\_\_

[58] **MANUALLY TRIP** the thermal overload for 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D. \_\_\_\_\_

[59] **CLOSE** Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D. \_\_\_\_\_

[60] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the OPEN position. \_\_\_\_\_

[61] **VERIFY** Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, remains CLOSED by GREEN light LIT at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[8]**) \_\_\_\_\_

[62] **ENSURE** that actuation of the Relay K7 in the next step will not adversely affect the other associated valves: 2-FCV-63-5, 2-FCV-63-48, 2-FCV-63-157, and 2-FCV-26-241. \_\_\_\_\_

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## 6.6 2-FCV-72-41 Logic/Stroke Timing (continued)

[63] **DEPRESS** and **HOLD** the armature of Relay K7 located in back of Panel 16D on 480V RX MOV BD 2B1-B to simulate Overload Bypass.

CV

[64] **PLACE** Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT, to the OPEN position.

[65] **VERIFY** Valve 2-FCV-72-41, RHR SPRAY HDR B TO CNTMT, OPENS by RED light LIT at Handswitch 2-HS-72-41A, RHR SPRAY HDR B TO CNTMT. (Acc Crit 5.0[8])

[66] **RELEASE** the armature of Relay K7 located in back of Panel 16D on 480V RX MOV BD 2B1-B.

[67] **OPEN** Breaker 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D.

[68] **RESET** the thermal overload for 2-BKR-72-41, RHR SPRAY HDR B ISOL (2-FCV-72-41), 480V RX MOV BD 2B1-B, Compt 14D.

[69] **PLACE** Handswitch 2-HS-63-73A, CNTMT SUMP TO RHR PMP B SUCT, to the CLOSE position.

[70] **VERIFY** Valve 2-FCV-63-73 CNTMT SUMP TO RHR PMP B SUCT, CLOSSES by GREEN light LIT at Handswitch 2-HS-63-73A, CNTMT SUMP TO RHR PMP B SUCT.



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 113 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing

(Containment Spray Header Train A Isolation Valve) (745 A12W PENT RM)

- [1] **VERIFY** prerequisites listed in Section 4.0 for Subsection 6.7 have been completed. \_\_\_\_\_
- [2] **ENSURE** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E, is OPEN. \_\_\_\_\_
- [3] **INSTALL** Test Switch "K644 SPRAY SIGNAL-A" in the OPEN position across the field side of Terminals 1 and 2 on Terminal Block TB641 in Panel 2-R-48. \_\_\_\_\_
- [4] **INSTALL** Test Switch "CS-A 52STA" in the OPEN position on Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-A, 6.9kV SHUTDOWN BOARD 2A-A, Cubicle 13. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2179 displays "PWR OFF".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [6] **ENSURE** Handswitch 2-XS-72-39, CNTMT SPRAY HDR A TO CNTMT, is in the NORMAL position at Board 2-MCC-213-A1, Compartment 13E. \_\_\_\_\_
- [7] **CLOSE** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E. \_\_\_\_\_
- [8] **VERIFY** ICS point FD2179 displays "PWR ON".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [9] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is CLOSED. \_\_\_\_\_
- [10] **VERIFY** ICS point FD2180 displays "NOT OPE".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [11] **ENSURE** Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, is CLEAR. \_\_\_\_\_
- [12] **ENSURE** Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is in NORMAL (Blue). \_\_\_\_\_

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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

- [13] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, is CLEAR. \_\_\_\_\_
- [14] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is NORMAL (Blue). \_\_\_\_\_
- [15] **PLACE** Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [16] **VERIFY** 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
- [17] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position, **AND**

WHILE valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is opening, **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to CLOSE, **AND**

**RELEASE.** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 115 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

[18] **VERIFY** the following:

- A. During valve travel the RED Power On light is LIT at Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E. \_\_\_\_\_
- B. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, ALARMS (**Acc Crit 5.0[7]**). \_\_\_\_\_
- C. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is in ALARM (RED). \_\_\_\_\_
- D. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL ALARMS (**Acc Crit 5.0[6]**). \_\_\_\_\_
- E. Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is in ALARM (RED). \_\_\_\_\_
- F. RED light is LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- H. RED light is LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT, at Board 2-MCC-213-A1, Compartment 13E. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- I. GREEN light is NOT LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_

[19] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is OPEN. (**Acc Crit 5.0[9]**) \_\_\_\_\_

[20] **VERIFY** ICS point FD2180 displays "OPEN". (**Acc Crit 5.0[11]**) \_\_\_\_\_

[21] **PLACE** Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 116 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

[22] **VERIFY** 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, remains in the OPEN position by RED light LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

[23] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is closing, **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to OPEN, **AND**

**RELEASE.** \_\_\_\_\_

[24] **VERIFY** the following:

- A. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, CLEARS. \_\_\_\_\_
- B. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-39/40 NOT CLOSED, is in NORMAL (Blue). \_\_\_\_\_
- C. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS. \_\_\_\_\_
- D. Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is NORMAL (Blue). \_\_\_\_\_
- E. GREEN light is LIT at Handswitch 2-HS-72-39A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- F. RED light is NOT LIT at Handswitch 2-HS-72-39A, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- G. GREEN light is LIT at Handswitch 2-HS-72-39C, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- H. RED light is NOT LIT at Handswitch 2-HS-72-39C, RHR SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 117 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

- [25] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is CLOSED. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [26] **ENSURE** Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, is CLEAR. \_\_\_\_\_
- [27] **ENSURE** Event Display Monitor reports 149-C 480 RX MOV BD 2A1-A/2A2-A XS IN AUX is NORMAL (Blue). \_\_\_\_\_
- [28] **PLACE** Handswitch 2-XS-72-39, CNTMT SPRAY HDR A TO CNTMT, to the AUX position. \_\_\_\_\_
- [29] **VERIFY** Annunciator Window 149-C on Panel 2-XA-55-6F, 480 RX MOV BD 2A1-A/2A2-A, ALARMS. **(Acc Crit 5.0[4])** \_\_\_\_\_
- [30] **VERIFY** Event Display Monitor reports 149-C, 480 RX MOV BD 2A1-A/2A2-A XS IN AUX, is in ALARM (RED). \_\_\_\_\_
- [31] **VERIFY** RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. **(Acc Crit 5.0[10])** \_\_\_\_\_
- [32] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position, **AND**  
**VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, remains CLOSED. \_\_\_\_\_
- [33] **PLACE** Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [34] **VERIFY** the following:
  - A. RED light is LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
  - B. GREEN light is NOT LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
  - C. RED and GREEN light is NOT LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
- [35] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is OPEN. **(Acc Crit 5.0[9])** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 118 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

- [36] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position. \_\_\_\_\_
- [37] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, remains OPEN. \_\_\_\_\_
- [38] **PLACE** Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_
- [39] **VERIFY** the following:
- A. RED light is NOT LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
  - B. GREEN light is LIT at Handswitch 2-HS-72-39C, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
- [40] **VERIFY** locally Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, is CLOSED. (**Acc Crit 5.0[9]**) \_\_\_\_\_
- [41] **PLACE** Handswitch 2-XS-72-39, CNTMT SPRAY HDR A TO CNTMT, to the NORMAL position. \_\_\_\_\_
- [42] **VERIFY** Annunciator Window 149-C, 480 RX MOV BD 2A1-A/2A2-A, CLEARS. \_\_\_\_\_
- [43] **VERIFY** Event Display Monitor reports 149-C 480 RX MOV BD 2A1-A/2A2-A XS IN AUX is NORMAL (Blue). \_\_\_\_\_

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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the control switch in both the Open and Closed positions.
- 2) Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[44] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-39,  
CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

[45] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[46] **ENSURE** Red test lamp 081 (2-R-52) is NOT LIT. \_\_\_\_\_

[47] **ROTATE** to PUSH TO TEST **AND HOLD** Test Switch 820 in safeguard Test Cabinet (2-R-52). \_\_\_\_\_

[48] **VERIFY** Red test lamp 081 (2-R-52) is LIT. \_\_\_\_\_

[49] **VERIFY** White light is LIT at Panel 2-R-52 for Test Relay K811. \_\_\_\_\_



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 121 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

<b>NOTES</b>	
1)	The following steps require valve stroke timing locally at the valve and remotely at the control switch in the Open position.
2)	Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[50] **PUSH** and **RELEASE** Switch S820, Containment Spray  
Actuation 2-R-52.

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT. (**Acc Crit 5.0[19]**)

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-39,  
CNTMT SPRAY HDR A TO CNTMT.

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

C. **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO  
CNTMT, travels to the OPEN position by RED light LIT at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT (**Acc Crit 5.0[19]**).

[51] **RESET** Test Relay K811 and K644 with Switch S821 2-R-52.

[52] **VERIFY** Red test lamp 081 (2-R-52) is NOT LIT.

[53] **VERIFY** White light is NOT LIT at Panel 2-R-52 for Test Relay  
K811.

[54] **VERIFY** Valve 2-FCV-72-39 CNTMT SPRAY HDR A TO  
CNTMT remains in the OPEN position by RED light LIT at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 122 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

[55] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position. \_\_\_\_\_

[56] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, CLOSSES by GREEN light LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

[57] **CLOSE** Test Switch "K644 SPRAY SIGNAL-A" installed at Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-48. \_\_\_\_\_

[58] **VERIFY** Valve 2-FCV-72-39 CNTMT SPRAY HDR A TO CNTMT remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 123 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

<b>NOTES</b>	
1)	The following steps require valve stroke timing locally at the valve and remotely at the control switch in the Open position.
2)	Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[59] **CLOSE** Test Switch "CS-B 52STA" installed at Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-A, Cubicle 13. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT. (**Acc Crit 5.0[19]**) \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-39,  
CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

C. **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO  
CNTMT, travels to the OPEN position by RED light LIT at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT. (**Acc Crit 5.0[19]**). \_\_\_\_\_

[60] **OPEN** Test Switch "K644 SPRAY SIGNAL-A" installed at  
Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-48. \_\_\_\_\_

[61] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO  
CNTMT, remains in the OPEN position by RED light LIT at  
Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT. \_\_\_\_\_

[62] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO  
CNTMT, to the CLOSE position. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 124 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

- [63] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, CLOSSES by GREEN light LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. \_\_\_\_\_
- [64] **OPEN** Test Switch "CS-B 52STA" installed at Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-A, Cubicle 13. \_\_\_\_\_
- [65] **REMOVE** Test Switch "K644 SPRAY SIGNAL-A" at Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-48. \_\_\_\_\_
- CV
- [66] **REMOVE** Test Switch "CS-B 52STA" at Terminal Block DD, Terminals 10 and 11 in Board 2-BD-211-A, Cubicle 13. \_\_\_\_\_
- CV
- [67] **OPEN** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E. \_\_\_\_\_
- [68] **MANUALLY TRIP** the thermal overload for 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E. \_\_\_\_\_
- [69] **CLOSE** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E. \_\_\_\_\_
- [70] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position. \_\_\_\_\_
- [71] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT. (**Acc Crit 5.0[8]**) \_\_\_\_\_
- [72] **ENSURE** that actuation of the Relay K5 in the next step will not adversely affect the other associated valves: 2-FCV-72-22, 2-FCV-72-40, 2-FCV-72-44, and 2-FCV-74-1. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 125 of 249</b>
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## 6.7 2-FCV-72-39 Logic/Stroke Timing (continued)

- [73] **DEPRESS** and **HOLD** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A to simulate Overload Bypass.

CV

- [74] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the OPEN position.

- [75] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, OPENS by RED light LIT at 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT (**Acc Crit 5.0[8]**).

- [76] **RELEASE** the armature of Relay K5 located in back of Panel 4F on 480V RX MOV BD 2A1-A to simulate Overload Bypass.

- [77] **OPEN** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E.

- [78] **RESET** the thermal overload for 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E.

- [79] **CLOSE** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A.

- [80] **PLACE** Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT, to the CLOSE position.

- [81] **VERIFY** Valve 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT, CLOSES by GREEN light LIT at Handswitch 2-HS-72-39A, CNTMT SPRAY HDR A TO CNTMT.

- [82] **OPEN** Breaker 2-BKR-72-39, CS HDR A ISOL (2-FCV-72-39), 480V RX MOV BD 2A1-A, Compt 13E.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 126 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing

(Containment Spray Header Train B Isolation Valve) (745 A12W PENT RM)

- [1] **VERIFY** prerequisites listed in Section 4.0 for Subsection 6.8 have been completed. \_\_\_\_\_
- [2] **ENSURE** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A, is OPEN. \_\_\_\_\_
- [3] **INSTALL** Test Switch "K644 SPRAY SIGNAL-B" in the OPEN position across the field side of Terminals 1 and 2 on Terminal Block TB641 in Panel 2-R-51. \_\_\_\_\_
- [4] **INSTALL** Test Switch "CS-B 52STA" in the OPEN position on Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-B, 6.9kV SHUTDOWN BOARD 2B-B, Cubicle 13. \_\_\_\_\_
- [5] **VERIFY** ICS point FD2331 displays "PWR OFF".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [6] **ENSURE** Handswitch 2-XS-72-2, CNTMT SPRAY HDR B TO CNTMT, to the NORMAL position at Board 2-MCC-213-B1, Compartment 14A. \_\_\_\_\_
- [7] **CLOSE** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A. \_\_\_\_\_
- [8] **VERIFY** ICS point FD2331 displays "PWR ON".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [9] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_
- [10] **VERIFY** ICS point FD2332 displays "NOT OPE".  
(Acc Crit 5.0[11]) \_\_\_\_\_
- [11] **ENSURE** Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, is CLEAR. \_\_\_\_\_
- [12] **ENSURE** Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-2/41 NOT CLOSED, is in NORMAL (Blue). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 127 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

- [13] **ENSURE** Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, is CLEAR. \_\_\_\_\_
- [14] **ENSURE** Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is in NORMAL (Blue). \_\_\_\_\_
- [15] **PLACE** Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [16] **VERIFY** 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
- [17] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position, **AND**
- WHILE valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is opening, **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to CLOSE, **AND**
- RELEASE.** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 128 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

[18] **VERIFY** the following:

- A. During valve travel the RED Power On light is LIT at Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compmt 14A. \_\_\_\_\_
- B. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, ALARMS (**Acc Crit 5.0[7]**). \_\_\_\_\_
- C. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-2/41 NOT CLOSED, is in ALARM (RED). \_\_\_\_\_
- D. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL ALARMS. (**Acc Crit 5.0[6]**) \_\_\_\_\_
- E. Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is in ALARM (RED). \_\_\_\_\_
- F. RED light is LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- G. GREEN light is NOT LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- H. RED light is LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT at Board 2-MCC-213-B1, Compartment 14A. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- I. GREEN light is NOT LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_

[19] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is OPEN. (**Acc Crit 5.0[9]**) \_\_\_\_\_

[20] **VERIFY** ICS point FD2332 displays "OPEN". (**Acc Crit 5.0[11]**) \_\_\_\_\_

[21] **PLACE** Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

[22] **VERIFY** 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains in the OPEN position by RED light LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 129 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

- [23] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position, **AND**

WHILE valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is closing, **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to OPEN, **AND**

**RELEASE.**

- [24] **VERIFY** the following:

- A. Annunciator Window 134-E on Panel 2-XA-55-6D, CNTMT/RHR SPRAY FCV-72-2/39/40/41 NOT CLOSED, CLEARS.
- B. Event Display Monitor reports 134-E, CNTMT/RHR SPRAY FCV-72-2/41 NOT CLOSED, is in NORMAL (Blue).
- C. Annunciator Window 131-F on Panel 2-XA-55-6D, ESF COMPONENT NOT NORMAL, CLEARS.
- D. Event Display Monitor reports 131-F ESF ABNORMAL CONTAINMENT SPRAY is NORMAL (Blue).
- E. GREEN light is LIT at Handswitch 2-HS-72-2A CNTMT SPRAY HDR A TO CNTMT. **(Acc Crit 5.0[10])**
- F. RED light is NOT LIT at Handswitch 2-HS-72-2A CNTMT SPRAY HDR A TO CNTMT. **(Acc Crit 5.0[10])**
- G. GREEN light is LIT at Handswitch 2-HS-72-2C CNTMT SPRAY HDR A TO CNTMT. **(Acc Crit 5.0[10])**
- H. RED light is NOT LIT at Handswitch 2-HS-72-2C CNTMT SPRAY HDR A TO CNTMT. **(Acc Crit 5.0[10])**

- [25] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is CLOSED. **(Acc Crit 5.0[9])**

- [26] **ENSURE** Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, is CLEAR.

- [27] **ENSURE** Event Display Monitor reports 150-C 480 RX MOV BD 2B1-B/2B2-B XS IN AUX is NORMAL (Blue).

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 130 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

- [28] **PLACE** Handswitch 2-XS-72-2, CNTMT SPRAY HDR B TO CNTMT, to the AUX position. \_\_\_\_\_
- [29] **VERIFY** Annunciator Window 150-C on Panel 2-XA-55-6F, 480 RX MOV BD 2B1-B/2B2-B, ALARMS. (**Acc Crit 5.0[5]**) \_\_\_\_\_
- [30] **VERIFY** Event Display Monitor reports 150-C, 480 RX MOV BD 2B1-B/2B2-B XS IN AUX, is in ALARM (RED). \_\_\_\_\_
- [31] **VERIFY** RED and GREEN lights are NOT LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
- [32] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position, **AND**  
**VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains CLOSED. \_\_\_\_\_
- [33] **PLACE** Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position, then to NORMAL. \_\_\_\_\_
- [34] **VERIFY** the following:
  - A. RED light is LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
  - B. GREEN light is NOT LIT at Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
  - C. RED and GREEN light is NOT LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
- [35] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is OPEN. (**Acc Crit 5.0[9]**) \_\_\_\_\_
- [36] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_
- [37] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT remains OPEN. \_\_\_\_\_
- [38] **PLACE** Handswitch 2-HS-72-2C, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position, then to NORMAL. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 131 of 249</b>
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**6.8 2-FCV-72-2 Logic/Stroke Timing (continued)**

[39] **VERIFY** the following:

A. RED light is NOT LIT at Handswitch 2-HS-72-2C, CNTMT  
 SPRAY HDR B TO CNTMT. \_\_\_\_\_

B. GREEN light is LIT at Handswitch 2-HS-72-2C, CNTMT  
 SPRAY HDR B TO CNTMT. \_\_\_\_\_

[40] **VERIFY** locally Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO  
 CNTMT, is CLOSED. (**Acc Crit 5.0[9]**) \_\_\_\_\_

[41] **PLACE** Handswitch 2-XS-72-2, CNTMT SPRAY HDR B TO  
 CNTMT, to the NORMAL position. \_\_\_\_\_

[42] **VERIFY** Annunciator Window 150-C, 480 RX MOV  
 BD 2B1-B/2B2-B, CLEARS. \_\_\_\_\_

[43] **VERIFY** Event Display Monitor reports 150-C 480 RX MOV  
 BD 2B1-B/2B2-B XS IN AUX is NORMAL (Blue). \_\_\_\_\_

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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

NOTES	
1)	The following steps require valve stroke timing locally at the valve and remotely at the control switch in both the Open and Closed positions.
2)	Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[44] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position. \_\_\_\_\_

A. **RECORD** remote opening time at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[45] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_

A. **RECORD** remote closing time at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[12]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local closing time at Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 21.5$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

[46] **ENSURE** Red test lamp 081 (2-R-53) is NOT LIT. \_\_\_\_\_

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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

[47] **ROTATE** to PUSH TO TEST **AND HOLD** Test Switch 820 in safeguard Test Cabinet (2-R-53). \_\_\_\_\_

[48] **VERIFY** Red test lamp 081 (2-R-53) is LIT. \_\_\_\_\_

[49] **VERIFY** White light is LIT at Panel 2-R-53 for Test Relay K811. \_\_\_\_\_

### NOTES

- 1) The following steps require valve stroke timing locally at the valve and remotely at the control switch in the Open position.
- 2) Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[50] **PUSH** and **RELEASE** Switch S820, Containment Spray Actuation 2-R-53. \_\_\_\_\_

A. **RECORD** remote opening time at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[19]**) \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 28$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 28$  seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

C. **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, travels to the OPEN position by RED light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[19]**) \_\_\_\_\_

[51] **RESET** Test Relay K811 and K644 with Switch S821 2-R-52. \_\_\_\_\_

[52] **VERIFY** Red test lamp 081 (2-R-52) is NOT LIT. \_\_\_\_\_

[53] **VERIFY** White light is NOT LIT at Panel 2-R-52 for Test Relay K811. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 134 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

- [54] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains in the OPEN position by RED light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
- [55] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_
- [56] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, CLOSSES by GREEN light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
- [57] **CLOSE** Test Switch "K644 SPRAY SIGNAL-B" installed at Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-51. \_\_\_\_\_
- [58] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 135 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

<b>NOTES</b>	
1)	The following steps require valve stroke timing locally at the valve and remotely at the control switch in the Open position.
2)	Local timing begins with the initiating signal and is concluded with the completion of the valve stem movement. Remote timing begins with the initiating signal and is concluded with the position indication lights status change.

[59] **CLOSE** Test Switch "CS-B 52STA" installed at Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-B, Cubicle 13. \_\_\_\_\_

A. **RECORD** remote opening time at  
Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO  
CNTMT. (**Acc Crit 5.0[19]**) \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

B. **RECORD** local opening time at Valve 2-FCV-72-2,  
CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

\_\_\_\_\_ seconds (≤ 28 seconds)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

C. **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, travels  
to the OPEN position by RED light LIT at Handswitch 2-HS-72-2A,  
CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[19]**) \_\_\_\_\_

[60] **OPEN** Test Switch "K644 SPRAY SIGNAL-B" installed at  
Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-51. \_\_\_\_\_

[61] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO  
CNTMT, remains in the OPEN position by RED light LIT at  
Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

[62] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO  
CNTMT, to the CLOSE position. \_\_\_\_\_

[63] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO  
CNTMT, CLOSING by GREEN light LIT at  
Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 136 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

[64] **OPEN** Test Switch "CS-B 52STA" installed at Terminal Block DD, Terminals 10 and 11 at Board 2-BD-211-B, Cubicle 13.

[65] **REMOVE** Test Switch "K644 SPRAY SIGNAL-B" at Terminal Block TB641, Terminals 1 and 2 in Panel 2-R-51.

CV

[66] **REMOVE** Test Switch "CS-B 52STA" at Terminal Block DD, Terminals 10 and 11 in Board 2-BD-211-B, Cubicle 13.

CV

[67] **OPEN** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A.

[68] **MANUALLY TRIP** the thermal overload for 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A.

[69] **CLOSE** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A.

[70] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position.

[71] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, remains in the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[8]**)

[72] **DEPRESS** and **HOLD** the Armature of Relay K5 located in the back of Panel 16D on 480V RX MOV BD 2A1-A to simulate Overload Bypass.

CV



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 137 of 249</b>
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## 6.8 2-FCV-72-2 Logic/Stroke Timing (continued)

- [73] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the OPEN position. \_\_\_\_\_
- [74] **VERIFY** Valve 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, OPENS by RED light LIT at 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. (**Acc Crit 5.0[8]**) \_\_\_\_\_
- [75] **RELEASE** the armature of Relay K5 located in back of Panel 16D on 480V RX MOV BD 2A1-A to simulate Overload Bypass. \_\_\_\_\_
- [76] **OPEN** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A. \_\_\_\_\_
- [77] **RESET** the thermal overload for 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A. \_\_\_\_\_
- [78] **CLOSE** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A. \_\_\_\_\_
- [79] **PLACE** Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT, to the CLOSE position. \_\_\_\_\_
- [80] **VERIFY** 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, travels to the CLOSED position by GREEN light LIT at Handswitch 2-HS-72-2A, CNTMT SPRAY HDR B TO CNTMT. \_\_\_\_\_
- [81] **OPEN** Breaker 2-BKR-72-2, CS HDR B ISOL (2-FCV-72-2), 480V RX MOV BD 2B1-B, Compt 14A. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 138 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.9 have been completed.

### CAUTIONS

- 1) This Subsection involves working in 2-PNL-211-A-A (2A-A 6.9 KV SD Bd), panel 4.
- 2) Steps 6.9[60] to 6.9[69] will involve placing the GROUP K TEST RELAYS 43TK hand switch to TEST and pressing and holding the GROUP K BLACK-OUT BO-CS push button.
- 3) Auxiliary Building General Supply (ABGS 2A) & Auxiliary Building General Exhaust Fan 2A (ABGE 2A) are also part of GROUP K and will lose power temporarily.
- 4) ABGS 2B and ABGE 2B may need to be placed in service.

- [2] **OBTAIN** permission from U1 Operations to perform this Subsection due to the temporary power loss of the ABGS 2A and ABGE 2A.

U1 SRO

- [3] **ENSURE** Breaker 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, is OPEN.

- [4] **ENSURE** Breaker 2-BKR-30-177, CS PUMP2A-A RM CLR (2-PMCL-30-177), is CLOSED.

- [5] **ENSURE** the following relays INSTALLED on front side of (2A-A 6.9 kV SD Bd) 2-PNL-211-A-A, panel 2.

- A. CSP BOX.
- B. CSP BOY.
- C. CSP UVX.
- D. CSP UVY.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 139 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[6] **ENSURE** the following initial conditions:

- A. 2-XS-72-27, 2A CNTMT SPRAY PMP, 6.9kV SD  
Bd 2A-A, Panel 13, NOR. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, M-6, in STOP  
Pull-To-Lock. \_\_\_\_\_
- C. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light only  
LIT. \_\_\_\_\_
- D. 2-HS-72-27C, 2A CNTMT SPRAY PMP, mid-position after  
STOP. \_\_\_\_\_
- E. 2-HS-72-27C, 2A CNTMT SPRAY PMP, GREEN light  
only LIT. \_\_\_\_\_
- F. 6900 Shutdown Bd 2A-A Logic Panel 2-PNL-211-A-A,  
Containment Spray PMP 2A-A, RED light NOT LIT. \_\_\_\_\_

[7] **PLACE** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A  
(2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, in the TEST  
position per GOI-7 (with DC Test Coupler and mechanical  
linkage). \_\_\_\_\_

[8] **VERIFY** ICS point XD4003 displays "PWR OFF".  
**(Acc Crit 5.0[17])** \_\_\_\_\_

[9] **PRESS** the TEST CLOSE pushbutton on 2-BKR-72-27,  
CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV  
SD BD 2A-A, Panel 13. \_\_\_\_\_

[10] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A  
(2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES. \_\_\_\_\_

[11] **PRESS** the TEST TRIP pushbutton on 2-BKR-72-27,  
CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV  
SD BD 2A-A, Panel 13. \_\_\_\_\_

[12] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A  
(2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 140 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [13] **PLACE** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, in the TEST position per GOI-7 (with DC Test Coupler, mechanical linkage, elevator raised). \_\_\_\_\_
- [14] **VERIFY** ICS point XD4003 displays "PWR ON".  
(Acc Crit 5.0[17]) \_\_\_\_\_
- [15] **ENSURE** 2-HS-30-177, CS PUMP 2A-A ROOM COOLER, is in AUTO. \_\_\_\_\_
- [16] **ATTACH** a cool damp cloth to the bulb of the temperature sensor for cooler 2-PMCL-30-177, 2A CNTMT SPRAY PMP RM CLR. \_\_\_\_\_
- [17] **VERIFY** cooler 2-PMCL-30-177, 2A CNTMT SPRAY PMP RM CLR is NOT RUNNING. \_\_\_\_\_
- [18] **MOMENTARILY PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in START. \_\_\_\_\_
- [19] **VERIFY** the following:
  - A. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, is CLOSED. (Acc Crit 5.0[9]) \_\_\_\_\_
  - B. Cooler 2-PMCL-30-177, 2A CNTMT SPRAY A PMP RM CLR, STARTS. (Acc Crit 5.0[18]A) \_\_\_\_\_
  - C. 2-HS-72-27C, 2A CNTMT SPRAY PMP, switch lights are RED LIT only. (Acc Crit 5.0[10]) \_\_\_\_\_
  - D. 2-HS-72-27A, CNTMT SPRAY PMP A, switch lights are RED LIT only. (Acc Crit 5.0[10]) \_\_\_\_\_
  - E. 6900 Shutdown Bd 2A-A Logic Panel RED light LIT. \_\_\_\_\_
- [20] **VERIFY** ICS point XD4004 displays "RUNNING".  
(Acc Crit 5.0[17]) \_\_\_\_\_
- [21] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in STOP. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 141 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[22] **VERIFY** the following:

- A. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, is OPEN. (Acc Crit 5.0[9])
- B. 2-HS-72-27C, 2A CNTMT SPRAY PMP, GREEN light only LIT. (Acc Crit 5.0[10])
- C. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light only LIT. (Acc Crit 5.0[10])
- D. 6900 Shutdown Bd 2A-A Logic Panel RED light NOT LIT.
- E. Cooler 2-PMCL-30-177, 2A CNTMT SPRAY A PMP RM CLR, STOPS.

[23] **VERIFY** ICS point XD4004 displays "NOT RUN". (Acc Crit 5.0[17])

[24] **REMOVE** the cloth from the bulb of the temperature sensor for cooler 2-PMCL-30-177, 2A CNTMT SPRAY PMP RM CLR.

[25] **PLACE** 2-HS-72-27C, 2A CNTMT SPRAY PMP, in START.

[26] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains OPEN.

[27] **VERIFY** ICS point HD2029 displays "NOT P-L".

[28] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in STOP PULL-TO-LOCK.

[29] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN Light LIT.

[30] **VERIFY** ICS point HD2029 displays "PULLT-L".

[31] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, to the A-AUTO.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 142 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[32] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in START,  
**AND**

**VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, RED Light  
LIT.

[33] **PLACE** 2-HS-72-27C, 2A CNTMT SPRAY PMP, in STOP.

[34] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A  
(2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains  
CLOSED.

[35] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in STOP.

[36] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light  
LIT.

[37] **ENSURE** Annunciator Window 149-A on Panel 2-XA-55-6F,  
6.9 SD BD 2A-A, is CLEAR.

[38] **ENSURE** Event Display Monitor reports 149-A, 6.9 SD BD  
2A-A XS IN AUX; is NORMAL (Blue).

[39] **PLACE** 2-XS-72-27, 6.9kV SD Bd 2A-A, Panel 13 in AUX.

[40] **VERIFY** the following:

A. 2-HS-72-27C, 2A CNTMT SPRAY PMP, GREEN light  
only LIT.

B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light NOT  
LIT, RED light NOT LIT, White light NOT LIT.  
**(Acc Crit 5.0[10])**

C. Annunciator Window 149-A on Panel 2-XA-55-6F, 6.9 SD  
BD 2A-A XS IN AUX; ALARMS. **(Acc Crit 5.0[13])**

D. Event Display Monitor reports 149-A, 6.9 SD BD 2A-A XS  
IN AUX; is in ALARM (RED).

[41] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in START.

[42] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A  
(2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains OPEN.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 143 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[43] **VERIFY** the light status does NOT change:

- A. 2-HS-72-27C, 2A CNTMT SPRAY PMP, GREEN light only LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, NO HS lights are LIT. \_\_\_\_\_

[44] **PLACE** 2-HS-72-27C, 2A CNTMT SPRAY PMP, Panel 13, in START. \_\_\_\_\_

[45] **VERIFY** the following:

- A. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. 2-HS-72-27C, 2A CNTMT SPRAY PMP, RED light only LIT. \_\_\_\_\_
- C. 2-HS-72-27A, CNTMT SPRAY PMP A, NO HS lights are LIT. \_\_\_\_\_
- D. 6900 Shutdown Bd 2A-A Logic Panel RED light LIT. \_\_\_\_\_

[46] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, in STOP. \_\_\_\_\_

[47] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains CLOSED. \_\_\_\_\_

[48] **VERIFY** the light status does NOT change:

- A. 2-HS-72-27C, 2A CNTMT SPRAY PMP, RED light only is LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, NO HS lights are LIT. \_\_\_\_\_

[49] **PLACE** 2-HS-72-27C, 2A CNTMT SPRAY PMP, in STOP. \_\_\_\_\_

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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [50] **VERIFY** that 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [51] **PLACE** 2-XS-72-27, 6.9kV SD Bd 2A-A, Panel 13 in NORMAL. \_\_\_\_\_
- [52] **VERIFY** Annunciator Window 149-A on Panel 2-XA-55-6F, 6.9 SD BD 2A-A, is CLEAR. \_\_\_\_\_
- [53] **VERIFY** Event Display Monitor reports 149-A, 6.9 SD BD 2A-A XS IN AUX, is NORMAL (Blue). \_\_\_\_\_
- [54] **PLACE** 2-HS-72-27C, 2A CNTMT SPRAY PMP, in mid-position. \_\_\_\_\_
- [55] **PLACE** and **HOLD** 2-HS-72-27A, CNTMT SPRAY PMP A, in STOP. \_\_\_\_\_
- [56] **CLOSE** "K643 Spray Signal-A" test switch in cabinet R-48 for relay K643. \_\_\_\_\_
- [57] **RELEASE** 2-HS-72-27A, CNTMT SPRAY PMP A. \_\_\_\_\_
- [58] **VERIFY** that 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSSES without apparent time delay. **(Acc Crit 5.0[21])** \_\_\_\_\_

### CAUTIONS

- 1) The following sequence of steps will involve placing the GROUP K TEST RELAYS 43TK hand switch to TEST and pressing and holding the GROUP K BLACK-OUT BO-CS push button.
- 2) Auxiliary Building General Supply & Exhaust Fan 2A is also part of GROUP K and will lose power temporarily.
- 3) ABGS 2B and ABGE 2B may need to be placed in service.

- [59] **NOTIFY** U1 Operations that Auxiliary Building General Supply & Exhaust Fan 2A will temporarily lose power.

\_\_\_\_\_  
U1 SRO



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 145 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[60] **LOCATE** and **IDENTIFY** the following items on the FRONT of black out test panel (2-PNL-211-A-A, panel 4):

A. GROUP K TEST RELAYS 43TK hand switch. \_\_\_\_\_

B. GROUP K BLACK-OUT BO-CS pushbutton. \_\_\_\_\_

[61] **PLACE** hand switch GROUP K TEST RELAYS 43TK to TEST position [2-PNL-211-A-A, panel 4]. \_\_\_\_\_

[62] **ENSURE** the polymeter is zeroed and ready to record. \_\_\_\_\_

### NOTES

- 1) The following steps simulate CS with BO before the breaker closes. Timing will begin as soon as the GROUP K BLACK-OUT BO-CS pushbutton is pressed. Timing will end when breaker closes.
- 2) The TDPU for 2-02-72-27, CSP ST, is 184 secs.

[63] **MOMENTARILY PRESS** the GROUP K BLACK-OUT BO-CS pushbutton [2-PNL-211-A-A, panel 4]. \_\_\_\_\_

[64] **VERIFY** that 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. \_\_\_\_\_

[65] **VERIFY** the following occurs 182.5-185.5 seconds after pressing GROUP K BLACK-OUT BO-CS pushbutton:

A. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES.  
**(Acc Crit 5.0[20])** \_\_\_\_\_

B. Relay CSP ST is ENERGIZED. \_\_\_\_\_

[66] **RECORD** the time from the polymeter. \_\_\_\_\_

\_\_\_\_\_ seconds (182.5-185.5 seconds)

M&TE \_\_\_\_\_

Cal Due Date \_\_\_\_\_

[67] **OPEN** "K643 Spray Signal-A" test switch in cabinet R-48 for relay K643. \_\_\_\_\_

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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [68] **VERIFY** that 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains CLOSED. \_\_\_\_\_
- [69] **PLACE** 43TK to RESET and then to NORMAL. \_\_\_\_\_
- [70] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains CLOSED. \_\_\_\_\_
- [71] **ENSURE** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is CLEAR. \_\_\_\_\_
- [72] **ENSURE** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is NORMAL (Blue). \_\_\_\_\_
- [73] **CLOSE** the contacts on Relay 51/83 AØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [74] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains CLOSED. \_\_\_\_\_
- [75] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
- [76] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" ALARMS. (**Acc Crit 5.0[16]**) \_\_\_\_\_
- [77] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is in ALARM (RED). \_\_\_\_\_
- [78] **RELEASE** the disk on Relay 51/83 AØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [79] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
- [80] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" CLEARS. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 147 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [81] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is NORMAL (Blue). \_\_\_\_\_
- [82] **ENSURE** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is CLEAR. \_\_\_\_\_
- [83] **ENSURE** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [84] **CLOSE** the contacts on Relay 51/83 AØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [85] **MOMENTARILY PLACE** a jumper across terminals 9 and 10 on the back of Relay 51/83 AØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [86] **VERIFY** the following:
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
  - B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
  - C. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPEN. \_\_\_\_\_
- [87] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [88] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_
- [89] **RELEASE** the disk on Relay 51/83 AØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [90] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, to START. \_\_\_\_\_
- [91] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains OPEN. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 148 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [92] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, momentarily to STOP. \_\_\_\_\_
- [93] **VERIFY** the following: \_\_\_\_\_
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
- [94] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [95] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [96] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, to START. \_\_\_\_\_
- [97] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES. \_\_\_\_\_
- [98] **MANUALLY ACTUATE** the Contacts on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, 50 A $\phi$  Instantaneous Overcurrent Relay. \_\_\_\_\_
- [99] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. \_\_\_\_\_
- [100] **VERIFY** the following: \_\_\_\_\_
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
- [101] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS (**Acc Crit 5.0[15]**). \_\_\_\_\_
- [102] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 149 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [103] **RESET** the trip target on time overcurrent relay 50 A $\phi$  on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [104] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, momentarily to STOP. \_\_\_\_\_
- [105] **VERIFY** the following:
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
  - B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
  - C. MOTOR TRIPOUT buzzer silences. \_\_\_\_\_
- [106] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [107] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [108] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, to START. \_\_\_\_\_
- [109] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES. \_\_\_\_\_
- [110] **CLOSE** the contacts on Relay 51/83 C $\emptyset$  on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [111] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, remains CLOSED. \_\_\_\_\_
- [112] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
- [113] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" ALARMS. (**Acc Crit 5.0[16]**) \_\_\_\_\_
- [114] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is in ALARM (RED). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 150 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [115] **RELEASE** the disk on Relay 51/83 CØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [116] **VERIFY** 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
- [117] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" CLEARS. \_\_\_\_\_
- [118] **ENSURE** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is CLEAR. \_\_\_\_\_
- [119] **CLOSE** the contacts on Relay 51/83 CØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [120] **MOMENTARILY PLACE** a jumper across terminals 9 and 10 on the back of Relay 51/83 CØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [121] **VERIFY** the following:
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
  - B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
  - C. 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPEN. \_\_\_\_\_
- [122] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [123] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_
- [124] **RELEASE** the disk on Relay 51/83 CØ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [125] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, momentarily to STOP. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 151 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[126] **VERIFY** the following.

- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_

[127] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_

[128] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_

[129] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, to START. \_\_\_\_\_

[130] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSES. \_\_\_\_\_

[131] **MANUALLY ACTUATE** the Contacts on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, 50 CØ Instantaneous Overcurrent Relay. \_\_\_\_\_

[132] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. \_\_\_\_\_

[133] **VERIFY** the following:

- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_
- B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_

[134] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_

[135] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_

[136] **RESET** the trip target on time overcurrent relay 50 Cφ on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 152 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

[137] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, momentarily to STOP. \_\_\_\_\_

[138] **VERIFY** the following: \_\_\_\_\_

A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_

B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_

[139] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_

[140] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_

[141] **PLACE** 2-HS-72-27A, CNTMT SPRAY PMP A, to START. \_\_\_\_\_

[142] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, CLOSSES. \_\_\_\_\_

[143] **ACTUATE** the Contacts by manually rotating the disk on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, 50G Ground Overcurrent Relay. \_\_\_\_\_

[144] **VERIFY** the following: \_\_\_\_\_

A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is LIT. \_\_\_\_\_

B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_

[145] **VERIFY** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, OPENS. \_\_\_\_\_

[146] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_

[147] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 153 of 249</b>
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## 6.9 Containment Spray Pump 2A-A Logic Test (continued)

- [148] **RESET** the trip target on Ground Overcurrent Relay 50G on 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13. \_\_\_\_\_
- [149] **PLACE** handswitch 2-HS-72-27A, CNTMT SPRAY PMP A, momentarily to STOP. \_\_\_\_\_
- [150] **VERIFY** the following:
- A. 2-HS-72-27A, CNTMT SPRAY PMP A, White light is NOT LIT. \_\_\_\_\_
  - B. 2-HS-72-27A, CNTMT SPRAY PMP A, GREEN light is LIT. \_\_\_\_\_
- [151] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [152] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [153] **REMOVE** 2-BKR-72-27, CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27), 6.9kV SD BD 2A-A, Panel 13, from the TEST position per GOI-7. \_\_\_\_\_

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## 6.10 Containment Spray Pump 2B-B Logic Test

- [1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.10 have been completed.

### CAUTIONS

- 1) This Subsection involves working in 2-PNL-211-B-B (2B-B 6.9 KV SD Bd), panel 4.
- 2) Steps 6.10[60] to 6.10[69] will involve placing the GROUP K TEST RELAYS 43TK hand switch to TEST and pressing and holding the GROUP K BLACK-OUT BO-CS push button.
- 3) Auxiliary Building General Supply (ABGS 2B) & Auxiliary Building General Exhaust Fan 2B (ABGE 2B) are also part of GROUP K and will lose power temporarily.
- 4) ABGS 2A and ABGE 2A may need to be placed in service.

- [2] **OBTAIN** permission from U1 Operations to perform this Subsection due to the temporary power loss of the ABGS 2B and ABGE 2B.

U1 SRO

- [3] **ENSURE** Breaker 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, is OPEN.

- [4] **ENSURE** Breaker 2-BKR-30-178, CS PUMP2B-B RM CLR (2-PMCL-30-178), is CLOSED.

- [5] **ENSURE** the following relays INSTALLED on front side of 2-PNL-211-B-B, panel 2.

- A. CSP BOX.
- B. CSP BOY.
- C. CSP UVX.
- D. CSP UVY.

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[6] **ENSURE** the following initial conditions:

- A. 2-XS-72-10, 2B CNTMT SPRAY PMP, 6.9kV SD  
Bd 2B-B, Panel 13, NOR. \_\_\_\_\_
- B. 2-HS-72-10A, CNTMT SPRAY PMP B, M-6, in STOP  
Pull-To-Lock. \_\_\_\_\_
- C. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light only  
LIT. \_\_\_\_\_
- D. 2-HS-72-10C, 2B CNTMT SPRAY PMP, mid-position after  
STOP. \_\_\_\_\_
- E. 2-HS-72-10C, 2B CNTMT SPRAY PMP, GREEN light  
only LIT. \_\_\_\_\_
- F. 6900 Shutdown Bd 2B-B Logic Panel 2-PNL-211-B-B,  
Containment Spray PMP 2B-B, RED light NOT LIT. \_\_\_\_\_

[7] **PLACE** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B  
(2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, in the TEST  
position per GOI-7 (with DC Test Coupler and mechanical  
linkage). \_\_\_\_\_

[8] **VERIFY** ICS point XD4001 displays "PWR OFF".  
**(Acc Crit 5.0[17])** \_\_\_\_\_

[9] **PRESS** the TEST CLOSE pushbutton on 2-BKR-72-10,  
CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV  
SD BD 2B-B, Panel 13. \_\_\_\_\_

[10] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B  
(2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES. \_\_\_\_\_

[11] **PRESS** the TEST TRIP pushbutton on 2-BKR-72-10,  
CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV  
SD BD 2B-B, Panel 13. \_\_\_\_\_

[12] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B  
(2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. \_\_\_\_\_

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [13] **PLACE** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, in the TEST position per GOI-7 (with DC Test Coupler, mechanical linkage, elevator raised). \_\_\_\_\_
- [14] **VERIFY** ICS point XD4001 displays "PWR ON".  
(**Acc Crit 5.0[17]**) \_\_\_\_\_
- [15] **ENSURE** 2-HS-30-178, CS PUMP 2B-B ROOM COOLER, is in AUTO. \_\_\_\_\_
- [16] **ATTACH** a cool damp cloth to the bulb of the temperature sensor for cooler 2-PMCL-30-178, 2B CNTMT SPRAY PMP RM CLR. \_\_\_\_\_
- [17] **VERIFY** cooler 2-PMCL-30-178, 2B CNTMT SPRAY PMP RM CLR, is NOT RUNNING. \_\_\_\_\_
- [18] **MOMENTARILY PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in START. \_\_\_\_\_
- [19] **VERIFY** the following:
- A. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, is CLOSED. (**Acc Crit 5.0[9]**) \_\_\_\_\_
  - B. Cooler 2-PMCL-30-178, 2B CNTMT SPRAY B PMP RM CLR, STARTS. (**Acc Crit 5.0[18]B**) \_\_\_\_\_
  - C. 2-HS-72-10C, 2B CNTMT SPRAY PMP, RED light only LIT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
  - D. 2-HS-72-10A, CNTMT SPRAY PMP B, RED light only LIT. (**Acc Crit 5.0[10]**) \_\_\_\_\_
  - E. 6900 Shutdown Bd 2B-B Logic Panel RED light LIT. \_\_\_\_\_
- [20] **VERIFY** ICS point XD4002 displays "RUNNING".  
(**Acc Crit 5.0[17]**) \_\_\_\_\_
- [21] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in STOP. \_\_\_\_\_

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[22] **VERIFY** the following:

- A. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, is OPEN. **(Acc Crit 5.0[9])**
- B. 2-HS-72-10C, 2B CNTMT SPRAY PMP, GREEN light only LIT. **(Acc Crit 5.0[10])**
- C. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light only LIT. **(Acc Crit 5.0[10])**
- D. 6900 Shutdown Bd 2B-B Logic Panel RED light NOT LIT.
- E. Cooler 2-PMCL-30-178, 2B CNTMT SPRAY B PMP RM CLR, STOPS.

[23] **VERIFY** ICS point XD4002 displays "NOT RUN". **(Acc Crit 5.0[17])**

[24] **REMOVE** the cloth from the bulb of the temperature sensor for cooler 2-PMCL-30-178, 2B CNTMT SPRAY B PMP RM CLR.

[25] **PLACE** 2-HS-72-10C, 2B CNTMT SPRAY PMP, in START.

[26] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains OPEN.

[27] **VERIFY** ICS point HD2063 displays "NOT P-L".

[28] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in STOP PULL-TO-LOCK.

[29] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light only LIT.

[30] **VERIFY** ICS point HD2063 displays "PULLT-L".

[31] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, to the A-AUTO.

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[32] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in START,  
**AND**

**VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, RED Light  
LIT. \_\_\_\_\_

[33] **PLACE** 2-HS-72-10C, 2B CNTMT SPRAY PMP, in STOP. \_\_\_\_\_

[34] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B  
(2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains  
CLOSED. \_\_\_\_\_

[35] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in STOP. \_\_\_\_\_

[36] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN only  
LIT. \_\_\_\_\_

[37] **ENSURE** Annunciator Window 150-A on Panel 2-XA-55-6F,  
6.9 SD BD 2B-B, is CLEAR. \_\_\_\_\_

[38] **ENSURE** Event Display Monitor reports 150-A, 6.9 SD BD  
2B-B XS IN AUX; is NORMAL (Blue). \_\_\_\_\_

[39] **PLACE** 2-XS-72-10, 6.9kV SD Bd 2B-B, Panel 13, in AUX. \_\_\_\_\_

[40] **VERIFY** the following:

A. 2-HS-72-10C, 2B CNTMT SPRAY PMP, GREEN light  
only LIT. \_\_\_\_\_

B. 2-HS-72-10A, CNTMT SPRAY PMP B, NO lights are LIT.  
**(Acc Crit 5.0[10])** \_\_\_\_\_

C. Annunciator Window 150-A on Panel 2-XA-55-6F, 6.9 SD  
BD 2B-B XS IN AUX; ALARMS. **(Acc Crit 5.0[14])** \_\_\_\_\_

D. Event Display Monitor reports 150-A, 6.9 SD BD 2B-B XS  
IN AUX; is in ALARM (RED). \_\_\_\_\_

[41] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in START. \_\_\_\_\_

[42] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B  
(2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains OPEN. \_\_\_\_\_

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[43] **VERIFY** the light status does NOT change:

- A. 2-HS-72-10C, 2B CNTMT SPRAY PMP, GREEN light only LIT. \_\_\_\_\_
- B. 2-HS-72-10A, CNTMT SPRAY PMP B, NO HS lights are LIT. \_\_\_\_\_

[44] **PLACE** 2-HS-72-10C, 2B CNTMT SPRAY PMP, Panel 13, in START. \_\_\_\_\_

[45] **VERIFY** the following:

- A. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES. **(Acc Crit 5.0[9])** \_\_\_\_\_
- B. 2-HS-72-10C, 2B CNTMT SPRAY PMP, RED light only LIT. \_\_\_\_\_
- C. 2-HS-72-10A, CNTMT SPRAY PMP B, NO HS lights are LIT. \_\_\_\_\_
- D. 6900 Shutdown Bd 2B-B Logic Panel RED light LIT. \_\_\_\_\_

[46] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, in STOP. \_\_\_\_\_

[47] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains CLOSED. \_\_\_\_\_

[48] **VERIFY** the light status does NOT change:

- A. 2-HS-72-10C, 2B CNTMT SPRAY PMP, RED light only is LIT. \_\_\_\_\_
- B. 2-HS-72-10A, CNTMT SPRAY PMP B, NO HS lights are LIT. \_\_\_\_\_

[49] **PLACE** 2-HS-72-10C, 6.9kV SD Bd 2B-B, Panel 13, in STOP. \_\_\_\_\_

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#### 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [50] **VERIFY** that 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. **(Acc Crit 5.0[9])** \_\_\_\_\_
- [51] **PLACE** 2-XS-72-10, 6.9kV SD Bd 2B-B, Panel 13, in NORMAL. \_\_\_\_\_
- [52] **VERIFY** Annunciator Window 150-A on Panel 2-XA-55-6F, 6.9 SD BD 2B-B, is CLEAR. \_\_\_\_\_
- [53] **VERIFY** Event Display Monitor reports 150-A, 6.9 SD BD 2B-B XS IN AUX, is NORMAL (Blue). \_\_\_\_\_
- [54] **PLACE** 2-HS-72-10C, 2B CNTMT SPRAY PMP, in mid-position. \_\_\_\_\_
- [55] **PLACE** and **HOLD** 2-HS-72-10A, CNTMT SPRAY PMP B, in STOP. \_\_\_\_\_
- [56] **CLOSE** "K643 Spray Signal-B" test switch in cabinet R-51 for relay K643. \_\_\_\_\_
- [57] **RELEASE** 2-HS-72-10A, CNTMT SPRAY PMP B. \_\_\_\_\_
- [58] **VERIFY** that 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES without apparent time delay. **(Acc Crit 5.0[21])** \_\_\_\_\_

#### CAUTIONS

- 1) The following sequence of steps will involve placing the GROUP K TEST RELAYS 43TK hand switch to TEST and pressing and holding the GROUP K BLACK-OUT BO-CS push button.
- 2) Auxiliary Building General Supply & Exhaust Fan 2B is also part of GROUP K and will lose power temporarily.
- 3) ABGS 2A and ABGE 2A may need to be placed in service.

- [59] **NOTIFY** U1 Operations that Auxiliary Building General Supply & Exhaust Fan 2B will temporarily lose power.

\_\_\_\_\_  
U1 SRO



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 161 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[60] **LOCATE** and **IDENTIFY** the following items on the FRONT of 2-PNL-211-B-B, panel 4:

A. GROUP K TEST RELAYS 43TK hand switch. \_\_\_\_\_

B. GROUP K BLACK-OUT BO-CS pushbutton. \_\_\_\_\_

[61] **PLACE** hand switch GROUP K TEST RELAYS 43TK to TEST position [2-PNL-211-B-B, panel 4]. \_\_\_\_\_

[62] **ENSURE** the polymeter is zeroed and ready to record. \_\_\_\_\_

### NOTES

- 1) The following steps simulate CS with BO before the breaker closes. Timing will begin as soon as the GROUP K BLACK-OUT BO-CS pushbutton is pressed. Timing will end when breaker closes.
- 2) The TDPU for 2-02-72-10, CSP ST, is 184 secs.

[63] **MOMENTARILY PRESS** the GROUP K BLACK-OUT BO-CS pushbutton [2-PNL-211-B-B, panel 4]. \_\_\_\_\_

[64] **VERIFY** that 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. \_\_\_\_\_

[65] **VERIFY** the following occurs 182.5-185.5 seconds after pressing GROUP K BLACK-OUT BO-CS pushbutton:

A. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES. **(Acc Crit 5.0[20])** \_\_\_\_\_

B. Relay CSP ST is ENERGIZED. \_\_\_\_\_

[66] **RECORD** the time from the polymeter. \_\_\_\_\_

\_\_\_\_\_ seconds (182.5-185.5 seconds)

M&TE \_\_\_\_\_

Cal Due Date \_\_\_\_\_

[67] **OPEN** "K643 Spray Signal-B" test switch in cabinet R-51 for relay K643. \_\_\_\_\_

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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [68] **VERIFY** that 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains CLOSED. \_\_\_\_\_
- [69] **PLACE** 43TK to RESET and then to NORMAL. \_\_\_\_\_
- [70] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains CLOSED. \_\_\_\_\_
- [71] **ENSURE** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is CLEAR. \_\_\_\_\_
- [72] **ENSURE** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is NORMAL (Blue). \_\_\_\_\_
- [73] **CLOSE** the contacts on Relay 51/83 AØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [74] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains CLOSED. \_\_\_\_\_
- [75] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
- [76] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" ALARMS. (**Acc Crit 5.0[16]**) \_\_\_\_\_
- [77] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is in ALARM (RED). \_\_\_\_\_
- [78] **RELEASE** the disk on Relay 51/83 AØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [79] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
- [80] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" CLEARS. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 163 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [81] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is NORMAL (Blue). \_\_\_\_\_
- [82] **ENSURE** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is CLEAR. \_\_\_\_\_
- [83] **ENSURE** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [84] **CLOSE** the contacts on Relay 51/83 AØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [85] **MOMENTARILY PLACE** a jumper across terminals 9 and 10 on the back of Relay 51/83 AØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [86] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
  - C. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPEN. \_\_\_\_\_
- [87] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [88] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_
- [89] **RELEASE** the disk on Relay 51/83 AØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [90] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, to START. \_\_\_\_\_
- [91] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains OPEN. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 164 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [92] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, momentarily to STOP. \_\_\_\_\_
- [93] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
- B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
- [94] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [95] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [96] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, to START. \_\_\_\_\_
- [97] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSSES. \_\_\_\_\_
- [98] **MANUALLY ACTUATE** the Contacts on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, 50 A $\phi$  Instantaneous Overcurrent Relay. \_\_\_\_\_
- [99] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. \_\_\_\_\_
- [100] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
- B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
- [101] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [102] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 165 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [103] **RESET** the trip target on time overcurrent relay 50 A $\phi$  on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [104] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, momentarily to STOP. \_\_\_\_\_
- [105] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
  - C. MOTOR TRIPOUT buzzer silences. \_\_\_\_\_
- [106] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [107] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [108] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, to START. \_\_\_\_\_
- [109] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES. \_\_\_\_\_
- [110] **CLOSE** the contacts on Relay 51/83 C $\emptyset$  on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [111] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, remains CLOSED. \_\_\_\_\_
- [112] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
- [113] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" ALARMS. (**Acc Crit 5.0[16]**) \_\_\_\_\_
- [114] **VERIFY** Event Display Monitor reports 14-D "M-1 THRU M-6 MOTOR OVERLOAD" is in ALARM (RED). \_\_\_\_\_

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#### 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [115] **RELEASE** the disk on Relay 51/83 CØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [116] **VERIFY** 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
- [117] **VERIFY** Annunciator 14-D "M-1 THRU M-6 MOTOR OVERLOAD" CLEARS. \_\_\_\_\_
- [118] **ENSURE** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is CLEAR. \_\_\_\_\_
- [119] **CLOSE** the contacts on Relay 51/83 CØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, by manually rotating the disk, **AND HOLD**. \_\_\_\_\_
- [120] **MOMENTARILY PLACE** a jumper across terminals 9 and 10 on the back of Relay 51/83 CØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [121] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
  - C. 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPEN. \_\_\_\_\_
- [122] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [123] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_
- [124] **RELEASE** the disk on Relay 51/83 CØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [125] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, momentarily to STOP. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 167 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

[126] **VERIFY** the following.

A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_

B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_

[127] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_

[128] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_

[129] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, to START. \_\_\_\_\_

[130] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSSES. \_\_\_\_\_

[131] **MANUALLY ACTUATE** the Contacts on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, 50 CØ Instantaneous Overcurrent Relay. \_\_\_\_\_

[132] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. \_\_\_\_\_

[133] **VERIFY** the following:

A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_

B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_

[134] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_

[135] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_

[136] **RESET** the trip target on time overcurrent relay 50 CØ on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 168 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [137] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, momentarily to STOP. \_\_\_\_\_
- [138] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
- [139] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [140] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [141] **PLACE** 2-HS-72-10A, CNTMT SPRAY PMP B, to START. \_\_\_\_\_
- [142] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, CLOSES. \_\_\_\_\_
- [143] **ACTUATE** the Contacts by manually rotating the disk on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, 50G Ground Overcurrent Relay. \_\_\_\_\_
- [144] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
- [145] **VERIFY** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, OPENS. \_\_\_\_\_
- [146] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" ALARMS. (**Acc Crit 5.0[15]**) \_\_\_\_\_
- [147] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is in ALARM (RED). \_\_\_\_\_



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 169 of 249</b>
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## 6.10 Containment Spray Pump 2B-B Logic Test (continued)

- [148] **RESET** the trip target on Ground Overcurrent Relay 50G on 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13. \_\_\_\_\_
- [149] **PLACE** handswitch 2-HS-72-10A, CNTMT SPRAY PMP B, momentarily to STOP. \_\_\_\_\_
- [150] **VERIFY** the following:
- A. 2-HS-72-10A, CNTMT SPRAY PMP B, White light is NOT LIT. \_\_\_\_\_
  - B. 2-HS-72-10A, CNTMT SPRAY PMP B, GREEN light is LIT. \_\_\_\_\_
- [151] **VERIFY** Annunciator 14-E "M-1 THRU M-6 MOTOR TRIPOUT" CLEARS. \_\_\_\_\_
- [152] **VERIFY** Event Display Monitor reports 14-E "M-1 THRU M-6 MOTOR TRIPOUT" is NORMAL (Blue). \_\_\_\_\_
- [153] **REMOVE** 2-BKR-72-10, CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10), 6.9kV SD BD 2B-B, Panel 13, from the TEST position per GOI-7. \_\_\_\_\_

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## 6.11 Containment Spray Pump 2A-A Flow Performance Test

### CAUTION

The heat up of the CS system should be monitored closely. No cooling water is initially placed through the CS Heat Exchanger in the following steps.

### NOTES

- 1) During the performance of this Subsection, piping vibration data will be collected. The TE is responsible for performance of piping vibration activities in accordance with 2-PTI-999-01.
- 2) The target differential pressure (dP) values listed in this Subsection are only approximations and actual flow can vary without affecting desired outcome which is flow  $\geq 4000$  gpm at 435 ft head.

[1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.11 have been completed.

[2] **ENSURE** 2-FCV-72-39, CNTMT SPRAY HDR A TO CNTMT is CLOSED.

[3] **PERFORM** fill and vent up to 2-FCV-72-39 for Containment Spray A Header per 2-TOP-072-01.

[4] **ENSURE** the Piping Vibration Test Engineer (TE) has personnel and test equipment in place, as needed, to support vibration testing.

VIB Engr

[5] **ENSURE** the RWST level is greater than or equal to 45%,  
**AND**

**RECORD** the values per the following instruments:

A. 2-LI-63-50 (2-M-6)

\_\_\_\_\_ %

B. 2-LI-63-51 (2-M-6)

\_\_\_\_\_ %

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 171 of 249</b>
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**6.11 Containment Spray Pump 2A-A Flow Performance Test**  
**(continued)**

- [6] **ENSURE** the RWST temperature is between 66°F - 98°F,  
**AND**

**RECORD** the values per the following instruments:

- A. 2-TI-63-131 (2-M-6)

\_\_\_\_\_ °F \_\_\_\_\_

- B. 2-TI-63-132 (2-M-6)

\_\_\_\_\_ °F \_\_\_\_\_

**NOTES**

- 1) The minimum temperature is to maintain some margin with RWST minimum operating temperature of 60°F.
- 2) The maximum temperature is to maintain some margin with the maximum piping design temperature for the CS recirc line to the RWST of 105°F.
- 3) Steps 6.11[7] through 6.11[8] apply throughout Section 6.11.

- [7] **MONITOR** the RWST temperature. (66°F - 98°F)

- A. 2-TI-63-131 (2-M-6) \_\_\_\_\_

- B. 2-TI-63-132 (2-M-6) \_\_\_\_\_

**CAUTION**

Performance of Step 6.11[8] may lower ERCW header pressure. Additional ERCW pumps may need to be placed in service to maintain head pressure.

- [8] **IF** RWST temperature is high, **THEN**

**PERFORM** valve lineup per 2-TOP-072-01 to place cooling  
through 2-HTX-072-2A (CNTMT SPRAY HTX 2A). \_\_\_\_\_

- [9] **RECORD** ambient Computer Point Temperature Data, for  
Containment Spray Pump 2A-A, on page 1 of Appendix G. \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 172 of 249</b>
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**6.11 Containment Spray Pump 2A-A Flow Performance Test  
(continued)**

- [10] **VERIFY** permanent plant and M&TE instrumentation have been filled and vented. \_\_\_\_\_
- [11] **LINE UP** system for mini-flow operation per 2-TOP-072-01. \_\_\_\_\_
- [12] **PLACE** system in mini-flow operation per 2-TOP-072-01. \_\_\_\_\_
- [13] **VERIFY** 2-MTR-30-177 (2A CNTMT SPRAY 2A RM CLR) is RUNNING, locally, after Containment Spray Pump 2A-A starts. \_\_\_\_\_
- [14] **RECORD** Computer Point Temperature Data, at 10 minute intervals until three successive Temperature readings are within  $\pm 3\%$  during Mini-Flow conditions, for Containment Spray Pump 2A-A, on page 2 of Appendix G. \_\_\_\_\_
- [15] **RECORD** Containment Spray Pump 2A-A Minimum Flow Recirculation Data as required per page 7 of Appendix H 1.1.3. \_\_\_\_\_
- [16] **NOTIFY** Vibration TE responsible for 2-PTI-999-01 that conditions have been established for steady state vibration for System 072, CNTMT SPRAY PUMP 2A-A, at Mini-flow conditions. \_\_\_\_\_
- [17] **PERFORM** vibration testing in accordance with 2-PTI-999-01, **AND**  
**RECORD** an entry in the Chronological Test Log. \_\_\_\_\_

\_\_\_\_\_  
VIB Engr

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 173 of 249</b>
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**6.11 Containment Spray Pump 2A-A Flow Performance Test  
(continued)**

[18] **ENSURE** the following valve lineup:

- A. Valve 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, CLOSED. \_\_\_\_\_
- B. Valve 2-ISV-72-504, CNTMT SPRAY HDR B TEST LINE ISOLATION, CLOSED. \_\_\_\_\_
- C. Valve 2-ISV-72-503, CNTMT SPRAY HDR A TEST LINE ISOLATION, OPEN. \_\_\_\_\_
- D. Valve 2-RTV-72-215, 2-FI-72-5 ROOT, OPEN. \_\_\_\_\_
- E. Valve 2-RTV-72-216, 2-FI-72-5 ROOT, OPEN. \_\_\_\_\_
- F. Valve 2-DRV-72-505, CNTMT SPRAY TEST LINE DRAIN, CLOSED. \_\_\_\_\_

[19] **SLOWLY OPEN** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, **AND**

**VERIFY** 2-FCV-72-34, CNTMT SPRAY PMP A MINI-FLOW, CLOSES at 2000 (1778 - 2250) GPM as read on 2-FI-72-34. \_\_\_\_\_

[20] **RECORD** flow read on 2-FI-72-34.

\_\_\_\_\_ GPM \_\_\_\_\_

[21] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 19.3 - 19.6 psid (2300 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_

[22] **RECORD** CNTMT SPRAY PUMP 2A-A performance data at 2300 GPM as required on page 7 of Appendix H. \_\_\_\_\_

[23] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 33.8 - 34.4 psid (3100 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 174 of 249</b>
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**6.11 Containment Spray Pump 2A-A Flow Performance Test  
(continued)**

- [24] **RECORD** CNTMT SPRAY PUMP 2A-A performance data at 3100 GPM as required on page 7 of Appendix H. \_\_\_\_\_
- [25] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 55.2 - 56.3 psid (4000 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_
- [26] **RECORD** CNTMT SPRAY PUMP 2A-A performance data at 4000 GPM as required on page 7 of Appendix H. \_\_\_\_\_
- [27] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain test line full flow conditions, between 77.3 - 78.8 psid (4750 gpm) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_
- [28] **RECORD** CNTMT SPRAY PUMP 2A-A performance data at test line full flow as required on page 7 of Appendix H. \_\_\_\_\_
- [29] **RECORD** Computer Point Temperature Data at 10 minute intervals during test line full flow conditions until three successive temperature readings agree within  $\pm 3\%$  for Containment Spray Pump 2A-A, on page 3 Appendix G. \_\_\_\_\_
- [30] **RECORD** Containment Spray System Train A operating parameters on Appendix K. \_\_\_\_\_
- [31] **NOTIFY** Vibration TE responsible for 2-PTI-999-01 that conditions have been established for steady state vibration for System 072, CNTMT SPRAY PUMP 2A-A, at test line full flow conditions. \_\_\_\_\_
- [32] **PERFORM** vibration testing in accordance with 2-PTI-999-01. \_\_\_\_\_  
VIB Engr
- [33] **PERFORM** pump calculations in Sub Subsection 1.1.4 of Appendix H \_\_\_\_\_
- [34] **VERIFY** CNTMT SPRAY PUMP 2A-A pump discharge head and flowrate point for 435 ft is equal to or greater than 4000 gpm from page 12 and 17 of Appendix H (1.1.4J).  
**(Acc Crit 5.0[1])** \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 175 of 249</b>
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**6.11 Containment Spray Pump 2A-A Flow Performance Test**  
**(continued)**

[35] **VERIFY** Containment Spray Train A miniflow flowrate is greater than or equal to 550 gpm as calculated on page 13 of Appendix H (1.1.4F). **(Acc Crit 5.0[3])** \_\_\_\_\_

[36] **RECORD** CNTMT SPRAY PUMP 2A-A flowrate at 2-FI-72-34, CNTMT SPRAY PMP A FLOW (2-M-6).  
\_\_\_\_\_ GPM \_\_\_\_\_

[37] **PLACE** Handswitch 2-HS-72-27A, CNTMT SPRAY PUMP 2A on MCR Panel 2-M-6 to the PULL-STOP position, **AND**

**VERIFY** locally CNTMT SPRAY PUMP 2A STOPS. \_\_\_\_\_

[38] **PLACE** Handswitch 2-HS-72-27A, CNTMT SPRAY PMP 2A on MCR Panel 2-M-6 to the A-AUTO position, **AND**

**VERIFY** locally CNTMT SPRAY PUMP 2A DOES NOT START. \_\_\_\_\_

**NOTE**

The following step requires communication between test personnel in the Main Control Room. The stopwatch is to be started on closure of the test switch and stopped when the reference flow recorded in Step 6.11[36] is reached as read on 2-FI-72-34.

[39] **SIMULTANEOUSLY START** Stopwatch, **AND**

**CLOSE** test switch "K643 Spray Signal-A" in cabinet 2-R-48. \_\_\_\_\_

[40] **WHEN** CNTMT SPRAY PMP A flowrate is equal to or greater than the reference flowrate recorded in Step 6.11[36] as read on 2-FI-72-34, **THEN**

**RECORD** TIME AND FLOWRATE. **(Acc Crit 5.0[2])** \_\_\_\_\_

\_\_\_\_\_ seconds (≤5 secs)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

\_\_\_\_\_ GPM

2-FI-72-34

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 176 of 249</b>
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## 6.11 Containment Spray Pump 2A-A Flow Performance Test (continued)

### NOTE

From SSD 2-F-72-34, Acceptable As Found is +129.10 to -141.31 gpm.  $\pm 100$  will be used below.

[41] **SLOWLY CLOSE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, **AND**

**VERIFY** 2-FCV-72-34, CNTMT SPRAY PMP 2A-A MIN-FLOW, OPENS at 1500 (1400 - 1600 GPM) as read on 2-FI-72-34, CNTMT SPRAY PMP A FLOW \_\_\_\_\_

[42] **RECORD** flow as read on 2-FI-72-34.

\_\_\_\_\_ GPM (1400-1600) \_\_\_\_\_

[43] **PLACE** Handswitch 2-HS-72-27A, CNTMT SPRAY PMP A on MCR Panel 2-M-6 to the PULL-STOP position, **AND**

**VERIFY** locally CNTMT SPRAY PMP A STOPS. \_\_\_\_\_

[44] **OPEN** test switch "K643 Spray Signal-A" in cabinet 2-R-48. \_\_\_\_\_

[45] **ENSURE** the following valve lineup:

A. Valve 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, is CLOSED. \_\_\_\_\_

B. Valve 2-ISV-72-503, CNTMT SPRAY HDR A TEST LINE ISOLATION, is CLOSED. \_\_\_\_\_



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## 6.12 Containment Spray Pump 2B-B Flow Performance Test

### CAUTION

The heat up of the CS system should be monitored closely. No cooling water is initially placed through the CS Heat Exchanger in the following steps.

### NOTES

- 1) During the performance of this Subsection, piping vibration data will be collected. The TE is responsible for performance of piping vibration activities in accordance with 2-PTI-999-01.
- 2) The target differential pressure (dP) values listed in this Subsection are only approximations and actual flow can vary without affecting desired outcome which is flow  $\geq 4000$  gpm at 435 ft head.

[1] **VERIFY** Prerequisites listed in Section 4.0 for Subsection 6.12 have been completed. \_\_\_\_\_

[2] **ENSURE** 2-FCV-72-2, CNTMT SPRAY HDR B TO CNTMT, is CLOSED. \_\_\_\_\_

[3] **PERFORM** fill and vent up to 2-FCV-72-2 for Containment Spray B Header per 2-TOP-072-01. \_\_\_\_\_

[4] **ENSURE** the Piping Vibration Test Engineer (TE) has personnel and test equipment, as needed, in place to support vibration testing. \_\_\_\_\_

VIB Engr

[5] **ENSURE** the RWST level is greater than or equal to 45%,  
**AND**

**RECORD** the values per the following instruments:

A. 2-LI-63-50 (2-M-6)

\_\_\_\_\_ % \_\_\_\_\_

B. 2-LI-63-51 (2-M-6)

\_\_\_\_\_ % \_\_\_\_\_

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 178 of 249</b>
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## 6.12 Containment Spray Pump 2B-B Flow Performance Test (continued)

- [6] **ENSURE** the RWST temperature is between 66°F - 98°F,  
**AND**

**RECORD** the values per the following instruments:

- A. 2-TI-63-131 (2-M-6)

\_\_\_\_\_ °F \_\_\_\_\_

- B. 2-TI-63-132 (2-M-6)

\_\_\_\_\_ °F \_\_\_\_\_

### NOTES

- 1) The minimum temperature is to maintain some margin with RWST minimum operating temperature of 60°F .
- 2) The maximum temperature is to maintain some margin with the maximum piping design temperature for the CS recirc line to the RWST of 105°F .
- 3) Steps 6.12[7] and 6.12[8] apply throughout Section 6.12.

- [7] **MONITOR** the RWST temperature. (66°F - 98°F)

- A. 2-TI-63-131 (2-M-6)

- B. 2-TI-63-132 (2-M-6)

### CAUTION

Performance of Step 6.12[8] may lower ERCW header pressure. Additional ERCW pumps may need to be placed in service to maintain head pressure.

- [8] **IF** RWST temperature is high, **THEN**

**PERFORM** valve lineup per 2-TOP-072-01 to place cooling  
through 2-HTX-072-2B, B CNTMT SPRAY HTX.

- [9] **RECORD** ambient Computer Point Temperature Data, for  
Containment Spray Pump 2B-B, on page 1 of Appendix I.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 179 of 249</b>
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**6.12 Containment Spray Pump 2B-B Flow Performance Test**  
**(continued)**

- [10] **VERIFY** permanent plant and M&TE instrumentation have been filled and vented. \_\_\_\_\_
- [11] **LINE UP** system for mini-flow operation per 2-TOP-072-01. \_\_\_\_\_
- [12] **PLACE** system in mini-flow operation per 2-TOP-072-01. \_\_\_\_\_
- [13] **VERIFY** 2-MTR-30-178, B CNTMT SPRAY RM CLR, is RUNNING, locally, after Containment Spray Pump 2B-B starts. \_\_\_\_\_
- [14] **RECORD** Computer Point Temperature Data, at 10 minute intervals until three successive Temperature readings are within  $\pm 3\%$  during Mini-Flow conditions, for Containment Spray Pump 2B-B, on page 2 of Appendix I. \_\_\_\_\_
- [15] **RECORD** Containment Spray Pump 2B-B Minimum Flow Recirculation Data as required per page 7 of Appendix J 1.1.3. \_\_\_\_\_
- [16] **NOTIFY** Vibration TE responsible for 2-PTI-999-01 that conditions have been established for steady state vibration for System 072, CNTMT SPRAY PUMP 2B-B, at Mini-flow conditions. \_\_\_\_\_
- [17] **PERFORM** vibration testing in accordance with 2-PTI-999-01,  
**AND**  
**RECORD** an entry in the Chronological Test Log. \_\_\_\_\_

\_\_\_\_\_  
VIB Engr

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 180 of 249</b>
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## **6.12 Containment Spray Pump 2B-B Flow Performance Test** **(continued)**

[18] **ENSURE** the following valve lineup:

- A. Valve 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, CLOSED. \_\_\_\_\_
- B. Valve 2-ISV-72-504, CNTMT SPRAY HDR B TEST LINE ISOLATION, OPEN. \_\_\_\_\_
- C. Valve 2-ISV-72-503, CNTMT SPRAY HDR A TEST LINE ISOLATION, CLOSED. \_\_\_\_\_
- D. Valve 2-RTV-72-215, 2-FI-72-5 ROOT, OPEN. \_\_\_\_\_
- E. Valve 2-RTV-72-216, 2-FI-72-5 ROOT, OPEN. \_\_\_\_\_
- F. Valve 2-DRV-72-505, CNTMT SPRAY TEST LINE DRAIN, CLOSED. \_\_\_\_\_

[19] **SLOWLY OPEN** 2-ISV-72-502, **AND**

**VERIFY** 2-FCV-72-13 CLOSES at 2000 (1778 - 2250) GPM as read on 2-FI-72-13. \_\_\_\_\_

[20] **RECORD** flow as read on 2-FI-72-13.

\_\_\_\_\_ GPM \_\_\_\_\_

[21] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 19.3 - 19.6 psid (2300 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_

[22] **RECORD** CNTMT SPRAY PUMP 2B-B performance data at 2300 GPM as required on page 7 of Appendix J. \_\_\_\_\_

[23] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 33.8 - 34.4 psid (3100 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_

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**6.12 Containment Spray Pump 2B-B Flow Performance Test  
(continued)**

- [24] **RECORD** CNTMT SPRAY PUMP 2B-B performance data at 3100 GPM as required on page 7 of Appendix J. \_\_\_\_\_
- [25] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain approximately 55.2 - 56.3 psid (4000 GPM) as read on the M&TE d/p gauge installed at 2-FI-72-5 \_\_\_\_\_
- [26] **RECORD** CNTMT SPRAY PUMP 2B-B performance data at 4000 GPM as required on page 7 of Appendix J. \_\_\_\_\_
- [27] **THROTTLE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, to obtain test line full flow conditions, between 77.3 - 78.8 psid (4750 gpm) as read on the M&TE d/p gauge installed at 2-FI-72-5. \_\_\_\_\_
- [28] **RECORD** CNTMT SPRAY PUMP 2B-B performance data at test line full flow as required on page 7 of Appendix J. \_\_\_\_\_
- [29] **RECORD** Computer Point Temperature Data at 10 minute intervals during test line full flow conditions until three successive temperature readings agree within  $\pm 3\%$  for Containment Spray Pump 2B-B, on page 3 of Appendix I. \_\_\_\_\_
- [30] **RECORD** Containment Spray System Train B operating parameters on Appendix L. \_\_\_\_\_
- [31] **NOTIFY** Vibration TE responsible for 2-PTI-999-01 that conditions have been established for steady state vibration for System 072, CNTMT SPRAY PUMP 2B-B, at test line full flow conditions. \_\_\_\_\_
- [32] **PERFORM** vibration testing in accordance with 2-PTI-999-01. \_\_\_\_\_  
VIB Engr
- [33] **PERFORM** pump calculations in Sub Subsection 1.1.8 of Appendix J. \_\_\_\_\_
- [34] **VERIFY** CNTMT SPRAY PUMP 2B-B pump discharge head and flowrate point for 435 ft is equal to or greater than 4000 gpm from page 12 and 17 of Appendix J (1.1.8J).  
**(Acc Crit 5.0[1])** \_\_\_\_\_

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**6.12 Containment Spray Pump 2B-B Flow Performance Test  
(continued)**

[35] **VERIFY** Containment Spray Train B miniflow flowrate is greater than or equal to 550 gpm as calculated on page 13 of Appendix J (1.1.8J). **(Acc Crit 5.0[3])** \_\_\_\_\_

[36] **RECORD** CNTMT SPRAY PUMP 2B-B flowrate at 2-FI-72-13, CNTMT SPRAY PMP B FLOW (2-M-6). \_\_\_\_\_

\_\_\_\_\_ GPM \_\_\_\_\_

[37] **PLACE** Handswitch 2-HS-72-10A, CNTMT SPRAY PUMP B on MCR Panel 2-M-6 to the PULL-STOP position, **AND**

**VERIFY** locally CNTMT SPRAY PUMP B STOPS. \_\_\_\_\_

[38] **PLACE** Handswitch 2-HS-72-10A, CNTMT SPRAY PMP B on MCR Panel 2-M-6 to the A-AUTO position, **AND**

**VERIFY** locally CNTMT SPRAY PUMP 2B DOES NOT START. \_\_\_\_\_

**NOTE**

The following step requires communication between test personnel in the Main Control Room. The stopwatch is to be started on closure of the test switch and stopped when the reference flow recorded in Step 6.12[36] is reached as read on 2-FI-72-13.

[39] **SIMULTANEOUSLY START** Stopwatch, **AND**

**CLOSE** test switch "Spray-B" in cabinet 2-R-51. \_\_\_\_\_

[40] **WHEN** CNTMT SPRAY PMP B flowrate is equal to or greater than the reference flowrate recorded in Step 6.12[36] as read on 2-FI-72-13, **THEN**

**RECORD** TIME AND FLOWRATE. **(Acc Crit 5.0[2])** \_\_\_\_\_

\_\_\_\_\_ seconds ( $\leq 5$  secs)

M&TE \_\_\_\_\_ Cal Due Date \_\_\_\_\_

\_\_\_\_\_ GPM

2-FI-72-13

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 183 of 249</b>
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**6.12 Containment Spray Pump 2B-B Flow Performance Test**  
**(continued)**

<b>NOTE</b>
From SSD 2-F-72-13, Acceptable As Found is +129.10 to -141.31 gpm. $\pm 100$ will be used below.

[41] **SLOWLY CLOSE** 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, **AND**

**VERIFY** 2-FCV-72-13, CNTMT SPRAY PMP 2B-B MIN-FLOW, OPENS at 1500 (1400 - 1600 GPM) as read on 2-FI-72-13, CNTMT SPRAY PMP B FLOW.

[42] **RECORD** flow as read on 2-FI-72-13.

\_\_\_\_\_ GPM (1400-1600)

[43] **PLACE** Handswitch 2-HS-72-10A, CNTMT SPRAY PMP B on MCR Panel 2-M-6 to the PULL-STOP position, **AND**

**VERIFY** locally CNTMT SPRAY PMP B STOPS.

[44] **OPEN** test switch "Spray-B" in cabinet 2-R-51.

[45] **ENSURE** the following valve lineup:

A. Valve 2-ISV-72-502, CNTMT SPRAY TEST LINE ISOLATION, CLOSED.

B. Valve 2-ISV-72-503, CNTMT SPRAY HDR A TEST LINE ISOLATION, CLOSED.

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 184 of 249</b>
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## 7.0 POST-PERFORMANCE ACTIVITIES

### NOTE

Post-performance steps may be performed in any order unless otherwise stated and should be completed as close in time as practicable to the end of the instruction performance

- [1] **PERFORM** the following to remove test switch  
“K643 Spray Signal-A” installed by Step 4.3[16]

A. **UNBOLT** both ends of test switch “K643 Spray Signal-A”  
in cabinet R-48

B. **RESTORE** field side wire from TB639-11 in cabinet R-48  
to as found condition listed in Appendix B

CV

C. **RESTORE** field side wire from TB639-12 in cabinet R-48  
to as found condition listed in Appendix B

CV

- [2] **PERFORM** the following to remove test switch  
“K643 Spray Signal-B” installed by Step 4.3[17]

A. **UNBOLT** both ends of test switch “K643 Spray Signal-B”  
in cabinet R-51

B. **RESTORE** field side wire from TB639-11 in cabinet R-51  
to as found condition listed in Appendix B

CV

C. **RESTORE** field side wire from TB639-12 in cabinet R-51  
to as found condition listed in Appendix B

CV



<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 185 of 249</b>
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## 7.0 POST-PERFORMANCE ACTIVITIES (continued)

- [3] **REMOVE** 0-100 psig test pressure gauge at 2-PI-72-33, test tee (676/A9U)

CV

- [4] **REMOVE** 0-500 psig test pressure gauge at 2-PI-72-32 test tee (676/A9U)

CV

- [5] **REMOVE** 0 to 1000 GPM Ultrasonic Flowmeter from CS Pump 2A-A min-flow piping, Location 692/A11V pipe chase

CV

- [6] **REMOVE** 0-100 psig test pressure gauge at 2-PI-72-16 test tee (676/A9U)

CV

- [7] **REMOVE** 0-500 psig test pressure gauge at 2-PI-72-15 test tee (676/A9T)

CV

- [8] **REMOVE** 0 to 1000 gpm Ultrasonic Flowmeter from CS Pump 2B-B min-flow piping, Location 692/A11V pipe chase

CV

- [9] **REMOVE** 0 to 150 psig differential pressure test gauge at 2-FI-72-5 test tees (713/A12V)

CV

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 186 of 249</b>
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## 7.0 POST-PERFORMANCE ACTIVITIES (continued)

- [10] **VERIFY** Junction Box covers have been reinstalled for 2-JB-292-771 and 2-JB-292-1155 per Work Order in step 4.3[10].

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CV

- [11] **VERIFY** Junction Box covers have been reinstalled for 2-JB-292-770 and 2-JB-292-1156 per Work Order in step 4.3[11].

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CV

- [12] **VERIFY** Junction Box covers have been reinstalled for 2-JB-292-1360 per Work Order in step 4.3[12].

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CV

- [13] **VERIFY** Junction Box covers have been reinstalled for 2-JB-292-1362 per Work Order in step 4.3[13].

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CV

- [14] **RESTORE** terminal points from Step 4.3[14] to the as-found position listed in Appendix B.

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CV

- [15] **RESTORE** terminal points from Step 4.3[15] to the as-found position listed in Appendix B.

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CV

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 187 of 249</b>
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## 7.0 POST-PERFORMANCE ACTIVITIES (continued)

[16] **REMOVE** the polypmeter with the start signal in parallel with the 2-02-72-27 CSP ST points L1 and L2 and the stop signal across any set of 52STA normally closed contacts. \_\_\_\_\_

[17] **REMOVE** the polypmeter with the start signal in parallel with the 2-02-72-10 CSP ST points L1 and L2 and the stop signal across any set of 52STA normally closed contacts. \_\_\_\_\_

[18] **VERIFY** that Post-test calibration of the M&TE used to record quantitative acceptance criteria has been satisfactorily performed, **AND**

**RECORD** the results on Measuring and Test Equipment (M&TE) Log. \_\_\_\_\_

[19] **VERIFY** that Post-test calibration of permanent plant instruments used to record quantitative acceptance criteria has been satisfactorily performed, **AND**

**RECORD** the results on Appendix C, Permanent Plant Instrumentation Log. \_\_\_\_\_

[20] **NOTIFY** the Unit 2 US/SRO of the test completion and system alignment. \_\_\_\_\_

[21] **NOTIFY** the Unit 1 US/SRO of the test completion and system alignment \_\_\_\_\_

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 188 of 249</b>
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## **8.0 RECORDS**

### **A. QA Records**

Completed Test Package

### **B. Non-QA Records**

None

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**Appendix A  
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**Procedures/Instructions Reference Review**

**NOTES**

- 1) Additional copies of this table may be made as necessary.
- 2) Initial and date indicates review has been completed for impact.

<b>PROCEDURE/ INSTRUCTION</b>	<b>REVISION/CHANGES</b>	<b>IMPACT Yes/No</b>	<b>INITIAL AND DATE. (N/A for no change)</b>
Unit 2 Final Safety Analysis Report - Amendment 109			
2-F-72-13 Rev 0			
2-F-72-34 Rev 0			
2-62-72-34-A Rev 0			
2-62-72-13-B Rev 0			
2-TSD-030A-1, Rev. 0002 Select Auxiliary Building ESF Coolers and HELB Detection			
2-TSD-72-1, Rev. 0003 Containment Heat Removal Spray System			
WBN-VTM-W120-0050, Rev 5			
1-SI-99-644-A, Rev 0007			



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**Appendix C  
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Switch Lineup**

<b>UNID</b>	<b>SWITCH LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-XS-72-44	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13B (772/A12-T)	CNTMT SUMP TO HDR A FLOW CONT TRANS SW	NORMAL	6.3	
2-HS-72-44C	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13B (772/A12-T)	CNTMT SUMP TO HDR A FLOW CONT TRANS SW	NORMAL	6.3	
2-XS-72-45	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14E (772/A12-S)	CNTMT SUMP TO HDR B FLOW CONT TRANS SW	NORMAL	6.4	
2-HS-72-45C	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14E (772/A12-S)	CNTMT SUMP TO HDR B FLOW CONT TRANS SW	NORMAL	6.4	
2-HS-72-40C	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 14A (772/A12-T)	RHR SPRAY HDR A ISOLATION V SW	NORMAL	6.5	
2-XS-72-40	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 14A (772/A12-T)	RHR SPRAY HDR A ISOLATION TRANS SW	NORMAL	6.5	
2-HS-72-41C	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14D (772/A12-S)	RHR SPRAY HDR B ISOLATION V SW	NORMAL	6.6	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 192 of 249</b>
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Switch Lineup**

<b>UNID</b>	<b>SWITCH LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-XS-72-41	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14D (772/A12-S)	RHR SPRAY HDR B ISOLATION TRANS SW	NORMAL	6.6	
2-HS-72-39C	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13E (772/A12-T)	CNTMT SPRAY HDR A ISOLATION V SW	NORMAL	6.7	
2-XS-72-39	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13E (772/A12-T)	CNTMT SPRAY HDR A ISOLATION TRANS SW	NORMAL	6.7	
2-HS-72-2C	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14A (772/A12-S)	CNTMT SPRAY HDR B ISOLATION HAND SW	NORMAL	6.8	
2-XS-72-2	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14A (772/A12-S)	CNTMT SPRAY HDR B ISOLATION TRANS SW	NORMAL	6.8	
2-HS-72-27A	MCR Panel 2-M-6	CNTMT SPRAY PMP A	PULL TO LOCK	6.9	
2-HS-72-27C	MCR Panel 2-M-6	CNTMT SPRAY PMP A	STOP	6.9	



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Switch Lineup**

<b>UNID</b>	<b>SWITCH LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-XS-72-27	6.9kV SHUTDOWN BOARD 2A-A (2-BD-211-A) COMPT. 13 (757/A2-T)	CONTAINMENT SPRAY PUMP A TRANS SW	NORMAL	6.9	
2-HS-72-10A	MCR Panel 2-M-6	CNTMT SPRAY PMP B	PULL TO LOCK	6.10	
2-HS-72-10C	MCR Panel 2-M-6	CNTMT SPRAY PMP B	STOP	6.10	
2-XS-72-10	6.9kV SHUTDOWN BOARD 2B-B (2-BD-211-B) COMPT. 13 (757/A12S)	CNTMT SPRAY PUMP B TRANSFER SW	NORMAL	6.10	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 194 of 249</b>
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**Appendix D  
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Breaker Lineup**

<b>UNID</b>	<b>LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-BKR-72-34	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 10F	CSP 2A MINI-FLOW (2-FCV-72-34)	OPEN	6.1	
2-BKR-72-27	6.9kV SHUTDOWN BOARD 2A-A (2-BD-211-A) PNL 13	CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27)	OPEN AND RACKED DOWN	6.1	
2-BKR-72-13	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 9F	CSP 2B MINI-FLOW (2-FCV-72-13)	OPEN	6.2	
2-BKR-72-10	6.9kV SHUTDOWN BOARD 2B-B (2-BD-211-B) PNL 13	CONTAINMENT SPRAY PUMP 2B-B (2-PMP-72-10)	OPEN AND RACKED DOWN	6.2	
2-BKR-72-22	480V C&A BUILDING VENT BOARD 2A1-A, (2-MCC-214-A001) COMPT 7E	RWST TO CSP 2A (2-FCV-72-22)	OPEN	6.3	
2-BKR-72-44	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13B	CNTMT SUMP TO CSP 2A SUCTION (2-FCV-72-44)	CLOSED	6.3	
2-BKR-235-1/7	2-I-Vital Inst Pwr Bd. (2-BD-235-0001)	SEPARATION AUX RELAY PANEL 2-R-76 BUS A	ON	6.3	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 195 of 249</b>
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Breaker Lineup**

<b>UNID</b>	<b>LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-BKR-72-21	480V C&A BUILDING VENT BOARD 2B1-B, (2-MCC-214-B001) COMPT 7E	CNTMT SPRAY TO CNTMT SPRAY PMP B SUCTION (2-FCV-72-21)	OPEN	6.4	
2-BKR-72-45	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14E	CNTMT SUMP TO CSP 2B SUCTION (2-FCV-72-45)	CLOSED	6.4	
2-BKR-235-2/6	2-II-Vital Inst Pwr Bd. (2-BD-235-0002)	SEPARATION AUX RELAY PANEL 2-R-76 BUS B	ON	6.4	
2-BKR-72-40	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 14A	RHR SPRAY HDR A ISOL (2-FCV-72-40)	OPEN	6.5	
2-BKR-74-10	6.9kV SHUTDOWN BOARD 2A-A (2-BD-211-A) PNL 14	RHR PUMP 2A-A (2-PMP-74-10)	OPEN AND RACKED DOWN	6.5	
2-BKR-235-1/7	2-I-Vital Inst Pwr Bd. (2-BD-235-0001)	SEPARATION AUX RELAY PANEL 2-R-76 BUS A	ON	6.5	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 196 of 249</b>
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Breaker Lineup**

<b>UNID</b>	<b>LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-BKR-72-41	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14A	RHR SPRAY HDR B ISOL (2-FCV-72-41)	OPEN	6.6	
2-BKR-235-2/6	2-II-Vital Inst Pwr Bd. (2-BD-235-0002)	SEPARATION AUX RELAY PANEL 2-R-76 BUS B	ON	6.6	
2-BKR-74-20	6.9kV SHUTDOWN BOARD 2B-B (2-BD-211-B) PNL 14	RHR PUMP 2B-B (2-PMP-74-20)	OPEN AND RACKED DOWN	6.6	
2-BKR-72-39	480V REACTOR MOV BOARD 2A1-A, (2-MCC-213-A001) COMPT 13E	CS HDR A ISOL (2-FCV-72-39)	OPEN	6.7	
2-BKR-72-27	6.9kV SHUTDOWN BOARD 2A-A (2-BD-211-A) PNL 13	CONTAINMENT SPRAY PUMP 2A-A (2-PMP-72-27)	OPEN AND RACKED DOWN	6.7	
2-BKR-235-1/7	2-I-Vital Inst Pwr Bd. (2-BD-235-0001)	SEPARATION AUX RELAY PANEL 2-R-76 BUS A	ON	6.7	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 197 of 249</b>
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Breaker Lineup**

<b>UNID</b>	<b>LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-BKR-72-2	480V REACTOR MOV BOARD 2B1-B, (2-MCC-213-B001) COMPT 14A	CS HDR B ISOL (2-FCV-72-2)	OPEN	6.8	
2-BKR-72-10	6.9kV SHUTDOWN BOARD 2B-B (2-BD-211-B) PNL 13	CNTMT SPRAY PUMP 2B-B (2-PMP-72-10)	OPEN AND RACKED DOWN	6.8	
2-BKR-235-2/6	2-II-Vital Inst Pwr Bd. (2-BD-235-0002)	SEPARATION AUX RELAY PANEL 2-R-76 BUS B	ON	6.8	
2-BKR-72-27	6.9kV SHUTDOWN BOARD 2A-A (2-BD-211-A) PNL 13	CNTMT SPRAY PUMP 2A-A (2-PMP-72-27)	OPEN AND RACKED DOWN	6.9	
2-BKR-30-177	480V C&A BUILDING VENT BOARD 2A1-A, (2-MCC-214-A001) CMPT 3C	CS PUMP 2A-A RM CLR (2-PMCL-30-177)	CLOSED	6.9	
2-BKR-72-10	6.9kV SHUTDOWN BOARD 2B-B (2-BD-211-B) PNL 13	CNTMT SPRAY PUMP 2B-AB (2-PMP-72-10)	OPEN AND RACKED DOWN	6.10	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 198 of 249</b>
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**Appendix D  
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Breaker Lineup**

<b>UNID</b>	<b>LOCATION</b>	<b>NOMENCLATURE</b>	<b>POSITION</b>	<b>SEC</b>	<b>VERIFIED BY INITIALS/DATE</b>
2-BKR-30-178	480V C&A BUILDING VENT BOARD 2B1-B, (2-MCC-214-B001) CMPT 3C	CS PUMP 2B-B RM CLR (2-PMCL-30-178)	CLOSED	6.10	
2-BKR-30-177	480V C&A BUILDING VENT BOARD 2A1-A, (2-MCC-214-A001) CMPT 3C	CS PUMP 2A-A RM CLR (2-PMCL-30-177)	CLOSED	6.11	
2-BKR-30-178	480V C&A BUILDING VENT BOARD 2B1-B, (2-MCC-214-B001) CMPT 3C	CS PUMP 2B-B RM CLR (2-PMCL-30-178)	CLOSED	6.12	

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**Appendix E  
(Page 1 of 3)**

**Permanent Plant Instrumentation Log**

<b>INSTRUMENT OR INSTRUMENT LOOP#</b>	<b>CAL DUE DATE</b>	<b>FILLED AND VENTED <sub>1</sub></b>	<b>PLACED IN SERVICE <sub>1</sub></b>	<b>USED FOR QUANTITATIVE ACC CRIT</b>	<b>POST-TEST CAL DATE <sub>2</sub></b>	<b>POST-TEST CALIBRATION ACCEPTABLE INITIAL/DATE <sub>2</sub></b>
Subsections 6.11 and 6.12						
2-TE-72-25A						
2-TE-72-25B						
2-TE-72-25D						
2-TE-72-25F						
2-TE-72-25H						
2-EI-72-26A						
2-EI-72-26B						
2-EI-72-12A						
2-EI-72-12B						
2-EI-57-39						
2-EI-57-66B						
2-PI-72-32						
2-LPF-72-34						
2-TI-72-28						
2-PI-72-29						
2-PI-72-30						

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 200 of 249</b>
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**Appendix E  
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**Permanent Plant Instrumentation Log**

<b>INSTRUMENT OR INSTRUMENT LOOP#</b>	<b>CAL DUE DATE</b>	<b>FILLED AND VENTED <sub>1</sub></b>	<b>PLACED IN SERVICE <sub>1</sub></b>	<b>USED FOR QUANTITATIVE ACC CRIT</b>	<b>POST-TEST CAL DATE <sub>2</sub></b>	<b>POST-TEST CALIBRATION ACCEPTABLE INITIAL/DATE <sub>2</sub></b>
Subsections 6.11 and 6.12						
2-FI-72-5						
2-PDI-72-16						
2-PI-72-16						
2-PDI-72-33						
2-PI-72-33						
2-PI-72-15						
2-TE-72-11A						
2-TE-72-11B						
2-TE-72-11D						
2-TE-72-11F						
2-TE-72-11H						
2-LDF-72-13						



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 201 of 249</b>
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**Appendix E  
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**Permanent Plant Instrumentation Log**

<b>INSTRUMENT OR INSTRUMENT LOOP#</b>	<b>CAL DUE DATE</b>	<b>FILLED AND VENTED <sub>1</sub></b>	<b>PLACED IN SERVICE <sub>1</sub></b>	<b>USED FOR QUANTITATIVE ACC CRIT</b>	<b>POST-TEST CAL DATE <sub>2</sub></b>	<b>POST-TEST CALIBRATION ACCEPTABLE INITIAL/DATE <sub>2</sub></b>
Subsections 6.11 and 6.12						
2-TI-72-8						
2-PI-72-9						
2-PI-72-7						
2-LPL-63-50						
2-PLP-63-51						
2-LPT-63-131						

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

<sup>2</sup> May be identified as NA if instrument was not used to verify/record quantitative acceptance criteria data

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 202 of 249</b>
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**Appendix F  
(Page 1 of 3)**

**Computer Point Verification Log**

<b>COMPUTER POINT</b>	<b>DESCRIPTION</b>	<b>Point Quality is GOOD/ALM</b>	<b>Description Correct</b>	<b>INITIAL/DATE</b>
F9000A	CNTMT SPRAY HDR B FLOW XMTR	YES / NO	YES / NO	
F9001A	CNTMT SPRAY HDR A FLOW XMTR	YES / NO	YES / NO	
FD2179	CNTMT SPRAY HDR A PWR	YES / NO	YES / NO	
FD2180	CNTMT SPRAY HDR A POS	YES / NO	YES / NO	
FD2181	CNTMT SP PMP A RECIRC FLOW PWR	YES / NO	YES / NO	
FD2182	CNTMT SP PMP A RECIRC FLOW POS	YES / NO	YES / NO	
FD2183	RWST TO SP HDR A PWR	YES / NO	YES / NO	
FD2184	RWST TO SP HDR A POS	YES / NO	YES / NO	
FD2185	CNTMT SUMP SP HDR A PWR	YES / NO	YES / NO	
FD2186	CNTMT SUMP SP HDR A POS	YES / NO	YES / NO	
FD2187	RHR SPRAY HDR A PWR	YES / NO	YES / NO	
FD2188	RHR SPRAY HDR A POS	YES / NO	YES / NO	
FD2331	CNTMT SPRAY HDR B PWR	YES / NO	YES / NO	
FD2332	CNTMT SPRAY HDR B POS	YES / NO	YES / NO	
FD2333	CNTMT SP PMP B RECIRC FLOW PCS	YES / NO	YES / NO	
FD2334	CNTMT SP PMP B RECIRC FLOW PCS	YES / NO	YES / NO	
FD2335	RWST TO SP HDR B PWR	YES / NO	YES / NO	
FD2336	RWST TO SP HDR B POS	YES / NO	YES / NO	
FD2337	CNTMT SUMP SP HDR B PWR	YES / NO	YES / NO	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 203 of 249</b>
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**Appendix F  
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**Computer Point Verification Log**

<b>COMPUTER POINT</b>	<b>DESCRIPTION</b>	<b>Point Quality is GOOD/ALM</b>	<b>Description Correct</b>	<b>INITIAL/DATE</b>
FD2338	CNTMT SUMP SP HDR B POS	YES / NO	YES / NO	
FD2339	RHR SPRAY HDR B PWR	YES / NO	YES / NO	
FD2340	RHR SPRAY HDR B POS	YES / NO	YES / NO	
HD2029	CNTMT SPRAY TR A HS-27A SW POS	YES / NO	YES / NO	
HD2063	SPRAY TR B HS-10A SW POS	YES / NO	YES / NO	
T0168A	CNTMT SPRAY HX A OUT TEMP	YES / NO	YES / NO	
T0169A	CNTMT SPRAY HX B OUT TEMP	YES / NO	YES / NO	
T0170A	CNTMT SPRAY PMP B-B UPR RADL BRG	YES / NO	YES / NO	
T0171A	CNTMT SPRAY PMP B-B LWR RADL BRG	YES / NO	YES / NO	
T0172A	CNTMT SPRAY PMP B-B PHASE A WNDG	YES / NO	YES / NO	
T0173A	CNTMT SPRAY PMP B-B PHASE B WNDG	YES / NO	YES / NO	
T0174A	CNTMT SPRAY PMP B-B PHASE C WNDG	YES / NO	YES / NO	
T0175A	CNTMT SPRAY PMP A-A UPR RADL BRG	YES / NO	YES / NO	
T0176A	CNTMT SPRAY PMP A-A LWR RADL BRG	YES / NO	YES / NO	
T0177A	CNTMT SPRAY PMP A-A PHASE A WNDG	YES / NO	YES / NO	
T0178A	CNTMT SPRAY PMP A-A PHASE B WNDG	YES / NO	YES / NO	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 204 of 249</b>
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**Appendix F  
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**Computer Point Verification Log**

<b>COMPUTER POINT</b>	<b>DESCRIPTION</b>	<b>Point Quality is GOOD/ALM</b>	<b>Description Correct</b>	<b>INITIAL/DATE</b>
T0179A	CNTMT SPRAY PMP A-A PHASE C WNDG	YES / NO	YES / NO	
XD4001	CNTMT SPRAY PUMP B-B	YES / NO	YES / NO	
XD4002	CNTMT SPRAY PUMP B-B	YES / NO	YES / NO	
XD4003	CNTMT SPRAY PUMP A-A	YES / NO	YES / NO	
XD4004	CNTMT SPRAY PUMP A-A	YES / NO	YES / NO	

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 205 of 249</b>
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**Appendix G  
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**Containment Spray Pump 2A-A Computer Point Temperature Data**

Step 6.11[9] AMBIENT TEMPERATURE				
<b>COMPUTER POINT</b>	<b>DESCRIPTION</b>	<b>LIMITS</b>	<b>READINGS</b>	<b>INITIAL/DATE</b>
T0175A	CNTMT SPRAY PMP A-A UPR RADL BRG	<185°F	_____°F	
T0176A	CNTMT SPRAY PMP A-A LWR RADL BRG	<185°F	_____°F	
T0177A	CNTMT SPRAY PMP A-A PHASE A WNDG	<275°F	_____°F	
T0178A	CNTMT SPRAY PMP A-A PHASE B WNDG	<275°F	_____°F	
T0179A	CNTMT SPRAY PMP A-A PHASE C WNDG	<275°F	_____°F	





WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 208 of 249
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**Appendix H**  
**(Page 1 of 17)**

**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.1 Background calculations for determination of Containment Spray Pump flow rates**

- A. Uncorrected pump flow through the RWST recirculation line can be determined by the following equation (from SSD-2-FI-72-5):

$$\text{Equation: } Q_{\text{uncorrected}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}}) / 84.8}$$

Where:

- $Q_{\text{uncorrected}}$  = pump flowrate before making corrections for instrument errors
- 84.8 = 2350 IN WC from SSD-2-FI-72-5 converted to psid
- $\Delta P_{\text{MTE/FE-5}}$  = differential pressure recorded from M&TE gauge installed at 2-FI-72-5

The following equation will be used to determine pump flow corrected for maximum flow instrument errors:

$$\text{Equation: } Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

Where:

- $Q_{\text{pump}}$  = final corrected pump flow
- 1.5psid = M&TE d/p gauge error of 1 psid (0 to 100 psid  $\pm$  1% of span)

$$\text{Equation: } \frac{Q_{\text{pump}}}{5000} = \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 209 of 249</b>
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**Appendix H  
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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.1 Background calculations for determination of Containment Spray Pump flow rates (continued)**

$$\text{Equation: } \left( \frac{Q_{\text{pump}}}{5000} \right)^2 = (\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8$$

$$\text{Equation: } 84.8 \left( \frac{Q_{\text{pump}}}{5000} \right)^2 = (\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid})$$

$$\text{Equation: } \Delta P_{\text{MTE/FE-5}} = 84.8 \left( \frac{Q_{\text{pump}}}{5000} \right)^2 + 1.5 \text{psid}$$

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 210 of 249</b>
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**Appendix H  
(Page 3 of 17)**

**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.2 Containment Spray Pump 2A-A Total Dynamic Head (TDH) velocity head correction coefficients**

The measured TDH is corrected for velocity head and piping losses from the pump suction/discharge pressure taps to the pump suction/discharge.

$$\Delta H = \frac{V_D^2}{2g} - \frac{V_S^2}{2g} + K_D \times \frac{V_D^2}{2g} + K_S \times \frac{V_S^2}{2g}$$

Where:

- $\Delta H$  = pump differential head correction at reference flowrate, ft.
- $V_D$  = water velocity at the pump discharge pressure tap. ft/sec.
- $V_S$  = water velocity at the pump suction pressure tap, ft/sec.
- $K_D$  = pump discharge to pump discharge tap loss coefficient
- $K_S$  = pump suction to pump suction pressure tap loss coefficient

For varying flow rates a correction K can be defined as:  $K = \frac{\Delta H}{(Q_{ref})^2}$

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 211 of 249</b>
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**Appendix H  
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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.2 Containment Spray Pump 2A-A Total Dynamic Head (TDH) velocity head correction coefficients  
(continued)**

$$V = \text{GPM} \times \frac{1\text{ft}^3}{7.4805\text{gal}} \times \frac{1}{\pi \left( \frac{\text{ID, in}}{24\text{in/ft}} \right)^2} \times \frac{1\text{min}}{60\text{sec}}$$

**A. Containment Spray Pump 2A-A**

Suction - one 90° LR elbow between suction and 2-PI-72-33

Discharge - no piping components between discharge and 2-PI-72-32

From Cameron Hydraulic data, 19th edition  $K_S=0.21$ ,  $K_D=0$

Pump discharge 10" SCH 40, ID=10.02 in.

Pump suction 14" SCH 40, ID=13.025 in.

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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.2 Containment Spray Pump 2A-A Total Dynamic Head (TDH) velocity head correction coefficients  
(continued)**

At 4000 gpm

$$V_D = 4000 \times \frac{1 \text{ ft}^3}{7.4805 \text{ gal}} \times \frac{1}{\pi \left( \frac{10.02 \text{ in}}{24 \text{ in/ft}} \right)^2} \times \frac{1 \text{ min}}{60 \text{ sec}} = 16.27$$

At 4000 gpm

$$V_S = 4000 \times \frac{1 \text{ ft}^3}{7.4805 \text{ gal}} \times \frac{1}{\pi \left( \frac{13.025 \text{ in}}{24 \text{ in/ft}} \right)^2} \times \frac{1 \text{ min}}{60 \text{ sec}} = 9.63$$

At 4000 gpm

$$\Delta H = \frac{(16.27)^2}{2 \times 32.174} - \frac{(9.63)^2}{2 \times 32.174} + 0 \times \frac{(16.27)^2}{2 \times 32.174} + 0.21 \times \frac{(9.63)^2}{2 \times 32.174} = 2.98 \text{ ft}$$

$$K = \frac{2.98 \text{ ft}}{(4000 \text{ gpm})^2} = 1.86 \times 10^{-7} \text{ ft/gpm}^2$$

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**Appendix H  
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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.3 Pump total discharge head TDH.**

For Miniflow: governing flow equation from SSD-2-F-72-34, uncorrected for instrument error

$$TDH = (PDISCH_{M\&TE} - PSUCT_{M\&TE} - 3.0) \times 2.308 + (K \times (Q)^2)$$

For Flow greater than Miniflow: governing flow equation from SSD-2-F-72-5, uncorrected for instrument error

$$TDH = (PDISCH_{M\&TE} - PSUCT_{M\&TE} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE/FE-5}) / 84.8})^2)$$

Where:

TDH = pump Total Dynamic Head

$PDISCH_{M\&TE}$  = pump discharge pressure (psig) recorded from M&TE at 2-PI-72-33

$PSUCT_{M\&TE}$  = pump suction pressure (psig) recorded from M&TE at 2-PI-72-32

2.308 = conversion from lb/in<sup>2</sup> to ft H<sub>2</sub>O

K = correction coefficient

Q = Flow from ultrasonics on miniflow line

3.0 = M&TE error correction for 0 to 500(±0.5%) and a 0 to 100(±0.5%) pressure gauges, error is 2.5 and 0.5 for a total of 3.0.

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Containment Spray Pump 2A-A Performance Data Sheet

1.1.3 Pump total discharge head TDH. (continued)

TARGET FLOW/ STEP NO.	DISCHARGE PRESSURE @PI-72-32 M&TE ID#	SUCTION PRESSURE @PI-72-33 M&TE ID#	Flow Q Ultrasonic @ miniflow line M&TE ID #	2-FI-72-34 (2-M-6)	D/P (M&TE) @ 2-FI-72-5 M&TE ID #	MOTOR CURRENT 2-EI-72-26B (6.9kV SD BD 2A-A CMPT 13)	6.9kV SD BD VOLTS 2-EI-57-39 (2-M-1)	INITIAL/DATE
Miniflow 6.11[15]	_____psig	_____psig	_____gpm	_____gpm		_____PH 1 amps _____PH 2 amps _____PH 3 amps	_____Volts	
2300 6.11[22]	_____psig	_____psig		_____gpm	_____psid	_____PH 1 amps _____PH 2 amps _____PH 3 amps	_____Volts	
3100 6.11[24]	_____psig	_____psig		_____gpm	_____psid	_____PH 1 amps _____PH 2 amps _____PH 3 amps	_____Volts	
4000 6.11[26]	_____psig	_____psig		_____gpm	_____psid	_____PH 1 amps _____PH 2 amps _____PH 3 amps	_____Volts	
Full Flow ≤ 4750 6.11[28]	_____psig	_____psig		_____gpm	_____psid	_____PH 1 amps _____PH 2 amps _____PH 3 amps	_____Volts	

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Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations

A. CALCULATE TDH at Miniflow (Q from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCTION_{M\&TE}} - 3.0) \times 2.308 + (K \times (Q)^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (1.86 \times 10^{-7} \times (\underline{\hspace{1cm}})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations (continued)

B. CALCULATE TDH at 2300 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCTION_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (1.86 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date



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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.4 Containment Spray Train A Pump Calculations (continued)**

C. **CALCULATE** TDH at 3100 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCT_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (1.86 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.4 Containment Spray Train A Pump Calculations (continued)**

D. **CALCULATE** TDH at 4000 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCT_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (1.86 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations (continued)

E. CALCULATE TDH at Full flow ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCT_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (1.86 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

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**Appendix H**  
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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.4 Containment Spray Train A Pump Calculations (continued)**

- F. **CALCULATE** the corrected Miniflow flowrate from the Ultrasonic flowmeter flow recorded in Data Table above

$$Q - 30\text{gpm} = Q_{\text{corrected}}$$

$$\underline{\hspace{1cm}} \text{ gpm} - 30\text{gpm} = \underline{\hspace{1cm}} \text{ gpm}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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**Containment Spray Pump 2A-A Performance Data Sheet**

**1.1.4 Containment Spray Train A Pump Calculations (continued)**

- G. **CALCULATE** the corrected pump flow for the 2300 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

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Appendix H  
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Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations (continued)

- H. **CALCULATE** the corrected pump flow for the 3100 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

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Appendix H  
(Page 16 of 17)

Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations (continued)

- I. **CALCULATE** the corrected pump flow for the 4000 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

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Initials

\_\_\_\_\_  
Date

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Appendix H  
(Page 17 of 17)

Containment Spray Pump 2A-A Performance Data Sheet

1.1.4 Containment Spray Train A Pump Calculations (continued)

- J. **CALCULATE** the corrected pump flow at the full flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\text{_____} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \text{_____}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date



<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 225 of 249</b>
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**Appendix I  
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**Containment Spray Pump 2B-B Computer Point Temperature Data**

Step 6.12[9] AMBIENT TEMPERATURE				
<b>COMPUTER POINT</b>	<b>DESCRIPTION</b>	<b>LIMITS</b>	<b>READINGS</b>	<b>INITIAL/DATE</b>
T0170A	CNTMT SPRAY PMP B-B UPPER RAD BRG	<185°F	_____ °F	
T0171A	CNTMT SPRAY PMP B-B LWR RAD BRG	<185°F	_____ °F	
T0172A	CNTMT SPRAY PMP B-B PHASE A WDG	<275°F	_____ °F	
T0173A	CNTMT SPRAY PMP B-B PHASE B WDG	<275°F	_____ °F	
T0174A	CNTMT SPRAY PMP B-B PHASE C WDG	<275°F	_____ °F	





<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 228 of 249</b>
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**Appendix J  
(Page 1 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.5 Background calculations for determination of Containment Spray Pump flow rates**

- A. Uncorrected pump flow through the RWST recirculation line can be determined by the following equation (from SSD-2-FI-72-5):

$$\text{Equation: } Q_{\text{uncorrected}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}}) / 84.8}$$

Where:

$Q_{\text{uncorrected}}$	=	pump flowrate before making corrections for instrument errors
84.8	=	2350 IN WC from SSD-2-FI-72-5 converted to psid
$\Delta P_{\text{MTE/FE-5}}$	=	differential pressure recorded from M&TE gauge installed at 2-FI-72-5

The following equation will be used to determine pump flow corrected for maximum flow instrument errors:

$$\text{Equation: } Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

Where:

$Q_{\text{pump}}$	=	final corrected pump flow
1.5psid	=	M&TE d/p gauge error of 1 psid (0 to 100 psid $\pm$ 1% of span)

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 229 of 249</b>
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**Appendix J  
(Page 2 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.5 Background calculations for determination of Containment Spray Pump flow rates (continued)**

$$\text{Equation: } \frac{Q_{\text{pump}}}{5000} = \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5\text{psid}) / 84.8}$$

$$\text{Equation: } \left( \frac{Q_{\text{pump}}}{5000} \right)^2 = (\Delta P_{\text{MTE/FE-5}} - 1.5\text{psid}) / 84.8$$

$$\text{Equation: } 84.8 \left( \frac{Q_{\text{pump}}}{5000} \right)^2 = (\Delta P_{\text{MTE/FE-5}} - 1.5\text{psid})$$

$$\text{Equation: } \Delta P_{\text{MTE/FE-5}} = 84.8 \left( \frac{Q_{\text{pump}}}{5000} \right)^2 + 1.5\text{psid}$$

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 230 of 249</b>
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**Appendix J  
(Page 3 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.6 Cntmt Spray Pump 2B-B Total Dynamic Head (TDH) velocity head correction coefficients**

The measured TDH is corrected for velocity head and piping losses from the pump suction/discharge pressure taps to the pump suction/discharge.

$$\Delta H = \frac{V_D^2}{2g} - \frac{V_S^2}{2g} + K_D \times \frac{V_D^2}{2g} + K_S \times \frac{V_S^2}{2g}$$

Where:  $\Delta H$  = pump differential head correction at reference flowrate, ft.

$V_D$  = water velocity at the pump discharge pressure tap. ft/sec.

$V_S$  = water velocity at the pump suction pressure tap, ft/sec.

$K_D$  = pump discharge to pump discharge tap loss coefficient

$K_S$  = pump suction to pump suction pressure tap loss coefficient

For varying flow rates a correction K can be defined as:  $K = \frac{\Delta H}{(Q_{ref})^2}$

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**Appendix J  
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**Containment Spray Pump 2B-B Performance Data**

**1.1.6 Cntmt Spray Pump 2B-B Total Dynamic Head (TDH) velocity head correction coefficients (continued)**

$$V = \text{GPM} \times \frac{1\text{ft}^3}{7.4805\text{gal}} \times \frac{1}{\pi \left( \frac{\text{ID, in}}{24\text{in/ft}} \right)^2} \times \frac{1\text{min}}{60\text{sec}}$$

**A. Containment Spray Pump 2B-B**

Suction - two 90° LR elbow between suction and 2-PI-72-16

Discharge - no piping components between discharge and 2-PI-72-15

From Cameron Hydraulic data, 19th edition  $K_S=0.42$ ,  $K_D=0$

Pump discharge 10" SCH 40, ID=10.02 in.

Pump suction 14" SCH 40, ID=13.025 in.

At 4000 gpm

$$V_D = 4000 \times \frac{1\text{ft}^3}{7.4805\text{gal}} \times \frac{1}{\pi \left( \frac{10.02\text{in}}{24\text{in/ft}} \right)^2} \times \frac{1\text{min}}{60\text{sec}} = 16.27$$

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**Containment Spray Pump 2B-B Performance Data**

**1.1.6 Cntmt Spray Pump 2B-B Total Dynamic Head (TDH) velocity head correction coefficients (continued)**

At 4000 gpm

$$V_s = 4000 \times \frac{1\text{ft}^3}{7.4805\text{gal}} \times \frac{1}{\pi \left( \frac{13.025\text{in}}{24\text{in/ft}} \right)^2} \times \frac{1\text{min}}{60\text{sec}} = 9.63$$

At 4000 gpm

$$\Delta H = \frac{(16.27)^2}{2 \times 32.174} - \frac{(9.63)^2}{2 \times 32.174} + 0 \times \frac{(16.27)^2}{2 \times 32.174} + 0.42 \times \frac{(9.63)^2}{2 \times 32.174} = 3.28\text{ft}$$

$$K = \frac{3.28\text{ft}}{(4000\text{gpm})^2} = 2.05 \times 10^{-7} \text{ft / gpm}^2$$



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**Containment Spray Pump 2B-B Performance Data**

**1.1.7 Pump total discharge head TDH.**

For Miniflow: governing flow equation from SSD-2-F-72-13, uncorrected for instrument error

$$TDH = (PDISCH_{M\&TE} - PSUCT_{M\&TE} - 3.0) \times 2.308 + (K \times (Q)^2)$$

For Flow greater than Miniflow: governing flow equation from SSD-2-F-72-5, uncorrected for instrument error

$$TDH = (PDISCH_{M\&TE} - PSUCT_{M\&TE} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE/FE-5}) / 84.8})^2)$$

Where:

TDH = pump Total Dynamic Head

$PDISCH_{M\&TE}$  = pump discharge pressure (psig) recorded from M&TE at 2-PI-72-33

$PSUCT_{M\&TE}$  = pump suction pressure (psig) recorded from M&TE at 2-PI-72-32

2.308 = conversion from lb/in<sup>2</sup> to ft H<sub>2</sub>O

K = correction coefficient

Q = Flow from ultrasonics on miniflow line

3.0 = M&TE error correction for 0 to 500(±0.5%) and a 0 to 100(±0.5%) pressure gauges, error is 2.5 and 0.5 for a total of 3.0.

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 234 of 249</b>
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**Appendix J  
(Page 7 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.7 Pump total discharge head TDH. (continued)**

<b>TARGET FLOW/ STEP NO.</b>	<b>DISCHARGE PRESSURE @PI-72-15 M&amp;TE ID#</b>	<b>SUCTION PRESSURE @PI-72-16 M&amp;TE ID#</b>	<b>Flow Q Ultrasonic @ miniflow line M&amp;TE ID #</b>	<b>2-FI-72-13 (2-M-6)</b>	<b>D/P (M&amp;TE) @ 2-FI-72-5 M&amp;TE ID #</b>	<b>MOTOR CURRENT 2-EI-72-12B (6.9kV SD BD 2B-B CMPT 13)</b>	<b>6.9kV SD BD VOLTS 2-EI-57-66 (2-M-1)</b>	<b>INITIAL/DATE</b>
Miniflow 6.12[15]	_____psig	_____psig	_____gpm	_____gpm		_____ PH 1 amps _____ PH 2 amps _____ PH 3 amps	_____ Volts	
2300 6.12[22]	_____psig	_____psig		_____gpm	_____psid	_____ PH 1 amps _____ PH 2 amps _____ PH 3 amps	_____ Volts	
3100 6.12[24]	_____psig	_____psig		_____gpm	_____psid	_____ PH 1 amps _____ PH 2 amps _____ PH 3 amps	_____ Volts	
4000 6.12[26]	_____psig	_____psig		_____gpm	_____psid	_____ PH 1 amps _____ PH 2 amps _____ PH 3 amps	_____ Volts	
Full Flow ≤ 4750 6.12[28]	_____psig	_____psig		_____gpm	_____psid	_____ PH 1 amps _____ PH 2 amps _____ PH 3 amps	_____ Volts	

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**Appendix J**  
**(Page 8 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations**

A. **CALCULATE** TDH at Miniflow (Q from data table)

$$TDH = (PDISCH_{M\&TE} - PSUCT_{M\&TE} - 3.0) \times 2.308 + (K \times (Q)^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (2.05 \times 10^{-7} \times (\underline{\hspace{1cm}})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 236 of 249
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**Appendix J  
(Page 9 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

B. **CALCULATE** TDH at 2300 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCTION_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (2.05 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 237 of 249
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**Appendix J**  
**(Page 10 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

C. **CALCULATE** TDH at 3100 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH\ M\&TE} - P_{SUCT\ M\&TE} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (2.05 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 238 of 249
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**Appendix J**  
**(Page 11 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

D. **CALCULATE** TDH at 4000 gpm ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCTION_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{2cm}} - \underline{\hspace{2cm}} - 3.0) \times 2.308 + (2.05 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{2cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 239 of 249
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**Appendix J**  
**(Page 12 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

E. **CALCULATE** TDH at Full flow ( $\Delta P_{M\&TE}$  from data table)

$$TDH = (P_{DISCH_{M\&TE}} - P_{SUCTION_{M\&TE}} - 3.0) \times 2.308 + (K \times (5000 \sqrt{(\Delta P_{MTE / FE-5}) / 84.8})^2)$$

$$TDH = (\underline{\hspace{1cm}} - \underline{\hspace{1cm}} - 3.0) \times 2.308 + (2.05 \times 10^{-7} \times (5000 \sqrt{\underline{\hspace{1cm}} / 84.8})^2)$$

$$TDH = \underline{\hspace{2cm}} \text{ ft}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 240 of 249
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**Appendix J**  
**(Page 13 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

- F. **CALCULATE** the corrected Miniflow flowrate from the Ultrasonic flowmeter flow recorded in Data Table above

$$Q - 30\text{gpm} = Q_{\text{corrected}}$$

$$\underline{\hspace{1cm}} \text{ gpm} - 30\text{gpm} = \underline{\hspace{1cm}} \text{ gpm}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date



WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 241 of 249
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**Appendix J**  
**(Page 14 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

- G. **CALCULATE** the corrected pump flow for the 2300 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 242 of 249
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**Appendix J**  
**(Page 15 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

- H. **CALCULATE** the corrected pump flow for the 3100 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

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Initials

\_\_\_\_\_  
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 243 of 249
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**Appendix J**  
**(Page 16 of 17)**

**Containment Spray Pump 2B-B Performance Data**

**1.1.8 Containment Spray Train B Pump Calculations (continued)**

- I. **CALCULATE** the corrected pump flow for the 4000 gpm flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

                      
Initials

                      
Date

Calculation Verified By:

                      
Initials

                      
Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 244 of 249
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Appendix J  
(Page 17 of 17)

Containment Spray Pump 2B-B Performance Data

1.1.8 Containment Spray Train B Pump Calculations (continued)

- J. **CALCULATE** the corrected pump flow at the full flow point by inserting the d/p recorded in the data table above (M&TE @ 2-FI-72-5):

$$Q_{\text{pump}} = 5000 \sqrt{(\Delta P_{\text{MTE/FE-5}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = 5000 \sqrt{(\underline{\hspace{2cm}} - 1.5 \text{psid}) / 84.8}$$

$$Q_{\text{pump}} = \underline{\hspace{2cm}}$$

Calculation Performed By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

Calculation Verified By:

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

<b>WBN Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE LOGIC TEST</b>	<b>2-PTI-072-01 Rev. 0000 Page 245 of 249</b>
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**Appendix K  
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**Containment Spray System Train A Operating Parameters**

Step 6.11[30]

2-PDI-72-33, CNTMT SPRAY PUMP 2A-A SUCTION DIFF PRESSURE (676/A9U)

\_\_\_\_\_ psid

\_\_\_\_\_  
Initials                      Date

2-PI-72-33, CNTMT SPRAY PUMP 2A-A SUCTION PRESSURE (676/A9U)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

2-PI-72-32, CNTMT SPRAY PUMP 2A-A DISCHARGE PRESSURE (676/A9U)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

2-TI-72-28, CNTMT SPRAY PUMP HX 2A-A INLET TEMPERATURE (713/A10V)

\_\_\_\_\_ °F

\_\_\_\_\_  
Initials                      Date

2-PI-72-29, CNTMT SPRAY PUMP HX 2A-A INLET PRESSURE (713/A9U)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

WBN Unit 2	CONTAINMENT SPRAY PUMP VALVE LOGIC TEST	2-PTI-072-01 Rev. 0000 Page 246 of 249
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**Appendix K**  
**(Page 2 of 2)**

**Containment Spray System Train A Operating Parameters**

2-PI-72-30, CNTMT SPRAY PUMP HX 2A-A OUTLET PRESSURE (713/A9V)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

2-FI-72-5, CNTMT SPRAY RWST TEST FLOW (713/A12V)

\_\_\_\_\_ gpm

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

2-EI-72-26A, CNTMT SPRAY PMP A AMPS

\_\_\_\_\_ Amps

\_\_\_\_\_  
Initials

\_\_\_\_\_  
Date

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 247 of 249</b>
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**Appendix L**  
**(Page 1 of 2)**

**Containment Spray System Train B Operating Parameters**

Step 6.12[30]

2-PDI-72-16, CNTMT SPRAY PUMP 2B-B SUCTION DIFF PRESSURE (676/A9T)

\_\_\_\_\_ psid

\_\_\_\_\_  
Initials                      Date

2-PI-72-16, CNTMT SPRAY PUMP 2B-B SUCTION PRESSURE (676/A9T)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

2-PI-72-15, CNTMT SPRAY PUMP 2B-B DISCHARGE PRESSURE (676/A9T)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

2-TI-72-8, CNTMT SPRAY PUMP HX 2B-B INLET TEMPERATURE (713/A10V)

\_\_\_\_\_ °F

\_\_\_\_\_  
Initials                      Date

2-PI-72-9, CNTMT SPRAY PUMP HX 2B-B INLET PRESSURE (713/A9U)

\_\_\_\_\_ psig

\_\_\_\_\_  
Initials                      Date

<b>WBN</b> <b>Unit 2</b>	<b>CONTAINMENT SPRAY PUMP VALVE</b> <b>LOGIC TEST</b>	<b>2-PTI-072-01</b> <b>Rev. 0000</b> <b>Page 248 of 249</b>
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**Appendix L**  
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**Containment Spray System Train B Operating Parameters**

2-PI-72-7, CNTMT SPRAY PUMP HX 2B-B OUTLET PRESSURE (713/A9U)

\_\_\_\_\_ psig

\_\_\_\_\_  
 Initials

\_\_\_\_\_  
 Date

2-FI-72-5, CNTMT SPRAY RWST TEST FLOW (713/A12V)

\_\_\_\_\_ gpm

\_\_\_\_\_  
 Initials

\_\_\_\_\_  
 Date

2-EI-72-12A, CNTMT SPRAY PMP B AMPS

\_\_\_\_\_ Amps

\_\_\_\_\_  
 Initials

\_\_\_\_\_  
 Date



**Appendix M**  
**(Page 1 of 1)**

**Breaker Response Timer Setup**

