

ANNUAL GAS TURBINE AND AUXILIARY  
TRANSFORMER FIRE PROTECTION SYSTEM  
VALVE TRIP-TEST AND ALARM VERIFICATION  
TEST

DATE \_\_\_\_\_  
DSS \_\_\_\_\_  
OPS-NPE \_\_\_\_\_  
CFPS \_\_\_\_\_

RECORD

PROCEDURE VERIFIED CURRENT AND CHECKED FOR TEMPORARY CHANGES. IF FIELD COPIES REQUIRED, USE PBF-00261 IAW NP 1.2.4 AND DO NOT COMPLETE THIS BLOCK.

BY \_\_\_\_\_ DATE \_\_\_\_\_

1.0 PURPOSE

This test will verify, on an annual basis, that automatic fire suppression system alarms operate satisfactorily and that pre-action system valve functions properly.

2.0 REFERENCES

IR 96-006, NRC Inspection Report, NRC Commitment for Operations procedures PMT/QC reviews.

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Persons conducting this test should be extremely cautious when working around energized electrical equipment and moving parts of valves to avoid personal injury.
- 3.2 Persons using the heat device should be aware of areas wetted by system actuation or drainage.
- 3.3 Manually-operated isolation valves should always be operated relatively slowly to minimize the probability of creating a water hammer.
- 3.4 This fire protection system utilizes rate compensating heat detectors. The heat device should be quickly positioned on the side of the detector and held there consistently, but for no longer than 60 seconds.
- 3.5 Never use oil or grease on a deluge or dry-pipe valve clapper or seat ring, unless specified by manufacturer, and never clean the seat ring with materials or instruments that would permanently mar the soft material.
- 3.6 This test should not be performed during gas turbine operation. Gas turbine will automatically shutdown.

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4.0 DISCUSSION

- 4.1 Post-maintenance or special surveillance testing may be conducted as required on only a portion of the checklist as directed by the Coordinator Fire Protection and Safety and the duty shift superintendent.
- 4.2 The Following Equipment will be Required to Complete this Test:
- 4.2.1 Heat device on detachable pole
  - 4.2.2 Heavy duty extension cord
  - 4.2.3 15/16", 1 1/8", 1 1/4" wrenches
  - 4.2.4 FM radios
  - 4.2.5 25' length, 2 1/2" utility hose and large bucket
  - 4.2.6 Four-bolt strainer flushing rig
  - 4.2.7 Key for C-140, the FP-3707 Aux XFMR 1 and 2X-04 deluge control panel, D-400 and D-411.

5.0 INITIAL CONDITIONS

INITIALS

If lake temperature is >45°F, then notify Chemistry that system chlorination is required for strainer flush. Otherwise N/A this step.

6.0 PROCEDURE

Complete the following steps for each system. Initial or provide the requested information in the appropriate blanks. Record deficiencies or problems in the remarks section, along with any MWR tag numbers.

- 6.1 Contact the duty shift superintendent and obtain permission to start this test:

DSS \_\_\_\_\_

- 6.2 SHUT FP-80, the FP-3707 XFMRs 1 and 2X-04 deluge isolation valve. \_\_\_\_\_

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INITIALS

**NOTE:** *Draining lake water to the PAB drain system should be avoided to minimize "hardness" in the blowdown evaporator concentrates.*

- 6.3 Using a well secured 2½" hose to direct water to a safe location, OPEN FP-81, the FP-3707 XFMRs 1 and 2X-04 deluge drain valve. \_\_\_\_\_
- 6.4 Pull the manual trip handle on the side of the enclosing box. \_\_\_\_\_
- 6.5 Verify: \_\_\_\_\_
- 6.5.1 The deluge valve has tripped. \_\_\_\_\_
- 6.5.2 Alarms received on C-01, C-900, and D-400. \_\_\_\_\_
- 6.6 Remove the enclosing box cover and the deluge valve hand hole cover. \_\_\_\_\_
- 6.7 Ensure: \_\_\_\_\_
- 6.7.1 The weight dropped. \_\_\_\_\_
- 6.7.2 The clapper latch moved off the clapper. \_\_\_\_\_
- 6.7.3 The clapper swings freely. \_\_\_\_\_
- 6.8 Inspect and remove any foreign matter from the rubber clapper facing and clean the clapper seat-ring with bare fingers. Replace the rubber facing if deteriorated or damaged. \_\_\_\_\_
- 6.9 Clean any accumulation of sediment or foreign material from inside the deluge valve body. \_\_\_\_\_
- 6.10 Inspect the mating surfaces of the clapper and clapper latch, and remove any foreign material with bare fingers. \_\_\_\_\_
- 6.11 Manually raise and lower the weight on the guide rod to determine that there is no restriction in movement and that the guide rod is relatively straight. \_\_\_\_\_

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INITIALS

6.12 Inspect the guide rod for oxidation. If oxidation has occurred, remove the oxidation with fine grain sandpaper and apply a thin film of oil. Make certain that the oil is not applied to or cannot spread to any other internal parts.

6.13 Reset the deluge valve by:

6.13.1 Placing the clapper into the set position.

6.13.2 Pulling out the reset handle.

6.13.3 Raising the weight.

**\*CAUTION\*** DO NOT TEST THE HADS THAT ARE LOCATED ABOVE THE G-05 EXHAUST END BEARING. THE BEARING IS LOCATED JUST NORTH OF THE STARTING DIESEL WHERE THE SHAFT IS SURROUNDED BY THE EXHAUST HOOD. THE HADS ARE LOCATED NEXT TO THE BEARING. THESE HADS ACTUATE THE 5G EXHAUST HOOD DRY CHEMICAL FIRE EXTINGUISHING (ANSUL) SYSTEM.

6.14 Check the actuation of the G-05 building heat detectors.

6.14.1 Quickly position the heat device on the side of heat detector (HAD) and hold it there until the deluge valve actuates, but no longer than 60 seconds.

6.14.2 On the test of the first HAD, check that an alarm is received on D-400, D-411, C-900, and G-05 alarm.

6.14.3 Reset D-411 and then C-140.

6.14.4 Reset the deluge valve by:

Placing the clapper into the set position.

Pulling out the reset handle.

Raising the weight.

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INITIALS

- 6.14.5 Repeat Steps 6.14.1, 6.14.3 and 6.14.4 until all the detectors have been tested.

Control Room Alarm \_\_\_\_\_

XS-5740 _____	XS-5741 _____
XS-5742 _____	XS-5743 _____
XS-5744 _____	XS-5745 _____
XS-5746 _____	XS-5747 _____

- 6.14.6 Verify deluge valve FP-3707 is reset then reset D-400 and C-900.
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**\*CAUTION\* TRANSFORMERS ARE ENERGIZED.**

- 6.15 Check the actuation of the 1X-04 transformer heat detectors.
- 6.15.1 Quickly position the heat device on the side of heat detector (HAD) and hold it there until the deluge valve actuates, but no longer than 60 seconds.
- 6.15.2 On the test of the first HAD, check that an alarm is received on D-400 and C-900.
- 6.15.3 Reset C-140, the FP-3707 Aux XFMR 1 and 2X-04 deluge control panel.
- 6.15.4 Reset deluge valve FP-3707 by:
- a. Placing the clapper into the set position.
  - b. Pulling out the reset handle.
  - c. Raising the weight.

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INITIALS

- 6.15.5 Repeat Steps 6.15.1, 6.15.3 and 6.15.4 until all the detectors have been tested.

Control Room Alarm \_\_\_\_\_

XS-5655 \_\_\_\_\_ XS-5656 \_\_\_\_\_

XS-5657 \_\_\_\_\_ XS-5658 \_\_\_\_\_

XS-5659 \_\_\_\_\_ XS-5660 \_\_\_\_\_

- 6.15.6 Verify deluge valve FP-3707 is reset then reset D-400 and C-900.

- 6.16 Check the actuation of the 2X-04 transformer heat detectors.

- 6.16.1 Quickly position the heat device on the side of heat detector (HAD) and hold it there until the deluge valve actuates, but no longer than 60 seconds.

- 6.16.2 On the test of the first HAD, check that an alarm is received on D-400 and C-900.

- 6.16.3 Reset C-140, the FP-3707 Aux XFMR 1 and 2X-04 deluge control panel.

- 6.16.4 Reset deluge valve FP-3707 by:

Placing the clapper into the set position.

Pulling out the reset handle.

Raising the weight.

- 6.16.5 Repeat Steps 6.16.1, 6.16.3, and 6.16.4 until all the detectors have been tested.

Control Room Alarm \_\_\_\_\_

XS-5661 \_\_\_\_\_ XS-5662 \_\_\_\_\_

XS-5663 \_\_\_\_\_ XS-5664 \_\_\_\_\_

XS-5665 \_\_\_\_\_ XS-5666 \_\_\_\_\_

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INITIALS

6.16.6 Verify deluge valve FP-3707 is reset then reset D-400 and C-900.

6.17 Replace the hand hole cover on deluge valve FP-3707 and tighten the bolts.

6.18 Replace the enclosure box cover

**NOTE:** *Draining lake water to the PAB drain system should be avoided to minimize "hardness" in the blowdown evaporator concentrates.*

**NOTE:** *Electric fire pump will start upon performance of the following steps.*

6.19 Shut FP-81, the FP-3707 XFMRs 1 and 2X04 deluge drain valve

6.20 Flush F-115, the FP-3707 XFMRs 1 and 2X-04 deluge inlet strainer.

6.20.1 Remove the four bolt blank flange.

6.20.2 Install the strainer flush rig.

6.20.3 Using a well-secured 2½" hose to direct water to a safe location THROTTLE OPEN FP-80, the FP-3707 XFMRs 1 and 2X-04 deluge isolation valve.

6.20.4 Flush the strainer until water is clear, then shut FP-80.

6.20.5 Remove the strainer flush rig.

**NOTE:** *QC Inspector must witness performance of Step 6.20.6.*

6.20.6 Install the blank flange and fasteners. Torque flange fasteners to 60 Ft/Lbs.

Torque Wrench No. \_\_\_\_\_ Cal Date: \_\_\_\_\_

Bolts properly torqued.

QC

6.21 Open and Red Lock FP-80, the FP-3707 XFMRs 1 and 2X04 deluge isolation valve.

Red Lock No. \_\_\_\_\_



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INITIALS

- 6.22 Record the inlet pressure using the installed gauge.

Original gauge reading \_\_\_\_\_ psig \_\_\_\_\_

**\*CAUTION\*** WHEN USING A 2½" FIRE HOSE AND THE FIRE  
SYSTEM TEST FLOW DIFFUSER, ENSURE THE  
WATER FLOW FROM THE DIFFUSER WILL NOT  
CONTACT PEOPLE, EQUIPMENT, OR POWER LINES.

*NOTE: Draining lake water to the PAB drain system should be avoided to  
minimize "hardness" in the blowdown evaporator concentrates.*

- 6.23 Using a well secured 2½" hose connected to the test flow diffuser FULLY  
OPEN FP-81, the FP-3707 XFMRs 1 and 2X-04 deluge drain valve and  
record the inlet pressure.

FP-81 open gauge reading \_\_\_\_\_ psig \_\_\_\_\_

- 6.24 SHUT FP-81, the FP-3707 XFMRs 1 and 2X-04 deluge drain valve and  
record the inlet pressure.

Final gauge reading \_\_\_\_\_ psig \_\_\_\_\_

- 6.25 Ensure that the final pressure is now greater than or equal to the original  
pressure.

Sat \_\_\_\_\_ Unsat \_\_\_\_\_

- 6.26 Shut the gas turbine sprinkler isolation valve FP-398.

- 6.27 Open and red lock FP-398.

Red Lock No. \_\_\_\_\_

- 6.28 Verify that all test related alarms on C-140, D-400, D-411, C-900 and  
C-01 are clear, secure fire pump, and ensure all conditions are normal.

PMT

- 6.29 Inspect for leakage at system pressure.



NUCLEAR POWER BUSINESS UNIT  
OPERATIONS PERIODIC CHECKS

PC 77 PART 6  
MINOR  
Revision 6  
January 25, 1997

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INITIALS

- 6.30 Second Independent Operator Perform the Following Valve Lineup  
Verification:

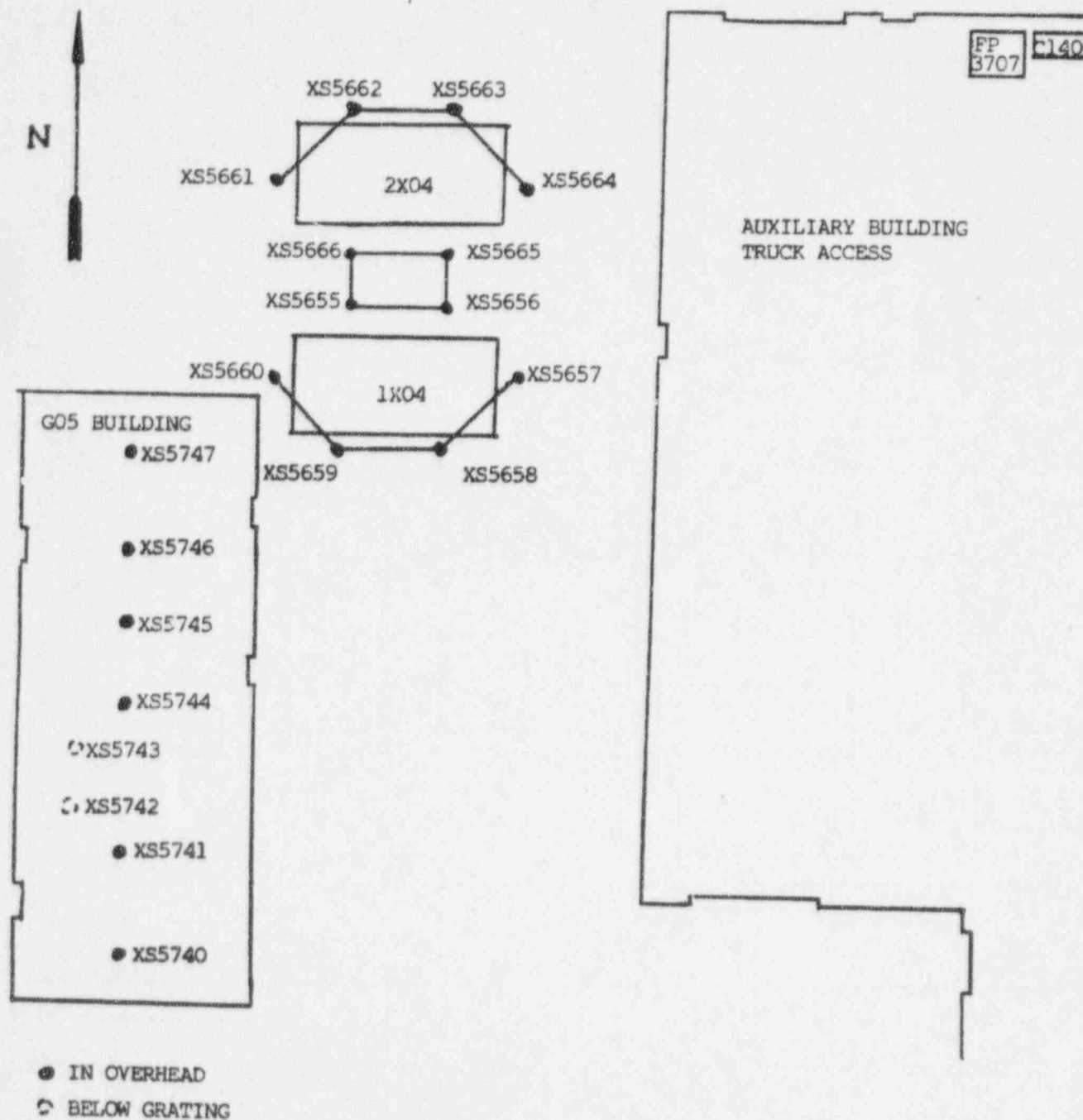
		<u>POSITION</u>	
FP-80	FP-3707	<u>LO</u>	_____
FP-398	Gas turbine sprinkler isolation	<u>LO</u>	_____

Remarks:

NUCLEAR POWER BUSINESS UNIT  
OPERATIONS PERIODIC CHECKS

PC 77 PART 6  
MINOR  
Revision 6  
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NUCLEAR POWER BUSINESS UNIT  
REFUELING CALLUPS

RF INDEX  
Revision 24  
January 25, 1997

INDEX

PROCEDURE NUMBER	PROCEDURE TITLE	REVISION NUMBER	EFFECTIVE DATE	BIENNIAL REVIEW DATE
RF-40	Containment Cleanup Fan and Gai-tronics Inspection, Unit 1 .....	4 R	04/17/95	08/30/93
RF-45	Containment Cleanup Fan and Gai-tronics Inspection, Unit 2 .....	5 R	04/17/95	08/30/93
RF-60.1	Full-Length Control Rod Drive Shaft Unlatching and Latching Tool Calibration Unit 1 .....	0 R	10/09/96	10/09/96
RF-65.1	Full-Length Control Rod Drive Shaft Unlatching and Latching Tool Calibration Unit 2 .....	0 R	10/09/96	10/09/96
RF-70	Fire Hose and Fire Station Service Test, Unit 1 .....	1 R	09/11/95	04/15/94
RF-75	Fire Hose and Fire Station Service Test, Unit 2 .....	1 R	09/11/95	04/15/94
RF-150	Main Lube Oil System Inspection, Unit 1 .....	5 R	03/03/95	03/03/95
RF-155	Main Lube Oil System Inspection, Unit 2 .....	5 R	03/03/95	03/03/95
RF 190	Condenser Hotwell Inspection, Unit 1 .....	4 R	01/25/97	01/25/97
RF 195	Condenser Hotwell Inspection, Unit 2 .....	3 R	01/25/97	01/25/97
RF-220.1	Water Treatment Resin Sampling, Unit 1 .....	2 R	03/23/94	03/23/94
RF-220.2	Water Treatment Anion Resin Brine Cleaning, Unit 1 ...	1 R	04/19/93	04/19/93
RF-220.3	Water Treatment Anion Resin Sampling Post Brine Cleaning, Unit 1 .....	2 R	03/23/94	03/23/94
RF-225.1	Water Treatment Resin Sampling, Unit 2 .....	2 R	03/23/94	03/23/94
RF-225.2	Water Treatment Anion Resin Brine Cleaning, Unit 2 ...	1 R	04/19/93	04/19/93
RF-225.3	Water Treatment Anion Resin Sampling Post Brine Cleaning, Unit 2 .....	2 R	03/23/94	03/23/94
RF 230.1	EH Filter Changeout and Magnetic Plug Inspection, Unit 1 .....	5 R	01/25/97	03/23/94
RF 235.1	EH Filter Changeout and Magnetic Plug Inspection, Unit 2 .....	4 R	01/25/97	04/15/94
RF-390	Control Room Alarms and Recorder Checks, Unit 1 .....	5 R	06/23/95	12/20/94
RF-395	Control Room Alarms and Recorder Checks, Unit 2 .....	5 R	06/23/95	12/20/94
RF-440	Verification of Main Control Board Sliders, Unit 1 .....	3 R	10/22/92	10/22/92
RF-445	Verification of Main Control Board Sliders, Unit 2 .....	3 R	09/28/92	09/25/92
RF-480	Containment Electrical Resistance Measurement, Unit 1 .....	0 R	05/03/91	08/30/93
RF-485	Containment Electrical Resistance Measurement, Unit 2 .....	0 R	05/03/91	08/30/93
RF-490	1P-29 Auxiliary Feed Pump Exhaust Stack Drain Line, Unit 1 .....	0 R	05/03/91	08/30/93
RF-495	2P29 Auxiliary Feed Pump Exhaust Stack Drain Line Check, Unit 2 .....	0 R	04/05/91	08/30/93

(T - Temporary Change)

C = Continuous Use  
R = Reference Use  
I = Information Use