



Entergy

Nuclear Northeast



Procedure Use Is:

☒ Continuous

☐ Reference

☐ Information

Control Copy: _____

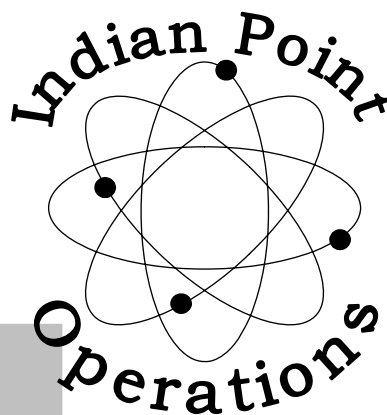
Effective Date: _____

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2-PT-M110, Revision 0

APPENDIX R DG FUNCTIONAL TEST

Approved By:



Procedure Sponsor, RPO/ Designee

Date

Team 2A

Procedure Owner

NEW PROCEDURE

REVISION SUMMARY

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1.0 REASON FOR REVISION

- 1.1 New Procedure to incorporate EC 5000033794, IP2 Station Blackout and Appendix R Diesel Generator Set.

2.0 SUMMARY OF CHANGES

- 2.1 This is a Rev. 0 procedure.

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1.0 PURPOSE

1.1 This procedure establishes requirements for the following:

- Demonstrating operability of Appendix R DG in accordance with TRS 3.8.B.2.
- Demonstrating proper operation of Appendix R DG output breaker SBO/ASS in accordance with TRS 3.8.B.5.
- Demonstrating proper city water line up to the Appendix R DG heat exchangers in accordance with TRS 3.7.E.2.
- Verifying exhaust area fan runs in accordance with Vendor Recommendations.

1.2 This procedure applies to the following:

- Appendix R DG
- Breaker SBO/ASS

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Precautions And Limitations

2.1.1 This test may be performed in any plant mode.

2.1.2 Momentary excursions outside the desired loading of 2005 to 2045 KW do NOT invalidate the test results.

2.2 General Information

2.2.1 Test personnel SHALL complete Sections 3.0, 4.0, 5.0, 6.0 and 7.0 as applicable.

2.2.2 Personnel performing this test SHALL read it in its entirety prior to the start of testing.

2.2.3 Any discrepancies found SHALL be identified in Section 5.0, Comments.

2.2.4 ATTACHMENT 1, UNIT 2 APPENDIX R DG DATA SHEET, captures all of the data required by Attachment 1, in SOP-27.6, Appendix R Diesel Generator Operation. Therefore completion of Attachment 1 in 2-SOP-27.6 Appendix R Diesel Generator Operation, is NOT required during performance of this test.

- 2.2.5 Appendix R DG will be operated for a minimum of 1 hour at 2005 to 2045 KW to establish operability criteria. The test period may be extended as necessary to obtain data after temperature stability is reached.

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3.0 PREREQUISITES

3.1 Equipment required for test:

NONE

3.2 OBTAIN a current copy of 2-SOP-27.6, Appendix R Diesel Generator Operation AND REVIEW Precautions and Limitations.

3.3 NOTIFY Watch Chemist prior to start of the diesel in order to obtain a glycol sample approximately 1 hour after diesel operations are secured.

3.4 Reason for Test - CHECK the applicable listing:

☐ Normal Surveillance WR # _____

☐ Post Maintenance Test WR # _____

WR # _____

WR # _____

☐ Increased Test Frequency WR # _____

☐ Other _____

Initials

4.0 PROCEDURE

4.1 Initial Conditions

- 4.1.1 OBTAIN permission from SM or Designated Alternate to perform test.

SM or Designated Alternate Signature / Date

4.2 Test of Appendix R Diesel Generator

- 4.2.1 START (Parallel Mode) AND LOAD Appendix R DG to between 2005 and 2045 KW per 2-SOP-27.6 Appendix R Diesel Generator Operation.

- 4.2.2 IF Appendix R DG does NOT start OR load, THEN:

- 4.2.2.1 NOTIFY the SM.

- 4.2.2.2 DOCUMENT in detail any problems and/or specific components that may have caused the failure in Section 5.0.

- 4.2.3 WHEN Appendix R DG reaches load window of 2005-2045 KW,
THEN RECORD time and load:

Time _____

Load _____ KW

- 4.2.4 VERIFY the DG Area fan is running.

- 4.2.5 INITIATE data collection in accordance with Attachment 1, Appendix R DG Data Sheets when temperatures stabilize.

- 4.2.6 WHEN lube oil and jacket water temperatures have stabilized during load run,
THEN OBSERVE exhaust from Appendix R DG.

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- 4.3 CHECK appropriate box indicating color of Appendix R DG exhaust observed.

APPENDIX R DG EXHAUST COLOR					
CLEAR		LT. GRAY		BLACK	
WHITE		DK. GRAY		BLUE	

NOTE

Momentary excursions outside the desired loading of 2005 to 2045 KW do NOT invalidate the test results.

- 4.3.1 MAINTAIN Appendix R DG load at 2005 to 2045 KW for a minimum of 1 hour.

- 4.3.2 RECORD present time and run time at target load (2005 - 2045 KW):

Present time _____

Time loaded $\geq$ 2005 KW _____ ($\geq$ 1 hour)

- 4.3.3 WHEN time and load conditions have been met, THEN UNLOAD AND SECURE Appendix R DG (Parallel Mode) per 2-SOP-27.6, Appendix R Diesel Generator Operation **{Reference 9.1.1}**.

4.4 Restoration

- 4.4.1 NOTIFY Maintenance that Appendix R DG has been secured so that oil sample may be drawn.

- 4.4.2 VERIFY GT1 North and South combined Fuel Oil Storage Tank level is greater than or equal to 12,500 gallons.

- 4.4.3 VERIFY Fuel Oil Day Tank level is between (7/8 - FULL).

- 4.4.4 VERIFY UW-831 is OPEN.

- 4.4.5 VERIFY UW-833 is OPEN.

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Initials

4.4.6 VERIFY UW-837 is OPEN.

4.4.7 NOTIFY CRS or SM the Appendix R DG has been returned
to standby service.

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6.0 ACCEPTANCE CRITERIA**6.1 TRM Requirements**

Equipment or Parameter/ Instrument	Step/Att.	Surveillance Requirement	Acceptance Criteria	Actual	Acceptable	Initials
Generator Output Breaker / SBO/ASS	4.2.1	TRS 3.8.B.5	Breaker Closes	N/A	YES / NO	
AC Wattmeter – Generator / WM	4.3.2		Load >2005 KW Maintained For ≥ 1 Hour	YES / NO	YES / NO	
Jacket Water Temp	Att. 1		165-198 °F (60 Min Data)	°F	YES / NO	
Lube Oil Temp	Att. 1		<218 °F (60 Min Data)	°F	YES / NO	
UW-831, UW-833, UW-837	Att. 1	TRS 3.7.E.2	OPEN		YES / NO	

6.2 Other Program Requirements

Equipment or Parameter/ Instrument	Step	Surveillance Requirement	Acceptance Criteria	Actual	Acceptable	Initials
DG Area Fan		Vendor Recommendation	Fans Starts	YES / NO	YES / NO	

7.0 TEST ACCEPTANCE**7.1 TRM Acceptance Criteria**

7.1.1 Based on recorded data, are all Acceptance Criteria of Section 6.1 satisfied?

YES

NO

N/A

7.1.2 IF all Acceptance Criteria of Section 6.1 are NOT satisfied, THEN PERFORM the following:

- NOTIFY CRS/SM to declare Appendix R Diesel Generator inoperable with an entry in Unit Log per OAP-035.
- INITIATE a WRT and a CR.
- TAKE applicable action in accordance with TRO 3.8.B.

7.2 Other Programs Acceptance Criteria

7.2.1 Based on the recorded data, are all Acceptance Criteria of Section 6.2 satisfied?

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YES NO N/A

7.2.2 IF component(s) failed to meet the Acceptance Criteria of Section 6.2,
THEN PERFORM the following:

- NOTIFY CRS/SM.
- INITIATE a WRT and a CR.

7.3 IF NO is circled in Step 7.1.1 OR Step 7.2.1,
THEN LIST corrective action(s) taken, with any comments:

Comments: _____

Reviewed By: _____

SM or Designated Alternate Signature / Date

8.0 EVALUATION

8.1 Programs And Components Review

Comments: _____

Reviewed By: _____

Programs and Components Review / Date

9.0 REFERENCES**9.1 Commitment Documents**

- 9.1.1 Design Basis Licensing Database 87-002-D (COM-87-03063),
IER 87 08, dated 7/15/87

9.2 Development Documents

- 9.2.1 NUMARC 87-00, Guidelines and Technical Bases for NUMARC
Initiatives Addressing Station Blackout at Light Water Reactors
- 9.2.2 NSAC-108, Reliability of Diesel Generators at U.S. Power Plants

9.3 Interface Documents

- 9.3.1 2-SOP-27.6, Appendix R Diesel Generator Operation
- 9.3.2 TRO 3.8.B
- 9.3.3 OAP-035, Technical Specifications and Technical Requirements Manual
- License Adherence and Use

10.0 RECORDS AND DOCUMENTATION**10.1 Records**

The following required records resulting from this procedure are controlled and maintained in accordance with the IPEC Records Retention Schedule.

- 10.1.1 WHEN completed,
THEN this Performance Procedure becomes a Quality Record.

10.2 Documentation

NONE

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**ATTACHMENT 1
UNIT 2 APPENDIX R DG DATA SHEET**

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Date: _____

		TIME/ READINGS			
PARAMETER	FULL LOAD				
Appendix R DG Engine Data					
Coolant Temperature	°F				
Lube Oil Pressure	psig				
Engine Speed	1800 RPM				
Battery Voltage					
Fuel Rail Pressure	psig				
Fuel Pump Pressure	psig				
Fuel Inlet Temperature	°F				
Coolant Pressure	psig				
Lube Oil Temperature	°F				
Lube Oil Level					
Appendix R DG Alternator Data					
L1 Amps	≤ 113.4 Amps				
L2 Amps	≤ 113.4 Amps				
L3 Amps	≤ 113.4 Amps				
Frequency	59.7 – 60.3 Hz				
Total kW	≤ 2700 kW				
Total kVA	≤ 3375 kVA				
Total PF					
Appendix R DG Other Data					
Day Tank Level	7/8 - Full				
PI-8030, Day Tank Fill Pump Pressure	psig				
TE-8027, Day Tank Oil Cooler Temperature	°F				
Lube Oil Reservoir Sight Glass Level	3/4 - Full				
LG-8032, Jacket Water Surge Tank Sight Glass Level	2/3 – 3/4				
LG-8031, After Cooler Surge Tank Sight Glass Level	2/3 – 3/4				
TI-908, Jacket Water Heat Exchanger Outlet Temperature	°F				
TI-909 After Cooler Heat Exchanger Outlet Temperature	°F				
FI-7979, Appendix R DG Jacket Water Flow (City Water)	≤ 118 gpm				
FI-7979, Appendix R DG Jacket Water Flow (Service Water)	≤ 160 gpm				
FI-7980, Appendix R DG Aftercooler Water Flow (City Water)	≤ 87 gpm				
FI-7980, Appendix R DG Aftercooler Water Flow (Service Water)	≤ 137 gpm				