

PROCEDURE COVER SHEET

PENNSYLVANIA POWER & LIGHT CO. SUSQUEHANNA STEAM ELECTRIC STATION	
18 MONTH RHR SYSTEM AND LOGIC FUNCTIONAL TEST (DIV. I)	SE-149-001 Revision 4 Page 1 of 155
EFFECTIVE DATE <u>9/24/90</u>	
PERIODIC REVIEW FREQUENCY AND EXPIRATION DATE (check one): <input checked="" type="checkbox"/> Procedure exempt from periodic review. Procedure will not expire. <input type="checkbox"/> Periodic Review Frequency is: <u>NA</u> Expiration Date: <u>NA</u> Revised Expiration Dates: _____	
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Reviewed by <u>[Signature]</u> Responsible Supervisor	Date <u>9/17/90</u>
Recommended <u>[Signature]</u> Section Head/Manager	Date <u>9-17-90</u>
Approved by <u>[Signature]</u>	Date <u>9-19-90</u>

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SE-149-001

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1.0 PURPOSE/SCOPE

- 1.1 To perform a system and logic system functional check of the RHR Division I including a simulated automatic actuation throughout the emergency operating sequence and verifying each valve in the flowpath actuates to its correct position at least once per 18 months.
- 1.2 To perform a Division I LPCI mode system response time test verifying that the LPCI System will respond on an actuation signal and develop rated conditions within specified limits at least once per 18 months. Conformance with 40 second requirement is verified in SE-100-001, 18 Month ECCS Response Time Calculation.
- 1.3 This test will not initiate the Diesel Generators. This test will check the related logic of the Reactor Recirculation System and trip the Reactor and Turbine Building Chilled Water Systems.
- 1.4 This test will provide sufficient testing overlap with those systems which receive initiation or trip signals from the Division I RHR logic.

2.0 REFERENCES

- 2.1 Technical Specification 4.3.3.1, Table 4.3.3.1 - 1.2.d
- 2.2 Technical Specification 4.3.2.2, Table 4.3.2.1 - 1.1.a(3)
- 2.3 Technical Specification 4.3.3.2, Table 4.3.3.1 - 1.2.a
- 2.4 Technical Specification 4.3.3.2, Table 4.3.3.1 - 1.2.b
- 2.5 Technical Specification 4.3.3.2, Table 4.3.3.1 - 1.2.c.1
- 2.6 Technical Specification 4.3.3.2, Table 4.3.3.1 - 1.2.c.2
- 2.7 Technical Specification 4.3.3.2, Table 4.3.3.1 - 1.2.d
- 2.8 Technical Specification 4.3.3.3, Table 3.3.3 - 3.2.a
- 2.9 Technical Specification 4.3.3.3, Table 3.3.3. - 3.2.b
- 2.10 Technical Specification 4.3.3.3, Table 3.3.3. - 3.2.c.1
- 2.11 Technical Specification 4.3.3.3, Table 3.3.3. - 3.2.c.2
- 2.12 Technical Specification Section 4.5.1.c.1

- 2.13 Unit 2 Technical Specification Section 4.5.1.e.1
- 2.14 Technical Specification Section 4.7.1.2.b
- 2.15 Technical Specification Section 3.3.2
- 2.16 Technical Specification 3.3.3
- 2.17 Technical Specification 3.5.1
- 2.18 Technical Specification 3.5.2
- 2.19 Technical Specification 3.7.1.2
- 2.20 Technical Specification 3.8.4.2
- 2.21 Technical Specification 3.9.11.1
- 2.22 Technical Specification 3.9.11.2
- 2.23 FSAR Section 6.3.1.1.2.14
- 2.24 FSAR Section 6.3.1.2.3
- 2.25 FSAR Section 6.3.2.2.4
- 2.26 P&ID M-151 Sheets 1, 2, 3 and 4
- 2.27 P&ID M-2151 Sheets 1 and 2
- 2.28 Electrical Schematic E-103 Sheets 2 and 5
- 2.29 Electrical Schematic E-146 Sheets 5 and 7
- 2.30 Electrical Schematic E-151 Sheets 10 and 14
- 2.31 Electrical Schematic E-153 Sheets 2 and 6
- 2.32 Electrical Schematic E-184 Sheet 2
- 2.33 Electrical Schematic E-185 Sheets 2, 34, 35, 46, 47
- 2.34 Electrical Schematic E-213 Sheets 1, 10
- 2.35 Electrical Schematic E-216 Sheets 1 and 9
- 2.36 Electrical Schematic E-331 Sheets 2 and 5
- 2.37 Electrical Schematic E-324 Sheets 8, 9, 11, 18, 19, 21

- 2.38 GE - Elementary M1-E11-66 Series (FF124510) Unit 1 RHR
- 2.39 GE - Elementary M1-E21-35 Series (FF123510) Unit 1 Core Spray
- 2.40 GE - Elementary M1-E11-29 Series (FF124510) Unit 2 RHR
- 2.41 GE - Elementary M1-E41-69 Series (FF127250) Unit 1 HPCI
- 2.42 GE - Elementary M1-B31-275 Series (FF116512) Unit 1 Recirc
- 2.43 GE Panel 1C617 Connection Diagrams M1-H12-215(1) thru (6)
- 2.44 GE Panel 1C618 Connection Diagrams M1-H12-502(1) thru (5)
- 2.45 1A20102 Switchgear Schematic E109-11(60) (Foreign File No 103090 Sheet 1160)
- 2.46 1A20302 Switchgear Schematic E109-13(53) (Foreign File No 103090 Sheet 1353)
- 2.47 OP-133-001 Turbine Building Chilled Water System
- 2.48 OP-134-001 Reactor Building Chilled Water System
- 2.49 OP-149-001 Residual Heat Removal System
- 2.50 OP-149-002 RHR Shutdown Cooling Mode
- 2.51 OP-054-001 Emergency Service Water System
- 2.52 OP-164-001 Reactor Recirculation System
- 2.53 AD-QA-422 Surveillance Testing Program
- 2.54 SE-100-001 18 Month ECCS Response Time Calculation
- 2.55 SE-149-002 18 Month RHR System and Logic Functional Test (Div II)
- 2.56 SE-124-107 18 Month Diesel Generator A and C Auto Start on ESS Buses 1A and 1C Energization on Loss of Offsite Power with a LOCA - Plant Shutdown
- 2.57 SE-124-207 18 Month Diesel Generator B and D Auto Start and ESS buses 1B and 1D Energization on Loss of Offsite Power with a LOCA - Plant Shutdown
- 2.58 SE-249-001 18 Month RHR System and Logic Functional Test (Div I)
- 2.59 SE-249-002 18 Month RHR System and Logic Functional Test (Div II)

- 2.60 IEEE Standard 603 - 1980 (Definitions)
- 2.61 SI-180-413 18 Month Time Response Test of Reactor Vessel Water Level Switches LIS-B21-1N031A&C
- 2.62 SI-180-423 18 Month Time Response Test of Reactor Vessel Water Level Switches LIS-B21-1N031B&D
- 2.63 SI-151-411 18 Month Time Response Test of Drywell Pressure High Switches PS-E11-1N011A&C
- 2.64 SI-151-421 18 Month Time Response Test of Drywell Pressure High Switches PS-E11-1N011B&D
- 2.65 SI-180-411 18 Month Time Response Test of Reactor Vessel Pressure Switches PS-B21-1N021A,C,E,G
- 2.66 SI-180-421 18 Month Time Response Test of Reactor Vessel Pressure Switches PIS-B21-1N021B&D
- 2.67 SI-180-430 18 Month Time Response Test of Reactor Vessel Pressure Auxiliary Relays E11A-K31A&B, K32A&B, K36A&B and K44A&B
- 2.68 NSSS Surveillance (SE) Format Standard
- 2.69 Policy Letter: 89-003 Control and Verification of Operating Actions
- 2.70 AD-QA-302 System Status and Equipment Control
- 2.71 Emerg. Core Clg. Benchboard 1C601, J-802 Sheets 4, 5, 6 and 7

3.0 SPECIAL TOOLS/EQUIPMENT

- 3.1 Stop Watch (5)
- 3.2 ECCS test switch (3)
- 3.3 Voltmeter (2)
- 3.4 Jumper with toggle switch (10)
- 3.5 Jumpers (4)
- 3.6 Jumper with indicating light - 120 VAC (2)

4.0 PRECAUTIONS/NOTES

- 4.1 Do not run any RHR Pump that does not have adequate oil in its motor upper and lower oil reservoirs.
- 4.2 Water from Suppression Pool should not be injected into the Reactor Vessel under test conditions.
- 4.3 The A Reactor Bldg and A Turbine Bldg Chillers will not be available for the duration of this test.
- 4.4 When visually confirming the status of HMA and/or HFA relays the contact fingers are pulled in (making contact) when energized, and when de-energized the fingers are pulled away and not making contact.
- 4.5 When installing an ECCS test switch into a jack, the test jacks' relays E11A-K99A/B & E11A-K110A/B will energize and will de-energe when the ECCS test switch is removed.

5.0 PREREQUISITES AND LIMITATIONS

- 5.1 Unit 1 is in Operational Condition 4 or 5.

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- 5.2 When testing the RHR System ensure no maintenance or other testing is being conducted on the Core Spray System, Diesel Generator or ESW which would prevent the minimum ECCS requirements from being met.

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- 5.3 The Emergency Service Water System is available to supply cooling water to the RHR System.

Confirmed By

- 5.4 The Reactor Recirculation System is shutdown in accordance with OP-164-001.

Confirmed By