

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 21

GINNA STATION

UNIT #1

COMPLETED

DATE :-

TIME :-

PROCEDURE NO. PT-32.1

REV. NO. 4

PLANT SAFEGUARD LOGIC TEST A OR B TRAIN

TECHNICAL REVIEW

PORC 4/28/80

TR Schuler  
QC REVIEW

5-6-80  
DATE

APPROVED FOR USE

Bruce Brown  
PLANT SUPERINTENDENT

5-7-80  
DATE

QA X NON-QA        CATEGORY 1.0

REVIEWED BY:                     

THIS PROCEDURE CONTAINS 10 PAGES

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PERIODIC TEST PROCEDURE PT-32.1PLANT SAFEGUARD LOGIC TEST A OR B TRAIN1.0 PURPOSE:

- 1.1 To operationally check out the Safeguard Logic from the Relay Room Test Cabinet.

2.0 TEST REQUIREMENTS:

- 2.1 Upon proper positioning and actuation of the Safeguard test panel switches the various Safeguard Logic relays are energized and correct Safeguard Logic signals are generated as witnessed by the illumination of the respective test panel light.

3.0 REFERENCES:

- 3.1 Ginna Station Logic Diagram 882D612 (Westinghouse) sheets 1 through 15.
- 3.2 Ginna Station Safeguard System schematics (Westinghouse) 110E059, sheets 1 through 11.

4.0 INITIAL CONDITIONS:

- 4.1 The test may be conducted with Plant in operation or at hot or cold shutdown status.

- 4.1.1 Test shall not be performed during system heat up until automatic unblock of Safety Injection has occurred.

- 4.1.2 If testing is performed during cold shutdown, the following Safeguard Equipment control board switches are to be placed in their pull-stop position.

- 4.1.2.1 1A Safety Injection Pump

- 4.1.2.2 1B Safety Injection Pump

- 4.1.2.3 1C Safety Injection Pump (Bus 14)

- 4.1.2.4 1C Safety Injection Pump (Bus 16)

- 4.1.2.5 1A Containment Spray Pump

- 4.1.2.6 1B Containment Spray Pump

- 4.1.2.7 1A Motor Auxiliary Feedwater Pump

- 4.1.2.8 1B Motor Auxiliary Feedwater Pump

4.2 When testing is performed at cold shutdown status, current generators will be utilized in the analog racks to satisfy system parameters reflected in the Safeguard Signal Logic arrays.

4.3 All test panel lights have been tested and defective blubs replaced.

4.4 Testing of the various Safeguard Logic arrays need not be performed in the sequence specified, as long as the overall procedure intent is not violated.

NOTE: Only one Safeguard logic array will be tested at a time. Prior to proceeding with another logic array, all test switches will be returned to their normal alignment.

4.5 Test personnel are qualified in accordance with A-1102 procedure.

4.6 Prior to performing steps 6.9, 6.10 and 6.11, when Plant is at Cold Shutdown, it will be necessary to "UNBLOCK" SI in Protection Channel Pressurizer Pressure. Upon completion of steps 6.9, 6.10 and 6.11, insure that Pressurizer Pressure Channels are "BLOCKED" before Steam Generator Pressure is dropped to "ZERO".

## 5.0 PRECAUTIONS:

5.1 Observe normal company safety practices.

## 6.0 INSTRUCTIONS:

(Denote Safeguard train being tested \_\_\_\_\_)

6.1 To test loop A steam line isolation resulting from  $\frac{1}{2}$  high steam flow in coincidence with  $\frac{2}{4}$  low T avg. perform the following:

6.1.1 Rotate test switches FC-464A, FC-465A, TC-401A, TC-402A, TC-403A, TC-404A to their clockwise position.

6.1.2 Verify that indicating light for loop A steam line isolation is out.

6.1.3 Depress FC-464A, TC-401A, TC-402A, and verify light on.

6.1.4 Release FC-464A, verify light out.

6.1.5 Depress FC-465A, verify light on.

6.1.6 Release all switches, verify light out.

6.1.7 Depress FC-464A, TC-401A, TC-403A, verify light on.

6.1.8 Release FC-464A, verify light out.

- 6.1.9 Depress FC-465A, verify light on. \_\_\_\_\_
- 6.1.10 Release all switches verify light out. \_\_\_\_\_
- 6.1.11 Depress FC-464A, TC-401A, TC-404A, verify light on. \_\_\_\_\_
- 6.1.12 Release FC-464A, verify light out. \_\_\_\_\_
- 6.1.13 Depress FC-465A, verify light on. \_\_\_\_\_
- 6.1.14 Release all switches, verify light out. \_\_\_\_\_
- 6.1.15 Depress FC-464A, TC-402A, TC-403A, verify light on. \_\_\_\_\_
- 6.1.16 Release FC-464A, verify light out. \_\_\_\_\_
- 6.1.17 Depress FC-465A, verify light on. \_\_\_\_\_
- 6.1.18 Release all switches, verify light out. \_\_\_\_\_
- 6.1.19 Depress FC-464A, TC-402A, TC-404A, verify light on. \_\_\_\_\_
- 6.1.20 Release FC-464A, verify light out. \_\_\_\_\_
- 6.1.21 Depress FC-465A, verify light on. \_\_\_\_\_
- 6.1.22 Release all switches, verify light out. \_\_\_\_\_
- 6.1.23 Depress FC-464A, TC-403A, TC-404A, verify light on. \_\_\_\_\_
- 6.1.24 Release FC-464A, verify light out. \_\_\_\_\_
- 6.1.25 Depress FC-465A, verify light on. \_\_\_\_\_
- 6.1.26 Release all switches, verify light out and return the following switches to their counter clockwise position, FC-464A, FC-465A, TC-401A, TC-402A, TC-403A, TC-404A. \_\_\_\_\_
- 6.2 To test loop A steam line isolation resulting from  $\frac{1}{2}$  high high steam flow or  $\frac{2}{3}$  high high containment pressure perform the following:
  - 6.2.1 Rotate test switches FC-464B, FC-465B, PC-946A, PC-948A, PC-950A to their clockwise position. \_\_\_\_\_
  - 6.2.2 Verify that indicating light for loop A steam line isolation is out. \_\_\_\_\_
  - 6.2.3 Depress FC-464B, verify light on. \_\_\_\_\_
  - 6.2.4 Release FC-464B, verify light out. \_\_\_\_\_
  - 6.2.5 Depress FC-465B, verify light on. \_\_\_\_\_
  - 6.2.6 Release FC-465B, verify light out. \_\_\_\_\_
  - 6.2.7 Depress PC-946A, PC-948A, verify light on. \_\_\_\_\_

- 6.2.8 Release all switches, verify light out. \_\_\_\_\_
- 6.2.9 Depress PC-946A, PC-950A, verify light on. \_\_\_\_\_
- 6.2.10 Release all switches, verify light out. \_\_\_\_\_
- 6.2.11 Depress PC-948A, PC-950A, verify light on. \_\_\_\_\_
- 6.2.12 Release all switches, verify light out and return the following switches to their counter-clockwise position FC-464B, FC-465B, PC-946A, PC-948A, PC-950A. \_\_\_\_\_
- 6.3 To test loop B steam line isolation resulting from  $\frac{1}{2}$  high steam flow in coincidence with  $\frac{2}{4}$  low T avg. perform the following:
  - 6.3.1 Rotate test switches, FC-474A, FC-475A, TC-401A, TC-402A, TC-403A, TC-404A. \_\_\_\_\_
  - 6.3.2 Verify that indicating light for loop B steam line isolation is out. \_\_\_\_\_
  - 6.3.3 Depress FC-474A, TC-401A, TC-402A, and verify light on. \_\_\_\_\_
  - 6.3.4 Release FC-474A, verify light out. \_\_\_\_\_
  - 6.3.5 Depress FC-475A, verify light on. \_\_\_\_\_
  - 6.3.6 Release all switches, verify light out. \_\_\_\_\_
  - 6.3.7 Depress FC-474A, TC-401A, TC-403A, verify light on. \_\_\_\_\_
  - 6.3.8 Release FC-474A, verify light out. \_\_\_\_\_
  - 6.3.9 Depress FC-475A, verify light on. \_\_\_\_\_
  - 6.3.10 Release all switches, verify light out. \_\_\_\_\_
  - 6.3.11 Depress FC-474A, TC-401A, TC-404A, verify light on. \_\_\_\_\_
  - 6.3.12 Release FC-474A, verify light out. \_\_\_\_\_
  - 6.3.13 Depress FC-475A, verify light on. \_\_\_\_\_
  - 6.3.14 Release all switches, verify light out. \_\_\_\_\_
  - 6.3.15 Depress FC-474A, TC-402A, TC-403A, verify light on. \_\_\_\_\_
  - 6.3.16 Release FC-474A, verify light out. \_\_\_\_\_
  - 6.3.17 Depress FC-475A, verify light on. \_\_\_\_\_
  - 6.3.18 Release all switches, verify light out. \_\_\_\_\_
  - 6.3.19 Depress FC-474A, TC-402A, TC-404A, verify light on. \_\_\_\_\_

- 6.3.20 Release FC-474A, verify light out. \_\_\_\_\_
- 6.3.21 Depress FC-475A, verify light on. \_\_\_\_\_
- 6.3.22 Release all switches, verify light out. \_\_\_\_\_
- 6.3.23 Depress FC-474A, TC-403A, TC-404A, verify light on. \_\_\_\_\_
- 6.3.24 Release FC-474A, verify light out. \_\_\_\_\_
- 6.3.25 Depress FC-475A, verify light on.. \_\_\_\_\_
- 6.3.26 Release all switches, verify light out, and return the following switches to their counter-clockwise position, FC-474A, FC-475A, TC-401A, TC-402A, TC-403A, TC-404A. \_\_\_\_\_
- 6.4 To test loop B steam line isolation resulting from  $\frac{1}{2}$  high high steam flow or  $\frac{2}{3}$  high high containment pressure perform the following:
  - 6.4.1 Rotate test switches FC-474B, FC-475B, PC-946A, PC-948A, PC-950A to their clockwise position. \_\_\_\_\_
  - 6.4.2 Verify that indicating light for loop B steam line isolation is out. \_\_\_\_\_
  - 6.4.3 Depress FC-474B, verify light on. \_\_\_\_\_
  - 6.4.4 Release FC-474B, verify light out. \_\_\_\_\_
  - 6.4.5 Depress FC-475B, verify light on. \_\_\_\_\_
  - 6.4.6 Release FC-475B, verify light out. \_\_\_\_\_
  - 6.4.7 Depress PC-946A, PC-948A, verify light on. \_\_\_\_\_
  - 6.4.8 Release all switches, verify light out. \_\_\_\_\_
  - 6.4.9 Depress PC-946A, PC-950A, verify light on. \_\_\_\_\_
  - 6.4.10 Release all switches, verify light out. \_\_\_\_\_
  - 6.4.11 Depress PC-948A, PC-950A, verify light on. \_\_\_\_\_
  - 6.4.12 Release all switches, verify light out and return the following switches to their counter-clockwise position FC-474B, FC-475B, PC-946A, PC-948A, PC-950A. \_\_\_\_\_
- 6.5 To test containment spray actuation resulting from  $\frac{2}{3}$  +  $\frac{2}{3}$  high high containment pressure perform the following:
  - 6.5.1 Rotate test switches PC-945B, PC-946B, PC-947B, PC-948B, PC-949B, PC-950B to their clockwise position. \_\_\_\_\_

- 6.5.2 Verify that indicating light for containment spray actuation is out. \_\_\_\_\_
- 6.5.3 Depress PC-945B, PC-947B, PC-946B, PC-948B, verify light on. \_\_\_\_\_
- 6.5.4 Release all switches, verify light out. \_\_\_\_\_
- 6.5.5 Depress PC-945B, PC-947B, PC-946B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.6 Release all switches, verify light out. \_\_\_\_\_
- 6.5.7 Depress PC-945B, PC-947B, PC-948B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.8 Release all switches, verify light out. \_\_\_\_\_
- 6.5.9 Depress PC-947B, PC-949B, PC-946B, PC-948B, verify light on. \_\_\_\_\_
- 6.5.10 Release all switches, verify light out. \_\_\_\_\_
- 6.5.11 Depress PC-947B, PC-949B, PC-946B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.12 Release all switches, verify light out. \_\_\_\_\_
- 6.5.13 Depress PC-947B, PC-949B, PC-948B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.14 Release all switches, verify light out. \_\_\_\_\_
- 6.5.15 Depress PC-945B, PC-949B, PC-946B, PC-948B, verify light on. \_\_\_\_\_
- 6.5.16 Release all switches, verify light out. \_\_\_\_\_
- 6.5.17 Depress PC-945B, PC-949B, PC-946B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.18 Release all switches, verify light out. \_\_\_\_\_
- 6.5.19 Depress PC-945B, PC-949B, PC-948B, PC-950B, verify light on. \_\_\_\_\_
- 6.5.20 Release all switches, verify light out and return the following switches to their counter-clockwise position, PC-945B, PC-946B, PC-947B, PC-948B, PC-949B, PC-950B. \_\_\_\_\_
- 6.6 To test feedwater isolation resulting from 2/3 loop A steam generator high level perform the following:
- 6.6.1 Rotate test switches LC-461A, LC-462B, LC-463D to their clockwise position. \_\_\_\_\_

- 6.6.2 Verify that indicating light for feedwater isolation from Loop A steam generator high level is out. \_\_\_\_\_
- 6.6.3 Depress LC-461A, LC-462B, verify light on. \_\_\_\_\_
- 6.6.4 Release all switches, verify light out. \_\_\_\_\_
- 6.6.5 Depress LC-461A, LC-463D, verify light on. \_\_\_\_\_
- 6.6.6 Release all switches, verify light out. \_\_\_\_\_
- 6.6.7 Depress LC-462B, LC-463D, verify light on. \_\_\_\_\_
- 6.6.8 Release all switches, verify light out, then return the following switches to their counter-clockwise position, LC-461A, LC-462B, LC-463D. \_\_\_\_\_
- 6.7 To test feedwater isolation resulting from 2/3 Loop B steam generator high-level perform the following:
  - 6.7.1 Rotate test switches LC-471A, LC-472B, LC-473D to their clockwise position. \_\_\_\_\_
  - 6.7.2 Verify that indicating light for feedwater isolation from Loop B steam generator high level is out. \_\_\_\_\_
  - 6.7.3 Depress LC-471A, LC-472B, verify light on. \_\_\_\_\_
  - 6.7.4 Release all switches, verify light out. \_\_\_\_\_
  - 6.7.5 Depress LC-471A, LC-473D, verify light on. \_\_\_\_\_
  - 6.7.6 Release all switches, verify light out. \_\_\_\_\_
  - 6.7.7 Depress LC-472B, LC-473D, verify light on. \_\_\_\_\_
  - 6.7.8 Release all switches, verify light out, then return the following switches to their counter-clockwise position, LC-471A, LC-472B, LC-473D. \_\_\_\_\_
- 6.8 To test safety injection actuation resulting from 2/3 high containment pressure perform the following:
  - 6.8.1 Rotate test switches PC-945A, PC-947A, PC-949A, to their clockwise position. \_\_\_\_\_
  - 6.8.2 Verify that indicating light for safety injection containment pressure is out. \_\_\_\_\_
  - 6.8.3 Depress PC-945A, PC-947A, verify light on. \_\_\_\_\_
  - 6.8.4 Release all switches, verify light out. \_\_\_\_\_
  - 6.8.5 Depress PC-945A, PC-949A, verify light on. \_\_\_\_\_



- 6.8.6 Release all switches, verify light out. \_\_\_\_\_
- 6.8.7 Depress PC-947A, PC-949A, verify light on. \_\_\_\_\_
- 6.8.8 Release all switches, verify light off, then return the following switches to their counter-clockwise position, PC-945A, PC-947A, PC-949A. \_\_\_\_\_
- 6.9 To test safety injection actuation resulting from 2/3 Loop A low steam line pressure perform the following:
  - 6.9.1 Rotate test switches PC-468A, PC-469A, PC-482A, to their clockwise position. \_\_\_\_\_
  - 6.9.2 Verify that indicating light for SI steam line pressure Loop A is out. \_\_\_\_\_
  - 6.9.3 Depress PC-468A, PC-469A, verify light on. \_\_\_\_\_
  - 6.9.4 Release all switches, verify light out. \_\_\_\_\_
  - 6.9.5 Depress PC-468A, PC-482A, verify light on. \_\_\_\_\_
  - 6.9.6 Release all switches, verify light out. \_\_\_\_\_
  - 6.9.7 Depress PC-469A, PC-482A, verify light on. \_\_\_\_\_
  - 6.9.8 Release all switches, verify light out, then return the following switches to their counter-clockwise position, PC-468A, PC-469A, PC-482A. \_\_\_\_\_
- 6.10 To test safety injection actuation resulting from 2/3 Loop B low steam line pressure perform the following:
  - 6.10.1 Rotate test switches PC-478A, PC-479A, PC-483A, to their clockwise position. \_\_\_\_\_
  - 6.10.2 Verify that indicating light for SI steam line pressure Loop B is out. \_\_\_\_\_
  - 6.10.3 Depress PC-478A, PC-479A, verify light on. \_\_\_\_\_
  - 6.10.4 Release all switches, verify light out. \_\_\_\_\_
  - 6.10.5 Depress PC-478A, PC-483A, verify light on. \_\_\_\_\_
  - 6.10.6 Release all switches, verify light out. \_\_\_\_\_
  - 6.10.7 Depress PC-479A, PC-483A, verify light on. \_\_\_\_\_
  - 6.10.8 Release all switches, verify light out, then return the following switches to their counter-clockwise position, PC-478A, PC-479A, PC-483A. \_\_\_\_\_

- 6.11 To test safety injection actuation resulting from the two out of three logic of low pressurizer pressure, perform the following:
- 6.11.1 Rotate test switches PC-429C, PC-431G-1 to their clockwise position. \_\_\_\_\_
  - 6.11.2 Verify that indicating light associated with this combination of low pressurizer pressures. \_\_\_\_\_
  - 6.11.3 Depress PC-429C, PC-431G-1 verify light on. \_\_\_\_\_
  - 6.11.4 Release all switches, verify light out, then return the following switches to their counter-clockwise position, PC-429C, PC-431G-1. \_\_\_\_\_
  - 6.11.5 Rotate test switches PC-430E, PC-429C-1 to their clockwise position. \_\_\_\_\_
  - 6.11.6 Verify that indicating light associated with this combination of low pressurizer pressures is out. \_\_\_\_\_
  - 6.11.7 Depress PC-430E, PC-429C-1 verify light on. \_\_\_\_\_
  - 6.11.8 Release all switches, verify light out, then return the following switches to their counter-clockwise position, PC-430E, PC-429C-1. \_\_\_\_\_
  - 6.11.9 Rotate test switches PC-431G, PC-430E-1 to their clockwise position. \_\_\_\_\_
  - 6.11.10 Verify that indicating light associated with this combination of low pressurizer pressures is out. \_\_\_\_\_
  - 6.11.11 Depress PC-431G, PC-430E-1 verify light on. \_\_\_\_\_
  - 6.11.12 Release all switches, verify light out, then return the following switches to their counter-clockwise position, PC-431G, PC-430E-1. \_\_\_\_\_
- 6.12 To test Safety Injection Block and unblock logic circuitry perform the following:
- 6.12.1 Rotate test switches PC-429D, PC-430F, PC-431I to their clockwise position. \_\_\_\_\_
  - 6.12.2 If pressurizer pressure is less than 1800 psig verify that S.I. block light is on and that S.I. unblock light is out. \_\_\_\_\_
  - 6.12.3 If pressurizer pressure is greater than 1800 psig verify that S.I. block light is out and that S.I. unblock light is on. \_\_\_\_\_



- 6.12.4 Depress PC-429D, PC-430F, verify that S.I. block light is on and that S.I. unblock light is out. \_\_\_\_\_
- 6.12.5 Release all switches, verify that S.I. block light is out and that S.I. unblock light is on. \_\_\_\_\_
- 6.12.6 Depress PC-429D, PC-431I, verify that S.I. block light is on and that S.I. unblock light is out. \_\_\_\_\_
- 6.12.7 Release all switches, verify that S.I. block light is out and that S.I. unblock light is on. \_\_\_\_\_
- 6.12.8 Depress PC-430F, PC-431I, verify that S.I. block light is on and that S.I. unblock light is out. \_\_\_\_\_
- 6.12.9 Return the following test switches to their counter-clockwise position, PC-429D, PC-430F, PC-431I. \_\_\_\_\_

COMPLETED BY: \_\_\_\_\_

DATE COMPLETED: \_\_\_\_\_

SHIFT SUPERVISOR: \_\_\_\_\_

RESULTS AND TEST REVIEW: \_\_\_\_\_ DATE: \_\_\_\_\_

