

PARAG. 3.A

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 4

GINNA STATION
UNIT #1
COMPLETED

DATE:-

TIME:-

PROCEDURE NO. RSSP-3.0

REV. NO. 7

VERIFICATION OF EMERGENCY START LOGIC AUXILIARY FEEDWATER PUMPS

TECHNICAL REVIEW

PORC 5/12/80

TRSchul
QC REVIEW

5-16-80
DATE

APPROVED FOR USE

Bruce A. Smith
PLANT SUPERINTENDENT

5-17-80
DATE

QA X NON-QA CATEGORY 1.0

REVIEWED BY:

THIS PROCEDURE CONTAINS 6 PAGES

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RSSP-3.0VERIFICATION OF EMERGENCY START LOGIC FOR AUXILIARY FEEDWATER PUMPS1.0 PURPOSE:

- 1.1 To provide the steps necessary for the verification of Emergency Start Logic for Auxiliary Feedwater Pumps.

2.0 TEST REQUIREMENTS:

- 2.1 Verify motor-driven and turbine-driven auxiliary feedwater pumps start upon 10 10 steam generator level.
- 2.2 Verify motor-driven auxiliary feedwater pumps start upon loss of both Main Feedwater Pumps.
- 2.3 Verify that 1A & 1B Steam Generator's steam admission and discharge valves or actuating relays to turbine driven pump open upon undervoltage on busses 11A and 11B.

3.0 REFERENCES:

- 3.1 Elementary Wiring Diagrams
- 3.2 Miscellaneous Relay Rack Drawing 110E073
- 3.3 Safeguard Prints 110E053 .

4.0 INITIAL CONDITIONS:

- 4.1 Plant is in cold shutdown condition.
- 4.2 Operation of Main Feedwater Pumps is not required to secure proper contact interlocking. The M.F.P. breakers (A & B) are in racked out position with auxiliary switch lever arm blocked to simulate breaker closed position.
- 4.3 Motor driven auxiliary Feedwater Pumps (1A & 1B) 480 volt breakers are in the test position with control power on.
- 4.4 4160 volt busses 11A and 11B are energized.
- 4.5 Lead Test Personnel are qualified in accordance with A-1102.
- 4.6 Ginna Station Test Tags Control Program, A-1103 shall be utilized as required.

5.0 PRECAUTIONS:

- 5.1 Plant holding procedure will be observed for affected equipment.

5.2

If test is performed while plant maintenance is being performed verify that conductance of test will not conflict with maintenance work or compromise safety of maintenance people.

6.0

INSTRUCTIONS:

6.1

Auxiliary Feedwater Pump start upon Lo Lo steam generator levels

6.1.1

Ensure that the following bistable units, utilized for developing the trip matrix for automatic auxiliary feedwater pump start, are energized:

NOTE: Steam Generator levels 1A and 1B must be above 15% level. If not, a simulated D.C. current input equivalent to this level must be injected into the input terminals.

LI 461 A/B (RED)
LI 462 A/B (BLUE)
LI 463 C/D (YELLOW)
LI 471 A/B (YELLOW)
LI 472 A/B (RED)
LI 473 C/D (WHITE)

6.1.2

Place steam generator blowdown key switches into Normal.

6.1.3

Verify the following:

4160 Volt 11A bus is energized
4160 Volt 11B bus is energized

6.1.4

Auxiliary contacts on Main Feedwater Pumps are open
(auxiliary switch lever blocked to breaker closed position)

1A M.F.P. breaker aux. "b" contact open
1B M.F.P. breaker aux. "b" contact open

6.1.5

Place the following control board switches in the automatic position and place Test tags at switch:

1A MAFP switch in auto
1B MAFP switch in auto
1A Steam admission valve switch to TDFP (3505A) in auto if valve operable
1B Steam admission valve switch to TDFP (3504A) in auto if valve operable

NOTE: MAFP = Motor driven auxiliary feedwater pumps
TDFP = Turbine driven auxiliary feedwater pump
MFP = Main feedwater pumps

6.1.6

Verify the following:

1A MAFP breaker remains open
1B MAFP breaker remains open

6.1.6

(Cont'd)

1A steam admission valve remains closed or actuating relay

MFPX 1A2 remains de-energized (Rack RA-2)

1B steam admission valve remains closed or actuating relay

MFPX 1B2 remains de-energized (Rack RA-3)

6.1.7

Simulate 2/3 lo lo level logic for 1A steam generator by placing following bistables in the trip mode (lo lo level proving switch in protection rack).

LI 462A (BLUE)

Tripped Mode

LI 463C (YELLOW)

Tripped Mode

6.1.8

Verify the following has occurred automatically:

1A MAFP breaker closed

1B MAFP breaker closed

6.1.9

Return bistable proving switch for bistable units which were tripped in step 6.1.7 to normal.

LI 462A (BLUE)

return to normal

LI 463C (YELLOW)

return to normal

6.1.10

By use of respective control board switches ensure the following:

1A MAFP breaker tripped

1B MAFP breaker tripped

TDFP discharge valve 3996 closed if operable

6.1.11

Simulate 2/3 lo lo level logic for 1B steam generator by placing the following bistables in the tripped mode (lo lo level proving switch in protection rack).

LI 472A (RED)

Tripped Mode

LI 473C (WHITE)

Tripped Mode

6.1.12

Verify the following has occurred automatically:

1A MAFP breaker closed

1B MAFP breaker closed

6.1.13

Simulate 2/3 lo lo level logic for 1A Steam Generator by placing the following bistables in the tripped mode:

LI 461B (RED)

Tripped Mode

LI 462A (BLUE)

Tripped Mode

6.1.14

Verify the following has occurred automatically:

1A steam admission valve to TDFP (3505A) open or

MFPX1A2 energized (Rack RA-2)

1B steam admission valve to TDFP (3504A) open or

MFPX1B2 energized (Rack RA-3)

TDAFP discharge valve (3996) open or MFPX1A2 and

MFPX1B2 energized (Racks RA-2 and RA-3)



- 6.1.15 Return the proving switches for the following bistable units to normal:

LI 472A (RED)	returned to normal	_____
LI 473C (WHITE)	returned to normal	_____
LI 461B (RED)	returned to normal	_____
LI 462A (BLUE)	returned to normal	_____

- 6.1.16 Trip the following breakers from control board switch and place switch in pull stop position:

	<u>Breaker Tripped</u>	<u>Switch in Pull Stop</u>
1A MAFP	_____	_____
1B MAFP	_____	_____

- 6.1.17 By use of respective control board switches ensure the following if valves are operable:

1A SG Steam admission valve to TDFP (3505A)	closed	_____
1B SG Steam admission valve to TDFP (3504A)	closed	_____
TDFP discharge valve (3996)	closed	_____

- 6.1.18 Ensure that 1A and 1B Steam Generator blowdown valves (CV-70 & CV-71) are open.

NOTE: Control switches for these valves are located on panel by sample room in controlled intermediate building. Other interlocks exist for these valves and must all be satisfied before valves can be opened.

MCB Master Blowdown Switch in Remote	_____
CV-70 and CV-71 Key Switches in Normal	_____
1A S/G blowdown valve CV-70	open _____
1B S/G blowdown valve CV-71	open _____

- 6.2 Operation of steam admission valves to TDFP (from undervoltage 11A & 11B Busses)

- 6.2.1 Ensure that the 1A & 1B S.G. Steam admission switches for TDFP are in the "auto" position or actuating relays MFPX1A2 and MFPX1B2 are de-energized:

1A steam admission switch in auto (3505A)	_____
1B steam admission switch in auto (3504A)	_____

- 6.2.2 Simulate undervoltage condition on bus 11A by actuating undervoltage device 27-1/11A. (Open knife switch number 8).

- 6.2.3 Simulate undervoltage condition on bus 11B by actuating undervoltage device 27-1/11B. (Open knife switch number 8).

- 6.2.4 Verify that the following has occurred automatically:

MFPX1A2 energized or 1A S.G. steam admission valve to TDFP (3505A)	open	_____
MFPX1B2 energized or 1B S.G. steam admission valve to TDFP (3504A)	open	_____

- 6.2.4 (Cont'd)
 MFPX1A2 and MFPX1B2 energized or
 TDFP discharge valve (3996) open
 Blowdown valves CV-70 and CV-71 closed

6.2.5 Perform the following:

Restore UV device 27-1/11A (bus 11A) to normal
 Restore UV device 27-1/11B (bus 11B) to normal

6.2.6 By use of respective control board switches ensure the following
 if valves operable:

1A S.G. steam admission valve to TDFP (3505A) closed
 1B S.G. steam admission valve to TDFP (3504A) closed
 TDFP discharge valve (3996) closed

6.2.7 Simulate undervoltage condition on bus 11A by actuating under-
 voltage device 27-2/11A. (Open knife switch number 8).

6.2.8 Simulate undervoltage condition on bus 11B by actuating under-
 voltage device 27-2/11B. (Open knife switch number 8).

6.2.9 Verify the following has occurred automatically:

MFPX1A2 energized or 1A S.G. steam admission valve
 to TDFP (3505A) open
 MFPX1B2 energized or 1B S.G. steam admission valve
 to TDFP (3504A) open
 MFPX1A2 and MFPX1B2 energized or
 TDFP discharge valve (3996) open
 Blowdown valves CV70 & CV71 closed

6.2.10 Restore system to before test condition by performing the following:

Restore UV device 27-2/11A (bus 11A) to normal
 Restore UV device 27-2/11B (bus 11B) to normal
 Place 1A MAFP CB switch in Pull Stop
 Place 1B MAFP CB switch in Pull Stop
 Close 1A steam admission valve to TDFP (3505A) if operable
 Close 1B steam admission valve to TDFP (3504A) if operable
 Close TDFP discharge valve (3996) if operable
 Blowdown valves CV70 & CV71 open

6.3 Motor Driven Auxiliary FW Pump Start on Loss of Both MFP

6.3.1 Place control board switch for MAFP's in auto position

1A MAFP switch in auto
 1B MAFP switch in auto

6.3.2 Unblock the mechanical linkage on MFP breakers, or install
 jumper wire, so that auxiliary "B" contacts are closed.
 (This will simulate a breaker open position for MAFP start).

1A MFP breaker "b" contact closed
 1B MFP breaker "b" contact closed

6.3.3 Verify that following have closed automatically:

1A MAFP breaker closed
1B MAFP breaker closed
1A & 1B SG blowdown valves CV-70 & CV-71 closed

6.3.4 Place both A & B Auxiliary Feed Pump control switches to pull stop.

"A"
"B"

6.3.5 Block the mechanical linkage on the MFP breaker to simulate a closed position.

6.3.6 Verify CV-70 and CV-71 open.

6.4 Remove simulators and unblock main feedwater pumps.

6.5 Additional system alignment to be performed as subsequent operation requires.

6.6 Reopen states clips if needed to block Auto start.

DEFICIENCIES:

CORRECTIVE ACTION:

COMPLETED BY: _____

DATE COMPLETED: _____

SHIFT SUPERVISOR: _____

RESULTS AND TEST REVIEW: _____

DATE: _____