

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

EMERGENCY INSTRUCTION S01-1.2-1.01

REACTOR TRIP RESPONSE

I. PURPOSE:

The purpose of this instruction is to provide direction for a REACTOR TRIP RECOVERY to assure reactor shutdown, establish stable plant control to prevent a return to criticality and ensure decay heat removal. Additionally this instruction directs the implementation of procedures that provide for subsequent plant operation.

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Note: Foldout page should be open.

CAUTION

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If SI actuation occurs at any time, immediately go to S01-1.2-1.0, REACTOR TRIP OR SAFETY INJECTION, step 5.

1

Verify RCS Heat Removal:

- a. Verify RCS temperature
- DECREASING TO 535°F.
- b. Place steam dump mode selector switch to PRESSURE CONTROL ATMOS AND CONDENSER.
- c. Verify steam dump controller - SET AT 930 PSIG.
- d. Verify AFW flow to SGs.
 - 1) Auxiliary feedwater initiated.
 - 2) Flow indication on aux. feedwater panel to all SGs.
- c. Set steam dump controller to 930 psig.
- d. IF AFW NOT initiated, THEN use main feedwater regulator bypass CVs to establish flow to SGs.

2

Isolate Main Feedwater Flowpath:

- a. Close MOV 20, MOV 21, AND MOV 22.
- b. Place FCV 456, FCV 457, AND FCV 458 in MANUAL AND close the valves.

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3	<p><u>Check Steam Generator Levels:</u></p> <p>a. Narrow range level - GREATER THAN 26%.</p> <p>b. Throttle SG feed flow to maintain narrow range level at 50%.</p>	<p>a. IF LESS than 26%, <u>THEN</u> maintain:</p> <p>1) Total SG feed flow - GREATER THAN 250 GPM.</p> <p>2) Feed flow per SG - LESS THAN 150 GPM.</p>
4	<p><u>Verify All Control Rods Fully Inserted:</u></p> <p>a. Rod bottom lights - ON.</p>	<p>a. Verify rod position from LVDT indication. IF two or more control rods NOT fully inserted, <u>THEN</u> go to S01-1.2-16, ANTICIPATED TRANSIENT WITHOUT SCRAM, step 6.</p>

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Check Pressurizer Level Control:

a. Level - GREATER THAN 10%.

a. IF level less than
TU%, THEN:1) Verify letdown
isolation; IF NOT,
THEN manually
isolate letdown.2) Verify heaters OFF;
IF NOT, THEN
manually turn off
heaters.3) Manually control
charging to restore
pressurizer level.b. Verify charging and
letdown in service.b. Manually place in
service.c. Level - TRENDING
TO 15%.c. Control charging and
letdown to maintain
level at 15%.

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6	<u>Check Pressurizer Pressure Control:</u>	
	a. Pressure - GREATER THAN 1735 PSIG.	a. IF pressure LESS than 1735 PSIG, THEN verify or initiate SI actuation AND go to S01-1.2-1.0, REACTOR TRIP OR SAFETY INJECTION, step 5.
	b. Pressure - STABLE AT OR TRENDING TO 2085 PSIG.	b. IF pressure less than 2085 PSIG AND decreasing, THEN: <ol style="list-style-type: none"> 1) Verify pressurizer PORVs closed; IF NOT closed, THEN manually close the PORVs. 2) Verify pressurizer spray valves closed; IF NOT, closed, THEN manually close the valves. 3) Verify pressurizer heaters on; IF NOT on THEN manually turn on the heaters.
	c. IF pressure GREATER THAN 2085 PSIG AND increasing, THEN: <ol style="list-style-type: none"> 1) Verify pressurizer heaters off; IF NOT, manually turn the heaters off. 2) Control pressure using pressurizer spray, auxiliary spray, or PORV in this preferred order, as necessary. 	
	d. Pressurizer heaters - AVAILABLE.	d. Reset pressurizer heaters.

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Check Intermediate Range Flux:

a. Flux - LESS THAN
 2×10^{-9} AMPS.

a. IF power NOT
decreasing, THEN go
to S01-1.1-2,
EMERGENCY BORATION.

AND

Continue with step
9. WHEN flux
decreases below
 2×10^{-9} amps, THEN
perform steps 7b
AND 7c.

b. Verify source range
detectors high voltage
- ON.

c. Transfer nuclear recorders
to source range scale.

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Verify Termination Of
Generator Coastdown:

- a. Coastdown terminated - AT
40% of NOMINAL TERMINAL
VOLTAGE (7200 VOLTS).
- b. ACB 11A04 - OPEN.
ACB 11B04 - OPEN.
Generator Field Breaker
- OPEN.

- b. Manually open
breakers.

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Restore Power to 4 KV
Busses 1A AND 1B From
Auxiliary Transformer C:

- a. Verify RCP breakers:
ACB 11A01 - OPEN.
ACB 11A03 - OPEN.
ACB 11B03 - OPEN.
- b. Close ACB 11C01,
AND ACB 12C01.

- a. Manually open
breakers.

- b. IF neither bus can be
auxiliary transformer
C, THEN:

- 1) Reset the lockup
bus.
- 2) Verify open OR
open the generator
motor operated
disconnect switch.
- 3) Close Unit 1 CB
CB 4012 OR CB 6012.
- 4) Close ACB 11A04 AND
ACB 11B04.

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10	<p><u>Start At Least One RCP:</u></p> <p>a. Establish conditions for starting an RCP.</p> <p>b. Start RCP B.</p> <p style="text-align: center;"><u>OR</u></p> <p>Start RCP A AND after 2 minutes, start RCP C.</p> <p>c. Go to step 12.</p>	<ul style="list-style-type: none"> ● IF an RCP cannot be started, THEN monitor natural circulation per step 11.
11	<p><u>Monitor For RCS Natural Circulation Using Trended Values:</u></p> <p>a. RCS subcooling - GREATER THAN 400F.</p> <p>b. Steam header pressure - STABLE.</p> <p>c. RCS cold leg temperature - STABLE OR SLOWLY DECREASING AND NEAR SATURATION TEMPERATURE FOR STEAM HEADER PRESSURE.</p> <p>d. Core exit TCs - STABLE OR SLOWLY DECREASING.</p> <p>e. Refer to S01-3-6, PLANT OPERATION WITH NATURAL CIRCULATION.</p>	<ul style="list-style-type: none"> ● Attempt to establish natural circulation by increasing steam dump.

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- 12 Maintain Stable Plant Conditions:
- a. Pressurizer pressure - AT 2085 PSIG.
 - b. Pressurizer level - AT 15%.
 - c. SG narrow range level - AT 50%.
- 13 Align Turbine Drains:
- a. Open turbine drain valves.
- 14 Align Reheater Steam Supply:
- a. Close reheater steam supply MOVs.

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15	<u>SG Level Control Transfer With Feed Pump Operation:</u> a. One feed pump breaker - CLOSED. b. AFW system - INITIATED. c. Establish flow through CV 142, CV 143, <u>AND</u> CV 144. d. Reduce flow through FCV 3300, FCV 3301, FCV 2301, <u>AND</u> FCV 2300, while increasing flow through CV 142, CV 143, <u>AND</u> CV 144. e. Maintain SG level control with main feedwater regulator bypass CVs.	a. IF both feed pumps are <u>NOT</u> available, <u>THEN</u> go to step 17. b. Maintain SG level control with main feedwater regulator bypass CVs.
16	<u>Reset Auto AFW Initiation:</u> a. Place AFW system in - MANUAL <u>AND</u> depress RESET pushbuttons. b. Close motor driven pump AFW header discharge valve. c. Stop motor driven pump. d. Close turbine driven pump AFW header discharge valve. e. Stop the turbine driven pump. f. Go to step 18.	

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17	<p><u>SG Level Control Transfer With AFW Pump Operation:</u></p> <ul style="list-style-type: none">a. Place AFW system in - MANUAL.b. Open motor driven pump main FW header discharge valve.c. Establish flow through CV 142, CV 143, <u>AND</u> CV 144.d. Reduce flow through FCV 3300, FCV 3301, FCV 2301, <u>AND</u> FCV 2300 while increasing flow through CV 142, CV 143, <u>AND</u> CV 144.e. Close motor driven pump AFW header discharge.f. Close turbine driven pump AFW header discharge valve.g. Shutdown steam driven AFW pump.h. Maintain SG level control with main feedwater regulator bypass CVs.	

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18	<u>Verify Start of Turbine Auxiliary Oil Pump:</u>	
	a. Pump breaker - CLOSED.	a. Manually start.
19	<u>Verify Automatic Turbine Turning Gear Engagement:</u>	
	a. Turning gear motor indicating light - ON.	a. Manually engage turning gear.
	<u>AND</u>	
	Zero speed alarm - RESET.	
20	<u>Investigate Cause Of Reactor Trip:</u>	
	a. Evaluate alarm indications and monitor plant status.	
21	<u>Inspect Containment:</u>	
	a. Check for fluid system leakage.	

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Establish Plant Status:

a. IF plant is to remain
in hot standby, THEN:

1) Borate RCS to Xenon - free
hot standby boron
concentration.

2) Maintain stable plant
conditions per step 9.

b. Go to S01-3-4, PLANT
SHUTDOWN FROM FULL POWER
TO HOT STANDBY.

a. IF plant is to be
cooled down, THEN:

1) IF an RCP is
running, THEN go to
S01-3-5, PLANT
COLD SHUTDOWN.

2) IF NO RCPs are
running, THEN go to
S01-3-6, PLANT
OPERATION WITH
NATURAL
CIRCULATION.

-END-

H. E. MORGAN
MANAGER, STATION OPERATIONS

MOTOR DRIVEN AFW PUMP RESTART CRITERIA

- a. IF a motor driven AFW pump trips on low discharge pressure, THEN:
- 1) Lower AFW flow controllers.
 - 2) Reset AND restart pump.

SI REINITIATION CRITERIA FOLLOWING SPURIOUS SI

- a. Reinitiate SI if ANY ONE of the parameters listed below occurs:
- 1) RCS Pressure - LESS THAN 1735 PSIG.
 - 2) Containment Pressure - GREATER THAN 1.4 PSIG.

SYMPTOMS FOR RESPONSE TO INADEQUATE CORE COOLING

- a. Go to S01-1.2-14, RESPONSE TO INADEQUATE CORE COOLING, when ANY ONE of the following symptoms occur:
- 1) Five or more core exit TCs - GREATER THAN 1200 °F.
- OR
- 2) RCS hot leg temperatures - GREATER THAN 700 °F.

SYMPTOMS FOR RESPONSE TO LOSS OF SECONDARY HEAT SINK

- a. Go to S01-1.2-15, RESPONSE TO LOSS OF SECONDARY HEAT SINK IF AFW Flow is NOT AVAILABLE.

IF EVENTS REQUIRE IMPLEMENTATION OF THIS PROCEDURE

- a. Notify Shift Technical Advisor.
- b. Notify Shift Communicator.
- c. Determine if event is classified as an emergency and requires notification of offsite agencies and implementation of the Emergency Plan per S0123-VIII-11, RECOGNITION AND CLASSIFICATION OF EMERGENCIES.
- d. IF event is NOT classified as an emergency in c above THEN determine if notification of the NRC is required within one hour per S01-14-13, NOTIFICATION TO NRC OF SIGNIFICANT EVENTS.