

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

## EMERGENCY INSTRUCTION S01-1.2-1.12

POST LOCA COOLDOWN AND  
DEPRESSURIZATION

## I. PURPOSE:

The purpose of this instruction is to bring the reactor coolant system temperature and pressure to or below 350 °F and 400 psig and attempt to restore pressurizer level following a Loss Of Reactor Coolant.

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NOTE: Foldout page should be open.

## CAUTION

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If core exit TCs exceed 1200 °F or RCS hot leg temperatures exceed 700 °F, then go to S01-1.2-14, RESPONSE TO INADEQUATE CORE COOLING.

## CAUTION

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If RWST level reaches 21% or containment level greater than MINUS 3 FT, align SI system for cold leg injection per S01-1.2-1.13, TRANSFER TO COLD LEG INJECTION AND RECIRCULATION.

1

Compare RCS And Steam  
Header Pressure:

a. RCS pressure - GREATER  
THAN OR EQUAL TO STEAM  
HEADER PRESSURE.

a. IF RCS pressure less  
than steam header  
pressure, THEN go to  
S01-1.2-1.1, LOSS OF  
REACTOR COOLANT, step  
11.

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## CAUTION

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If offsite power is lost after SI is reset, manual SI initiation will be necessary to load safeguard equipment onto the diesel powered 4 KV busses.

2

Reset SI:

- a. Reset SI at SLSS Surveillance Panels.
- b. Verify lockout switches  
- RESET.

b. Reset lockout switches.

3

Establish Maximum Charging:

- a. Reset non-running charging pump lockout.
- b. Start second charging pump.

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## CAUTION

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Do not exceed total charging pump flow of 330 GPM to avoid potential damage to charging pumps.

4

Establish Charging Flow Through  
SI Cold Leg Injection Lines:

a. Align cold leg injection flow path:

MOV 356 - OPEN.

MOV 357 - OPEN.

MOV 358 - OPEN.

MOV 18 - OPEN.

MOV 19 - OPEN.

b. Isolate normal charging flow path:

FCV 1112 - CLOSED.

CV 304 - CLOSED.

c. Place seal supply flow controllers, FC 1115 A, B AND C, on MANUAL AND adjust controller to establish 200 gpm to each loop with two pumps running.

5

Check If Feed Pumps Can  
Be Stopped:a. RCS pressure - INCREASES  
BY 200 PSI.a. IF RCS pressure does  
not increase by  
200 psi, THEN do not  
stop feed pumps.

b. Stop feed pumps.

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Initiate RCS Cooldown To 350 °F:a. Dump steam to condenser OR1) Place steam dump controller  
PC 418 A on MANUAL CONTROL.2) Place steam dump mode  
selector to - PRESSURE  
CONTROL ATMOS - CONDENSER.3) Adjust dumping rate as necessary  
to maintain cooldown rate  
less than 50 °F/hr.b. Maintain SG narrow range  
levels at approximately 50%  
during cooldown.

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Check If Pressurizer Level  
Can Be Re-established:

a. RCS pressure - AT LEAST  
300 PSIG GREATER THAN  
STEAM HEADER PRESSURE.

a. Go to step 11 until  
RCS pressure is  
300 psi greater than  
steam header  
pressure, THEN go to  
step 7b.

b. Re-establish pressurizer  
level:

1) Open one PORV.

2) WHEN pressurizer level  
is greater than 50%, THEN  
close PORV.

2) IF PORV cannot be  
closed, THEN close  
its block valve.

c. Energize pressurizer heaters  
as necessary to increase  
pressurizer temperature 50 °F  
above core exit TCs.

1) Maintain pressurizer temperature  
greater than 50 °F above core  
exit TCs.

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Check Containment Pressure:

a. Containment pressure - LESS THAN 1.4 PSIG.

a. IF high, THEN depress override pushbuttons for valves needed open as containment systems are placed inservice. Go to step 9.

b. Depress Train A AND B containment isolation pushbutton.

9

Check RCP Cooling:

a. RCP low CCW flow alarms - RESET.

a. Manually adjust CCW flow.

b. Verify RCP seal injection flow established - RCP THERMAL BARRIER DELTA PRESSURES POSITIVE.

b. Establish seal water. Place flow controllers in AUTO set to maintain a positive delta pressure.

c. Open RCP seal return CV 527 AND CV 528.

d. Verify seal leakoff is - LESS THAN 4.5 GPM.

d. Place PCV 1115 A, B AND C in AUTO.

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## CAUTION

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RCPs must be tripped IF RCS pressure decreases to less than 300 psi ~~above~~ steam header pressure.

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Check If RCP Can Be Started:

- |   |  |
|---|--|
| <p>a. RCS pressure - AT LEAST<br/>300 PSI GREATER THAN<br/>STEAM HEADER PRESSURE.</p> <p>b. Pressurizer level - GREATER<br/>THAN 50%.</p> <p>c. Start RCP A OR B per<br/>S01-4-3, REACTOR COOLANT<br/>PUMP OPERATION.</p> | <p>a. Go to step 11 until<br/>RCS pressure 300 psi<br/>greater than steam<br/>header pressure.</p> <p>b. Go to step 11 until<br/>pressurizer level<br/>greater than 50%.</p> |
|---|--|

11

Check RCS Temperature:

- |   |   |
|---|---|
| <p>a. RCS temperature<br/>- APPROXIMATELY 350 OF.</p> | <p>a. <u>IF</u> RCS temperature is<br/>greater than<br/>350 OF, <u>THEN</u> return<br/>to step 6.</p> |
|---|---|

12

Check RCS Pressure:

- |   |   |
|---|---|
| <p>a. RCS pressure - GREATER<br/>THAN 400 PSIG.</p> | <p>a. <u>IF</u> pressure less than<br/>400 PSIG, <u>THEN</u> go to<br/>step 15.</p> |
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Verify Feed Pump Operation:

- a. Both feedwater pump breakers  
- OPEN.

- a. Stop feed pumps.

14

Depressurize RCS:

- a. Throttle FC 1115 A, B  
AND C OR normal pressurizer  
spray to depressurize RCS  
to 400 psig.
- b. Attempt to maintain  
pressurizer level at  
approximately 50%.

- a. IF unable to  
depressurize, THEN use  
one PORV.

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Evaluate Plant Status:

- a. Determine if RHR  
can be placed in  
service for cooldown  
per S01-4-9, RESIDUAL  
HEAT REMOVAL SYSTEM  
OPERATION.

- a. IF NOT, THEN return  
to S01-1.2-T.0,  
LOSS OF REACTOR  
COOLANT.

-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 TERMINATION CRITERIA FOLLOWING LOSS OF REACTOR COOLANT

- a. Terminate SI when ALL parameters listed below are met:
- 1) RCS Pressure - GREATER THAN 1400 PSIG.
  - 2) RCS Subcooling - 40 °F.
  - 3) Pressurizer Level - GREATER THAN 50%.
  - 4) Heat Sink:
    - (a) SG Level - 10% N. R.
    - (b) AFW Flow OR - 250 GPM.

SI REINITIATION CRITERIA FOLLOWING LOSS OF REACTOR COOLANT

- a. Reinitiate SI if ANY ONE of the parameters listed below occurs:
- 1) RCS Pressure LESS THAN 1400 PSIG.
  - 2) RCS Subcooling LESS THAN 40 °F.
  - 3) Pressurizer Level LESS THAN 20%.

COLD LEG RECIRCULATION SWITCHOVER CRITERIA

- a. IF RWST level less than 21%, THEN align SI system for cold leg injection and recirculation per S01-1.2-1.13, TRANSFER TO COLD LEG INJECTION AND RECIRCULATION.

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 Watch Engineer.
- b. Notify Shift Technical Advisor.
- c. Notify Shift Communicator.
- d. 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.
- e. IF event is NOT classified as an emergency in d above THEN determine if notification of the NRC is required within one hour per S01-14-13, NOTIFICATION TO NRC OF SIGNIFICANT EVENTS.