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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

Residman

RESPONSIBLE MANAGER

12-14-98

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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- A. PURPOSE - This procedure provides actions to add negative reactivity to a core which is observed to be critical when expected to be shut down.
- B. ENTRY CONDITIONS/SYMPTOMS
 - 1. ENTRY CONDITIONS - This procedure is entered from:
 - a. E-0, REACTOR TRIP OR SAFETY INJECTION, when reactor trip is not verified and manual trip is not effective.
 - b. F-0.1, SUBCRITICALITY Critical Safety Function Status Tree on either a RED or ORANGE condition.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: o Steps 1 through 3 are IMMEDIATE ACTION steps.

- o Adverse CNMT values should be used whenever CNMT pressure is greater than 4 psig or CNMT radiation is greater than 10^{+05} R/hr.

① Verify Reactor Trip:

Manually trip reactor.

- o At least one train of reactor trip breakers - OPEN
- o Neutron flux - DECREASING
- o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM

IF reactor trip breakers NOT open, THEN manually insert control rods.

② Verify Turbine Stop Valves - CLOSED

Manually trip turbine.

IF turbine trip can NOT be verified, THEN close both MSIVs.

③ Check AFW Pumps Running:

- a. MDAFW pumps - RUNNING
- b. TDAFW pump - RUNNING IF NECESSARY

a. Manually start MDAFW pumps.

b. Manually open steam supply valves.

- MOV-3505A
- MOV-3504A

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION

ACTIONS TAKEN TO INITIATE RCS BORATION SHALL NOT BE REVERSED WHEN PERFORMING STEPS 1 THROUGH 12 OF E-0, REACTOR TRIP OR SAFETY INJECTION.

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NOTE: If offsite power is lost coincident with SI, then MCC C and MCC D lockout relays must be reset to restore BA and RMW pumps.

4 Initiate Emergency Boration
Of RCS:

- | | |
|---|---|
| <p>a. Check SI status:</p> <ul style="list-style-type: none"> o All SI annunciators - EXTINGUISHED o All SI pumps - OFF IN AUTO | <p>a. Perform the following:</p> <ul style="list-style-type: none"> 1) Complete steps 1 through 12 of E-0, REACTOR TRIP OR SAFETY INJECTION, while continuing with this procedure 2) <u>IF</u> SI flow indicated, <u>THEN</u> go to Step 5. <u>IF NOT</u>, <u>THEN</u> go to Step 4b. |
| <p>b. Verify at least one charging pump - RUNNING</p> | <p>b. Perform the following:</p> <ul style="list-style-type: none"> 1) Reset SI if necessary. 2) Start one charging pump. |
| <p>c. Align boration path:</p> <ul style="list-style-type: none"> 1) Start two BA transfer pumps 2) Open MOV-350 3) Verify BA flow | <p>c. Initiate normal boration at maximum rate using the boric acid flow control valve, FCV-110A. <u>IF</u> flow can <u>NOT</u> be established, <u>THEN</u> refer to ER-CVCS.1, REACTOR MAKEUP CONTROL MALFUNCTION.</p> |
| <p>d. Verify charging flow path:</p> <ul style="list-style-type: none"> o Charging valve to loop B cold leg (AOV-294) - OPEN o Charging flow control valve (HCV-142) - DEMAND AT 0% | <p>d. Manually align valves and verify flow.</p> |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

5 Check PRZR PORV Status:

- | | |
|--|--|
| <p>a. RCS pressure - LESS THAN
2335 PSIG</p> <p>b. Check PORV position</p> <ul style="list-style-type: none"> o PORVs - CLOSED o Annunciator F-19, PRZR PORV
OUTLET HI TEMP - EXTINGUISHED | <p>a. Verify PRZR PORVs and block
valves open. <u>IF NOT</u>, <u>THEN</u> open
PRZR PORVs and block valves as
necessary until PRZR pressure
less than 2335 psig.</p> <p>b. <u>IF</u> PRZR pressure less than
2335 psig. <u>THEN</u> manually close
PORVs.</p> <p><u>IF</u> any PORV can <u>NOT</u> be closed,
<u>THEN</u> manually close its block
valve. <u>IF</u> block valve can <u>NOT</u>
be closed, <u>THEN</u> dispatch AO to
locally check breaker.</p> <ul style="list-style-type: none"> • MOV-515, MCC D position 6C • MOV-516, MCC C position 6C |
|--|--|

6 Verify CNMT Ventilation
Isolation

- | | |
|--|--|
| <p>a. CVI annunciator - LIT</p> <ul style="list-style-type: none"> • Annunciator A-25, CNMT
VENTILATION ISOLATION <p>b. Verify CVI valve status lights -
BRIGHT</p> | <p>a. Momentarily deenergize CNMT
particulate monitor, R-11, to
actuate CVI.</p> <p>b. Manually close CVI valves as
required</p> <p><u>IF</u> valves can <u>NOT</u> be verified
closed by MCB indication, <u>THEN</u>
dispatch AO to locally close
valves (Refer to Attachment
CI/CVI FOR ALTERNATE ISOLATION
VALVES).</p> |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

7 Check If The Following Trips
Have Occurred:

a. Reactor trip

a. Dispatch A0 to locally trip
reactor:

- o Trip MG set breakers at bus
13 and bus 15.

-OR-

- o Open reactor trip breakers
locally.

b. Turbine trip

b. Dispatch A0 to locally trip
turbine using manual trip lever
on west end of HP turbine.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF CST LEVEL DECREASES TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

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8 Check S/G Level:

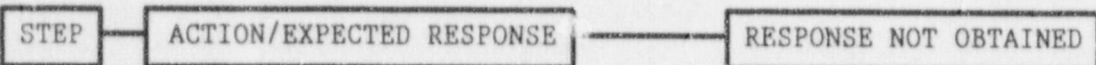
- | | |
|--|--|
| <ul style="list-style-type: none"> a. Narrow range level in at least one S/G - GREATER THAN 5% [25% adverse CNMT]
 b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50% | <ul style="list-style-type: none"> a. Perform the following: <ul style="list-style-type: none"> 1) Verify total feed flow greater than 400 gpm.

<u>IF NOT, THEN</u> manually start pumps and align valves as necessary. 2) Maintain total feed flow greater than 400 gpm until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G. |
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9 Verify Dilution Paths - ISOLATED

Manually isolate dilution paths.

- o Place RMW mode switch to BORATE
- o Verify RMW to blender (HCV-111) - CLOSED
- o Verify RMW pumps - OFF



10 Stabilize RCS Temperature:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Control steam dump as necessary b. Verify the following: <ul style="list-style-type: none"> o Core exit T/Cs - STABLE OR INCREASING o Pressure in both S/Gs - STABLE OR INCREASING o Pressure in both S/Gs - GREATER THAN 110 PSIG c. Go to Step 15 | <ul style="list-style-type: none"> b. <u>IF</u> RCS cooldown can <u>NOT</u> be controlled, <u>THEN</u> close both MSIVs and go to Step 11. |
|--|---|

11 Verify MFW Isolation:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. MFW pumps - TRIPPED b. MFW flow control valves - CLOSED <ul style="list-style-type: none"> • MFW regulating valves • MFW bypass valves | <ul style="list-style-type: none"> a. Manually close MFW pump discharge valves and trip MFW pumps. b. Place A and B S/G MFW regulating valve and bypass valve controllers to MANUAL at 0% demand. |
|---|---|

12 Identify Faulted S/G:

- | | |
|---|-----------------------|
| <ul style="list-style-type: none"> o Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> o Any S/G Pressure - LESS THAN 110 PSIG | <p>Go to Step 15.</p> |
|---|-----------------------|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION

- o AT LEAST ONE S/G SHALL BE MAINTAINED AVAILABLE FOR RCS COOLDOWN.
 - o IF BOTH S/GS ARE FAULTED, AT LEAST 50 GPM FEED FLOW SHOULD BE MAINTAINED TO EACH S/G.
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13 Isolate Feed Flow To Faulted S/G:

Manually close valves.

- o Close faulted S/G MDAFW pump discharge valve

IF valves can NOT be closed, THEN dispatch AO to locally isolate flowpaths as necessary.

- S/G A, MOV-4007
- S/G B, MOV-4008

- o Pull stop faulted S/G MDAFW pump

- o Close faulted S/G TDAFW flow control valve

- S/G A, AOV-4297
- S/G B, AOV-4298

- o Verify faulted S/G MFW regulating valve and bypass valve - CLOSED

- S/G A, HCV-466 and HCV-480
- S/G B, HCV-476 and HCV-481

- o Verify MDAFW pump crosstie valves - BOTH CLOSED

- MOV-4000A
- MOV-4000B

- o Close faulted S/G SAFW pump discharge valve

- S/G A, MOV-9701A
- S/G B, MOV-9701B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF THE TDAFW PUMP IS THE ONLY AVAILABLE SOURCE OF FEED FLOW, THEN STEAM SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM ONE S/G.

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- 14 Isolate Steam Flow From Faulted S/G:
- o Verify faulted S/G ARV - CLOSED
 - S/G A, AOV-3411
 - S/G B, AOV-3410
 - o Close faulted S/G TDAFW pump steam supply valve and place in PULL STOP
 - S/G A, MOV-3505A
 - S/G B, MOV-3504A
 - o Verify faulted S/G blowdown and sample valves - CLOSED
 - S/G A, AOV-5738 and AOV-5735
 - S/G B, AOV-5737 and AOV-5736
 - o Dispatch AO to complete faulted S/G isolation (Refer to Attachment FAULTED S/G)

Manually close valves.

IF valves can NOT be closed, THEN dispatch AO to locally isolate flowpaths as necessary.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

15 Check Core Exit T/Cs - LESS THAN 1200°F

IF core exit temperatures greater than 1200°F and increasing, THEN go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.

NOTE: Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.

16 Verify Reactor Subcritical:

- o Power range channels - LESS THAN 5%
- o Intermediate range channels - STABLE OR DECREASING
- o Intermediate range channels startup rate - NEGATIVE
- o Core exit T/Cs - STABLE

Perform the following:

- a. Stabilize RCS temperature.
- b. Continue to inject boric acid.
- c. Direct RP to sample RCS and PRZR for boron concentration.
- d. Verify boron concentration greater than Figure SDM.

IF adequate shutdown margin verified, THEN go to Step 17.

IF NOT, THEN perform the following:

- a. Allow RCS to heat up.
- b. Perform actions of other FR procedures in effect which do NOT cooldown or otherwise add positive reactivity to the core.
- c. Return to Step 4.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION
BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.
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17 Return to Procedure And Step
In Effect

-END-

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FR-S.1 APPENDIX LIST

TITLE

- 1) FIGURE SDM (FIG-2.0)
- 2) ATTACHMENT FAULTED S/G (ATT-10.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)