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June 14, 2002

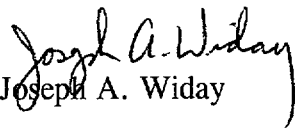
U.S. Nuclear Regulatory Commission  
Document Control Desk  
Attn: Robert Clark  
Project Directorate I  
Washington, D.C. 20555

Subject: Emergency Operating Procedures  
R.E. Ginna Nuclear Power Plant  
Docket No. 50-244

Dear Mr. Clark:

As requested, enclosed are Ginna Station Emergency Operating Procedures.

Very truly yours,

  
Joseph A. Widay

JAW/jdw

xc: U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Ginna USNRC Senior Resident Inspector

Enclosure(s):

ECA Index  
ECA-0.0, Rev 24

A045-

REPORT NO. 01  
REPORT: NPS020  
DOC TYPE: PRECA

GINNA NUCLEAR POWER PLANT  
PROCEDURES INDEX  
EMERGENCY CONTINGENCY ACTIONS PROC

06/14/02 PAGE: 1

PARAMETERS: DOC TYPES - PRECA

STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ECA-0.0	LOSS OF ALL AC POWER	024	06/14/02	05/01/98	05/01/03	EF
ECA-0.1	LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED	019	10/31/01	05/01/98	05/01/03	EF
ECA-0.2	LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED	012	10/18/99	05/01/98	05/01/03	EF
ECA-1.1	LOSS OF EMERGENCY COOLANT RECIRCULATION	020	05/02/02	05/01/98	05/01/03	EF
ECA-1.2	LOCA OUTSIDE CONTAINMENT	005	05/01/98	05/01/98	05/01/03	EF
ECA-2.1	UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS	023	05/02/02	05/01/98	05/01/03	EF
ECA-3.1	SGTR WITH LOSS OF REACTOR COOLANT SUBCOOLED RECOVERY DESIRED	022	05/02/02	05/01/98	05/01/03	EF
ECA-3.2	SGTR WITH LOSS OF REACTOR COOLANT SATURATED RECOVERY DESIRED	025	05/02/02	05/01/98	05/01/03	EF
ECA-3.3	SGTR WITHOUT PRESSURIZER PRESSURE CONTROL	026	10/31/01	05/01/98	05/01/03	EF
TOTAL FOR PRECA	9					

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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23



RESPONSIBLE MANAGER

6-14-2002

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: \_\_\_\_\_

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- A. PURPOSE - This procedure provides actions to respond to a loss of all AC power.
- B. ENTRY CONDITIONS/SYMPTOMS
  - 1. ENTRY CONDITIONS - This procedure may be entered directly or from:
    - a. E-0, REACTOR TRIP OR SAFETY INJECTION, on the indication that neither train of AC emergency busses is energized.
  - 2. SYMPTOMS - Which indicate a loss of all AC power are:
    - a. Neither train of 480 volt AC emergency busses available.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION

DUE TO POTENTIALLY EXTREME ENVIRONMENTAL CONDITIONS, CAUTION SHOULD BE USED WHEN ENTERING THE INTERMEDIATE BLDG FOR LOCAL ACTIONS.

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- NOTE:
- o CSFSTs should be monitored for information only. FR procedures should not be implemented.
  - o Local actions may require portable lighting and communication devices.

- |   |   |
|---|---|
| <p>① Verify Reactor Trip:</p> <ul style="list-style-type: none"> <li>o At least one train of reactor trip breakers - OPEN</li> <li>o Neutron flux - DECREASING</li> <li>o MRPI indicates - ALL CONTROL AND SHUTDOWN RODS ON BOTTOM</li> </ul> | <p>Manually trip reactor.</p> <p><u>IF</u> reactor trip breakers <u>NOT</u> open, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Open Bus 13 and Bus 15 normal feed breakers.</li> <li>b. Verify rod drive MG sets tripped.</li> <li>c. Close Bus 13 and Bus 15 normal feed breakers.</li> <li>d. Reset lighting breakers.</li> </ul> |
| <p>② Verify Turbine Stop Valves - CLOSED</p>  | <p>Manually trip turbine.</p> <p><u>IF</u> turbine trip can <u>NOT</u> be verified, <u>THEN</u> close both MSIVs.</p>   |

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

\* 3 Adjust S/G ARVs To Control  
Tavg At Approximately 547°F

\* 4 Monitor If RCPs Should Be  
Tripped

a. RCP status - ANY RUNNING

a. Go to Step 5.

b. SW pumps - AT LEAST 2 PUMPS  
RUNNING

b. Trip both RCPs, AND go to Step 5.

c. CCW pumps - ANY RUNNING

c. Trip both RCPs, AND go to Step 5.

d. Charging pumps - ANY RUNNING

d. IF CCW lost to any RCP thermal  
barrier heat exchanger, THEN  
trip affected RCP.

e. SI pumps - AT LEAST TWO RUNNING

e. Go to Step 5.

f. RCS pressure minus maximum S/G  
pressure - LESS THAN 175 psig  
[400 psig adverse CNMT]

f. Go to Step 5.

g. Stop both RCPs.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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

5 Check If RCS Is Isolated:

a. PRZR PORVs - CLOSED

a. IF PRZR pressure less than 2335 psig, THEN manually close PORVs.

b. Verify RCS isolation valves closed:

1) Place letdown orifice valve switches to CLOSE

- AOV-200A
- AOV-200B
- AOV-202

2) Place letdown isolation valve switches to CLOSE

- AOV-371
- AOV-427

3) Place excess letdown isolation valve switch to CLOSE (AOV-310)

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

6 Verify Adequate TDAFW Flow:

a. Verify TDAFW pump - RUNNING

a. Perform the following:

1) Verify governor valve,  
V-3652, latched.

IF governor valve tripped,  
THEN dispatch AO to locally  
reset valve.

2) Manually or locally open at  
least one TDAFW pump steam  
supply valve.

- MOV-3505A
- MOV-3504A

b. Verify TDAFW pump flow - GREATER  
THAN 200 GPM

b. Verify proper TDAFW valve  
alignment:

1) TDAFW pump discharge valve  
(MOV-3996) open.

2) Intact S/G TDAFW pump flow  
control valves open.

IF NOT, THEN manually align  
valves as necessary.



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><u>NOTE:</u></p> <ul style="list-style-type: none"> <li>o Conditions should be evaluated for Site Contingency Reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).</li> <li>o AO should increase surveillance of TDAFW pump until AC power is restored.</li> </ul>		
7	Try To Restore Power to Any Train Of AC Emergency Busses:	
<ul style="list-style-type: none"> <li>a. Verify emergency D/G aligned for unit operation               <ul style="list-style-type: none"> <li>o Mode switch in UNIT</li> <li>o Voltage control selector in AUTO</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>a. Manually align switches on rear of MCB.</li> </ul>
<ul style="list-style-type: none"> <li>b. Check emergency D/Gs - BOTH D/G RUNNING</li> </ul>		<ul style="list-style-type: none"> <li>b. Perform the following for any non-running D/G:               <ol style="list-style-type: none"> <li>1) Depress D/G FIELD RESET pushbutton</li> <li>2) Depress D/G RESET pushbutton</li> <li>3) Start D/G</li> <li>4) <u>IF</u> D/G starts, <u>THEN</u> go to Step 7c.</li> <li>5) <u>IF</u> D/G will <u>NOT</u> start, <u>THEN</u> dispatch AO to locally start emergency D/Gs.                   <ul style="list-style-type: none"> <li><u>IF</u> no emergency D/G available, <u>THEN</u> perform the following:                       <ul style="list-style-type: none"> <li>a) Direct AO to attempt to restore emergency D/G (Refer to ER-D/G.1, RESTORING D/G)</li> <li>b) Go to Step 8.</li> </ul> </li> </ul> </li> </ol> </li> </ul>

This Step continued on the next page.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

(Step 7 continued from previous page)

c. Check D/G voltage and frequency |

1) Voltage - APPROXIMATELY 480v |

2) Frequency - APPROXIMATELY 60  
Hz |

d. Verify adequate D/G cooling

o Bus 17 and/or Bus 18 -  
ENERGIZED

o One SW Pump running for each  
running D/G

e. Verify at least one train of AC  
emergency busses - ENERGIZED

- Bus 14 and Bus 18
- Bus 16 and Bus 17

f. Return to procedure and step in  
effect

1) Adjust voltage control to  
restore voltage to  
approximately 480v

2) Adjust governor to restore  
frequency to approximately 60  
Hz

d. Manually energize busses and  
start SW Pumps.

1) IF adequate cooling can NOT  
be supplied to a running D/G,  
THEN trip affected D/G.  
(Refer to ER-D/G.2, Alternate  
Cooling for Emergency D/Gs).

e. Manually energize AC emergency  
busses.

IF at least one train of AC  
emergency busses can NOT be  
energized, THEN go to Step 8.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o WHEN POWER IS RESTORED TO ANY TRAIN OF AC EMERGENCY BUSES, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27.
- o IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS.

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NOTE: This step may be reached with one or more buses energized. It is NOT necessary to stop equipment powered by an energized bus.

8 Establish The Following Equipment Alignment:

- a. Pull stop AC emergency bus loads
  - RHR pumps
  - CNMT RECIRC fans
  - CNMT spray pumps
  - SI pumps
  - CCW pumps
  - Charging pumps
  - MDAFW pumps
- b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL)
- c. Place non-running SW pump switches to STOP, then return to AUTO
- d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE
- e. Momentarily place to CLOSE RCP CCW return valves
  - MOV-759A
  - MOV-759B

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Temporary power may be provided to Bus 16 by performing procedure ER-ELEC.4 and to Bus 13 by performing procedure ER-ELEC.5 at the Shift Supervisor's discretion.

### 9 Try To Restore Offsite Power:

- |  |   |
|--|---|
| <p>a. Consult Power Control to determine if either normal offsite power supply - AVAILABLE</p> <ul style="list-style-type: none"> <li>o 12B transformer via breaker 76702</li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>o 12A transformer via breaker 75112</li> </ul> | <p>a. <u>IF</u> normal offsite power supply <u>NOT</u> readily available, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>1) Restore IA system using the Diesel Air Compressor (Refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR).</li> <li>2) Evaluate Main transformer backfeed for long term concerns (Refer to ER-ELEC.3, EMERGENCY OFFSITE BACKFEED VIA MAIN &amp; UNIT TRANSFORMER).</li> <li>3) Go to Step 10.</li> </ul> |
| <p>b. Reset SI, if necessary</p>   |   |
| <p>c. Restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)</p>   |   |

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10	Initiate Local Actions To Isolate RCS And To Provide Cooling To Vital Areas And Equipment	
	a. Open all Reactor Protection and Control System rack doors in the Control Room.	
	b. Direct Security personnel to open the following vital area doors to increase cooling:	
	<ul style="list-style-type: none"> <li>• Control Room Door S51</li> <li>• Intermediate Bldg Door S37 (AFW pump area)</li> <li>• Intermediate Bldg Door F36 (Automatic fire door, Rod Drive MG set area)</li> <li>• Intermediate Bldg Door S44 (Steam Header area)</li> </ul>	
	c. Dispatch AO To Locally Isolate RCP Seals and BASTs (Refer to ATT-21.0, ATTACHMENT RCS ISOLATION)	
	d. Dispatch AO to align backup cooling water to TDAFW Pump (Refer to ATT-5.2, ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP)	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Isolate Makeup And Reject From Hotwell To CST By Placing Hotwell Level Controller (LC-107) In Manual AT 50%	<p><u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to locally isolate makeup and reject lines.</p> <ul style="list-style-type: none"> <li>• Makeup isolation V-4058</li> <li>• Reject isolation V-4055</li> </ul>
12	<p>Isolate S/G:</p> <p>a. Manually close both MSIVs</p> <p>b. Manually close MFW flow control valves</p> <ul style="list-style-type: none"> <li>• MFW regulating valves</li> <li>• MFW bypass valves</li> </ul> <p>c. Place MCB master switch for S/G blowdown and sample valves to CLOSE</p>	<p><u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to locally isolate the affected flow path.</p>

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION  
 A FAULTED OR RUPTURED S/G THAT IS ISOLATED SHOULD REMAIN ISOLATED. STEAM SUPPLY TO THE TDAFW PUMP MUST BE MAINTAINED FROM AT LEAST ONE S/G.  
 \*\*\*\*\*

13 Check If S/G Secondary Side Is Intact:

- o Pressure in both S/Gs - STABLE OR INCREASING
- o Pressure in both S/Gs - GREATER THAN 110 PSIG

Perform the following:

a. IF any S/G pressure decreasing in an uncontrolled manner OR completely depressurized, THEN isolate faulted S/G unless needed for RCS cooldown:

- 1) Close faulted S/G MDAFW pump discharge valve.
  - S/G A, MOV-4007
  - S/G B, MOV-4008
- 2) Close faulted S/G TDAFW flow control valve.
  - S/G A, AOV-4297
  - S/G B, AOV-4298
- 3) Verify faulted S/G ARV controller in MANUAL with output at 0%.
  - S/G A, AOV-3411
  - S/G B, AOV-3410
- 4) Pull stop faulted S/G TDAFW pump steam supply valve.
  - S/G A, MOV-3505A
  - S/G B, MOV-3504A

IF valve(s) can NOT be closed manually, THEN dispatch AO to locally close valve(s) to isolate flow.

b. Dispatch AO to complete faulted S/G isolation (Refer to ATT-10.0, ATTACHMENT FAULTED S/G).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14 Check If S/G Tubes Are Intact:	<ul style="list-style-type: none"> <li>o Dispatch RP tech or AO to locally check steamline radiation - NORMAL</li> </ul>	<p>Try to identify ruptured S/G. Continue with Step 15. <u>WHEN</u> ruptured S/G identified, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Isolate ruptured S/G unless needed for RCS cooldown: <ul style="list-style-type: none"> <li>1) Close ruptured S/G MDAFW pump discharge valve. <ul style="list-style-type: none"> <li>• S/G A, MOV-4007</li> <li>• S/G B, MOV-4008</li> </ul> </li> <li>2) Pull stop ruptured S/G MDAFW pump.</li> <li>3) Close ruptured S/G TDAFW flow control valve. <ul style="list-style-type: none"> <li>• S/G A, AOV-4297</li> <li>• S/G B, AOV-4298</li> </ul> </li> <li>4) Adjust ruptured S/G ARV controller to 1050 psig in AUTO. <u>WHEN</u> S/G pressure less than 1050 psig, <u>THEN</u> ensure ruptured S/G ARV closed. <ul style="list-style-type: none"> <li>• S/G A, AOV-3411</li> <li>• S/G B, AOV-3410</li> </ul> </li> <li>5) Pull stop ruptured S/G TDAFW pump steam supply valve. <ul style="list-style-type: none"> <li>• S/G A, MOV-3505A</li> <li>• S/G B, MOV-3504A</li> </ul> </li> </ul> <p><u>IF</u> valve(s) can <u>NOT</u> be closed manually, <u>THEN</u> dispatch AO to locally close valve(s) to isolate flow.</p> <ul style="list-style-type: none"> <li>b. Dispatch AO to complete ruptured S/G isolation (Refer to ATT-16.0, ATTACHMENT RUPTURED S/G).</li> </ul> </li></ul>



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, USING FIRE OR CITY WATER, WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

\*\*\*\*\*

NOTE: TDAFW pump AOV flow control AOVs may drift open on loss of IA. |

**\*15 Monitor Intact S/G Levels:**

- |  |   |
|--|---|
| <p>a. Narrow range level - GREATER THAN 5% [25% adverse CNMT]</p> <p>b. Control AFW flow by throttling TDAFW flow control valves</p> <ul style="list-style-type: none"> <li>• S/G A, AOV-4297</li> <li>• S/G B, AOV-4298</li> </ul> <p>c. Control AFW flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%</p> | <p>a. Maintain maximum AFW flow until narrow range level greater than 5% [25% adverse CNMT] in at least one S/G.</p> <p>b. Control AFW flow by throttling TDAFP discharge MOV-3996.</p> <p><u>IF</u> MOV-3996 can <u>NOT</u> be controlled, <u>THEN</u> dispatch AO to locally control AFW flow by throttling TDAFW flow control valves.</p> <ul style="list-style-type: none"> <li>• S/G A, AOV-4297</li> <li>• S/G B, AOV-4298</li> </ul> <p><u>IF</u> valves can <u>NOT</u> be throttled, <u>THEN</u> control AFW flow by starting and stopping TDAFW pump.</p> <p>c. <u>IF</u> narrow range level in any intact S/G continues to increase in an uncontrolled manner, <u>THEN</u> return to Step 14.</p> |
|--|---|

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: IF the loss of power is expected to continue beyond 4 hours, THEN degassing of main generator should commence as soon as personnel become available (Refer to ATT-8.2, ATTACHMENT GEN DEGAS).

16 Check DC Bus Loads:

- a. Place control switches for MFW pump AC oil pumps to OFF (allows timer to stop DC oil pumps)
  - b. Stop all large non-essential DC loads
    - 1) Evaluate DC loads (Refer to ATT-8.0, ATTACHMENT DC LOADS).
    - 2) WHEN turbine is stopped, THEN perform the following:
      - a) Locally close Turbine backup seal oil reg outlet valve V-5475J.
      - b) Stop Turbine DC lube oil pump (within 1 hour).
  - c. Check DC bus voltage - GREATER THAN 105 VOLTS DC
    - Bus A
    - Bus B
  - d. Direct electricians to locally monitor DC power supply
- c. IF either DC bus less than 105 volts DC, THEN refer to ER-ELEC.2, RECOVERY FROM LOSS OF A or B DC BUS.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

17 Verify source range detector  
N-31 - ENERGIZED

Dispatch personnel with relay rack  
key to turn off 125 VDC power  
switches in REACTOR PROTECTION  
racks RLTR-1 and RLTR-2 to  
deenergize source range block  
relays.

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CAUTION

WHEN POWER IS RESTORED TO ANY TRAIN OF AC EMERGENCY BUSES, RECOVERY ACTIONS  
SHOULD CONTINUE STARTING WITH STEP 27.

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18 Check CST Level - GREATER  
THAN 5 FEET

Initiate makeup to CSTs using fire  
or city water as a source. (Refer  
to ER-AFW.1, ALTERNATE WATER SUPPLY  
TO AFW PUMPS).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o S/G PRESSURES SHOULD BE MAINTAINED GREATER THAN 200 PSIG TO PREVENT INJECTION OF SI ACCUM NITROGEN INTO THE RCS.
- o S/G NARROW RANGE LEVEL SHOULD BE MAINTAINED GREATER THAN 5% [25% ADVERSE CNMT] IN AT LEAST ONE INTACT S/G. IF LEVEL CANNOT BE MAINTAINED, S/G DEPRESSURIZATION SHOULD BE STOPPED UNTIL LEVEL IS RESTORED IN AT LEAST ONE S/G.

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- NOTE:
- o The S/Gs should be depressurized at maximum rate to minimize RCS inventory loss.
  - o PRZR level may be lost and reactor vessel upper head voiding may occur due to depressurization of S/Gs. Depressurization should not be stopped to prevent these occurrences.
  - o S/G ARV nitrogen pressure should be monitored and nitrogen supply bottles changed as necessary.

19 Initiate Depressurization Of Intact S/Gs To 300 PSIG:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Check S/G narrow range levels - GREATER THAN 17% [25% adverse CNMT] IN AT LEAST ONE S/G</li> <li>b. Manually dump steam from intact S/Gs at maximum rate using S/G ARVs</li> </ul> | <ul style="list-style-type: none"> <li>a. Perform the following:           <ul style="list-style-type: none"> <li>1) Maintain maximum AFW flow until narrow range level greater than 17% [25% adverse CNMT] in at least one S/G.</li> <li>2) Continue with Step 20. <u>WHEN</u> narrow range level greater than 17% [25% adverse CNMT] in at least one S/G, <u>THEN</u> do Steps 19b and 20.</li> </ul> </li> <li>b. Locally dump steam from intact S/Gs at maximum rate using S/G ARV.</li> </ul> |
|--|--|

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:
- o Adverse CNMT conditions or loss of forced air cooling may result in failure of NIS detectors.
  - o IF Instrument Bus D deenergized, THEN NIS SUR meters will NOT be available.

**\*20 Monitor Reactor For Subcriticality:**

a. Verify Subcriticality using the following indications:

- 1) Check source range, N-31
  - o Indicator - ON SCALE
  - o Power - STABLE OR DECREASING
- 2) Check intermediate range, N-35
  - o Indicator - ON SCALE
  - o Power - STABLE OR DECREASING
- 3) Check power range, N-41 and N-43
  - o Indicators - LESS THAN 5%
  - o Power - STABLE OR DECREASING

a. IF unable to verify subcriticality using NIS, THEN perform the following:

- o Control S/G ARVs to stop S/G depressurization and allow RCS to heat up.
- o Direct RP to sample RCS and PRZR for boron concentration.
- o Request plant staff assistance in evaluating core reactivity status

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Depressurization of S/Gs will result in a SI actuation. SI should be reset to permit manual loading of equipment on emergency busses.

21 Check SI Signal Status:

- a. Any SI annunciator - LIT
- b. Reset SI

a. Go to Step 25. WHEN SI actuated, THEN do Steps 21b, 22, 23 and 24.

22 Verify CI And CVI:

- a. CI and CVI annunciators - LIT
  - Annunciator A-26, CNMT ISOLATION
  - Annunciator A-25, CONTAINMENT VENTILATION ISOLATION
- b. Verify CI and CVI valve status lights - BRIGHT
- c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT
  - AOV-4561
  - AOV-4562
- d. Verify RHR Pump Suction from CNMT Sump B valves - CLOSED
  - MOV-850A
  - MOV-850B

a. Depress manual CI pushbutton.

b. Manually close CI and CVI valves. IF valves can NOT be verified closed by MCB indication, THEN dispatch AO to locally close valves (Refer to ATT-3.0, ATTACHMENT CI/CVI).

c. Dispatch AO to locally fail open valves.

d. IF sump recirculation NOT in progress, THEN manually close valves.

IF valves can NOT be verified closed by MCB indication, THEN dispatch AO to locally close valves.

## STEP

## ACTION/EXPECTED RESPONSE

## RESPONSE NOT OBTAINED

23 Check If S/G Depressurization Should Be Stopped:

a. Check RCS cold leg temperatures  
- GREATER THAN 315°F

b. Check S/G pressures - LESS THAN  
300 PSIG

c. Check IA supply:

o Pressure - GREATER THAN  
60 PSIG

o Pressure - STABLE OR  
INCREASING

d. Control S/G ARVs to maintain S/G  
pressures at 300 psig IN AUTO

a. Perform the following:

1) Control S/G ARVs to stop S/G  
depressurization.

2) Go to Step 24.

b. Continue with Step 24. WHEN S/G  
pressure decreases to less than  
300 psig, THEN do Step 23c and d.

c. Control S/G ARVs in manual to  
maintain S/G pressures at  
300 psig

IF manual control is NOT  
available, THEN locally control  
S/G ARVs to maintain S/G  
pressures at 300 psig.

d. Control S/G ARVs in manual to  
maintain S/G pressures at  
300 psig

IF manual control is NOT  
available, THEN locally control  
S/G ARVs to maintain S/G  
pressures at 300 psig.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	<p>Check CNMT Pressure - HAS REMAINED LESS THAN 28 PSIG</p> <ul style="list-style-type: none"> <li>o Annunciator A-27, CNMT SPRAY - EXTINGUISHED</li> <li>o CNMT pressure indicators - LESS THAN 28 PSIG</li> </ul>	<p><u>IF</u> CNMT pressure is less than 28 psi, <u>THEN</u> perform the following:</p> <ul style="list-style-type: none"> <li>a. Reset CNMT spray.</li> <li>b. Place CNMT spray pump discharge valve switches to CLOSE to deenergize open contactor.</li> </ul> <p><u>IF NOT</u>, <u>THEN</u> continue with step 25. <u>WHEN</u> CNMT pressure less than 28 psig, <u>THEN</u> reset CNMT spray and place CNMT spray pump discharge valve switches to CLOSE.</p>
25	<p>Check Core Exit T/Cs - LESS THAN 1200° F</p>	<p><u>IF</u> core exit temperatures greater than 1200°F and increasing, <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.</p>
26	<p>Check If AC Emergency Power Is Restored - AT LEAST ONE TRAIN OF AC EMERGENCY BUSSES ENERGIZED</p> <ul style="list-style-type: none"> <li>• Bus 14 and Bus 18</li> <li>• Bus 16 and Bus 17</li> </ul>	<p>Continue to control RCS conditions and monitor plant status:</p> <ul style="list-style-type: none"> <li>a. Check status of desired actions: <ul style="list-style-type: none"> <li>o AC power restoration</li> <li>o ARV nitrogen pressure</li> <li>o Diesel air compressor to IA system</li> <li>o RCP seal isolation</li> <li>o DC power supply</li> </ul> </li> <li>b. Return to Step 13.</li> </ul>



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Manually Control S/G ARVs To Stabilize S/G Pressures	Locally control S/G ARVs.
<p><u>NOTE:</u> SW isolation may occur when power is restored to AC emergency busses.</p>		
28	Verify SW System Operation:	
a.	Check normal power available to SW pumps	a. <u>IF</u> both D/Gs operating, <u>THEN</u> ensure one SW pump running for each D/G.
o	Bus 17 normal feed breaker - CLOSED	<u>IF</u> only one D/G operating, <u>THEN</u> perform the following:
	-OR-	
o	Bus 18 normal feed breaker - CLOSED	1) Ensure at least one SW pump running.
		2) Manually perform SW isolation.
		3) Go to Step 29.
b.	Verify two SW pumps - RUNNING	b. <u>IF</u> normal power available, <u>THEN</u> manually start SW pumps as necessary.
		<u>IF</u> adequate cooling can <u>NOT</u> be supplied to a running D/G, <u>THEN</u> trip affected D/G and refer to ER-D/G.2.
		<u>IF</u> <u>NO</u> SW pumps running, <u>THEN</u> refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
		<u>IF</u> only one SW pump running, <u>THEN</u> refer to AP-SW.2, LOSS OF SERVICE WATER.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

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CAUTION

THE LOADS PLACED ON THE ENERGIZED AC EMERGENCY BUS SHOULD NOT EXCEED THE CAPACITY OF THE POWER SOURCE.

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29 Verify Following Equipment Loaded On Available AC Emergency Busses:

Manually load equipment as power supply permits.

- o 480 volt MCCs - ENERGIZED
  - MCC C from Bus 14
  - MCC D from Bus 16
- o Verify instrument busses - ENERGIZED
  - Bus A from MCC C (A battery)
  - Bus B from MCC C
  - Bus C from MCC D (B battery)
- o Dispatch personnel to verify proper operation of battery chargers

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

## 30 Select Recovery Procedure:

- |  |  |
|--|--|
| <p>a. Check RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING</p> | <p>a. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.</p> |
| <p>b. Check PRZR level - GREATER THAN 5% [30% adverse CNMT]</p>  | <p>b. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.</p> |
| <p>c. Check SI and RHR Pumps - NONE RUNNING</p>  | <p>c. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.</p> |
| <p>d. Go to ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, Step 1</p>                             |  |

-END-

ECP: ECA-0.0	TITLE: LOSS OF ALL AC POWER	REV: 24 PAGE 1 of 1
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ECA-0.0 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT DC LOADS (ATT-8.0)
- 3) ATTACHMENT FAULTED S/G (ATT-10.0)
- 4) ATTACHMENT RUPTURED S/G (ATT-16.0)
- 5) ATTACHMENT CI/CVI (ATT-3.0)
- 6) ATTACHMENT NONVITAL (ATT-8.3)
- 7) ATTACHMENT GEN DEGAS (ATT-8.2)
- 8) ATTACHMENT RCS ISOLATION (ATT-21.0)
- 9) ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP (ATT-5.2)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) ATTACHMENT NO SW PUMPS (ATT-2.4)