

|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-1        | REV: 0        |
|   | TITLE: SCENARIO #1 |               |
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Written by: Ken Masker Date: 3/23/06  
 Sr. License Instructor

Technical Review: Dennis Jones Date: 5/18/06  
 Exam Developer

Time validated 100 minutes By: Roy Gillow Date: 5/18/06  
 Shift Manager

Date of exam: \_\_\_\_\_

| Examinees | Evaluators |
|-----------|------------|
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |

Final review \_\_\_\_\_ Date: \_\_\_\_\_  
 License Instructor

Approved for use \_\_\_\_\_ Date: \_\_\_\_\_  
 Director Operations Training  
 or Designee

| <u>ATTRIBUTE</u>      | <u>#</u> |
|-----------------------|----------|
| Total Malfunctions    | 8        |
| Malf after EOP entry  | 2        |
| Abnormal Events       | 4        |
| Major Transients      | 2        |
| EOP's beyond SCRAM    | 1        |
| ECA's, FR's           | 0        |
| Critical Tasks        | 3        |
| T.S. Exercised Yes/No | Yes      |



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1. SCENARIO OVERVIEW

- 1.1 The plant is at approximately 2% power in the process of starting up following a trip. The core is Xenon free. The startup procedure O-1.2 is complete up to the point of swapping to condenser steam dump, starting a MFW pump and transitioning from AFW to MFW.
- 1.2 Per the startup procedure, the operators will start a MFW pump and place MFW in service. Once MFW is in service AFW will be secured.
- 1.3 With MFW in service, the RO will begin increasing power in preparation for rolling the main turbine.
- 1.4 Spray Valve Controller PCV-431A fails resulting in 431A going full open. Manual control is available and the operators should take manual control of PCV-431A and close the valve.
- 1.5 The "A" MFW Regulating Valve fails open, manual control is available and the BOP should take manual control and control "A" S/G level manually.
- 1.6 Bus 16 develops a fault and the normal feed breaker opens deenergizing the bus. The operators should respond per AP-ELEC-14/16 to restore equipment and stabilize the plant (Tech Spec 3.8.9).
- 1.7 "B" RCP develops high vibration. Per the AR procedures the operators should manually trip the reactor and go to E-0 and ES-0.1.
- 1.8 Shortly after the Hi Vibration on the "B" RCP the Seal Package fails resulting in a SB LOCA in excess of the charging capacity.
- 1.9 SI fails to auto actuate require manual actuation.
- 1.10 Following SI Reset in E-1 offsite power is lost. The "A" D/G did not auto-start during the SI (and will not now). The operators must take manual action to start the "A" D/G and manually load safeguards equipment.



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## 2. SCENARIO OBJECTIVES

- 2.1 Perform operator actions to establish MFW and secure AFW.
- 2.2 Manipulate Reactivity Control Systems to increase Rx power during a startup.
- 2.3 Respond to a failed spray valve controller. Take manual action to override the failed automatic control.
- 2.4 Respond to a Feed Reg Valve failure and manually control S/G level.
- 2.5 Respond to a loss of a safeguards bus. Take action to restore equipment and stabilize plant parameters.
- 2.6 Respond to a RCP High Vibration condition requiring a manual Rx Trip.
- 2.7 Respond to a SBLOCA using the EOP. Initiate SI to compensate for a failed auto signal.
- 2.8 Restore electrical power to one train of AC emergency equipment and manually start SI equipment needed to respond to the SBLOCA.



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### 3. CRITICAL TASKS (Cts)

CT #1

E-0--D

Task: Manually actuate at least one train of SIS actuated safeguards before:

- Transition to any E-1, 2 or 3 series procedures.
- Completion of ES-0.1 Step 8a

Cues: - Indication SI is required.

- Prz Pressure  $\leq$  1750 psig
- Exceeding SI actuation criteria of ES-0.1 foldout

- No indication or annunciation of SI Actuation

Indication: Manipulation of control to actuate at least one train of SI.

Feedback: Indication that one train of SI is actuated.

CT #2

E-0--C

Task: Energize at least one AC emergency bus prior to placing safeguard switches in pull to lock in ECA-0.0.

Cues: - Indications that all AC emergency buses are deenergized.

- D/G Status
- Bus Voltages
- Normal feed breakers open

- No indication or annunciation of SI Actuation

Indicator: Manipulation of controls to restore power to at least one AC emergency bus.

Feedback: Indications that at least one AC emergency bus is energized.



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3. CRITICAL TASKS (Cts)

CT #3

E-O--I

Task: Establish flow from at least two SI pumps prior to proceeding in the procedure following the loss of power.

Cue: Indication SI pumps required

- SI actuated
- RCS below SI pump and shutoff pressure

AND

- Less than 2 SI pumps injecting into the core.

Indicator: Manipulation of control to establish flow to core from 2 SI pumps.

Feedback: Indication that two SI pumps are injecting.



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#### 4. INSTRUCTOR ACTIONS

| <u>Problem Time</u> | <u>Actions</u>  | <u>Notes</u>   |
|---------------------|---|--|
| 4.1                 | (Note: Setup saved as IC-171)<br>- Initialize Simulator to IC-22<br>Rx at 18%, Tur at 1800 RPM<br>Decrease power to 2 %<br>Trip Turbine<br>- Place Hold Tag on B FW Pump and Oil pumps<br><br>Insert Malfunctions |  |
|                     | <ul style="list-style-type: none"> <li>MALF SIS02A,B<br/>Option 0 Manual available</li> </ul>   | SI fails to actuate (Both Trains)                            |
|                     | <ul style="list-style-type: none"> <li>MALF GEN08<br/>Option 1 A D/G<br/>0 sec TD</li> </ul>  | "A" D/G Autostart failure                                    |
|                     | <ul style="list-style-type: none"> <li>MALF PZR1A<br/>100% (open)<br/>30 sec Ramp<br/>Trigger 1</li> </ul>  | PCV 431A control failure (Manual available)                  |
|                     | <ul style="list-style-type: none"> <li>MALF FDW7A<br/>100% (open)<br/>300 sec Ramp<br/>Trigger 2</li> </ul>   | "A" MFRV Auto control fails (open). Manual Control available |
|                     | <ul style="list-style-type: none"> <li>MALF EDS4B<br/>Trigger 3</li> </ul>  | Bus 16 Fault   |
|                     | <ul style="list-style-type: none"> <li>MALF RCS15B<br/>25 mils<br/>300 sec Ramp<br/>Trigger 4</li> </ul>  | "B" RCP Shaft Vibration                                      |
|                     | <ul style="list-style-type: none"> <li>MALF RCS15D<br/>10 mils<br/>300 sec Ramp<br/>60 sec Time Delay<br/>Trigger 4</li> </ul>  | "B" RCP Seismic (Casing) Vibration                           |
|                     | <ul style="list-style-type: none"> <li>MALF RCS12B<br/>300 gpm<br/>600 sec Ramp<br/>Trigger 5</li> </ul>  | "B" RCP #1 Seal Failure                                      |
|                     | <ul style="list-style-type: none"> <li>MALF RCS13B<br/>300 gpm<br/>600 sec Ramp<br/>Trigger 5</li> </ul>  | "B" RCP #2 Seal Failure                                      |



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- MALF RCS14B  
 300 gpm  
 0 Ramp  
 Trigger 5  
 "B" RCP #3 Seal  
 Failure
- MALF EDS6  
 2 (Fast)  
 Trigger 6  
 Station Blackout
- OVR-FDW08A  
 OFF  
 Turn off green light  
 for MFW Pump B Oil  
 Pump
- OVR-FDW20A  
 OFF  
 Turn off green light  
 for MFW Pump B Brkr
- OVR-FDW20C  
 OFF  
 Turn off green light  
 for MFW Pump B Brkr



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#### 4. INSTRUCTOR ACTIONS

##### Problem Time

##### Actions

##### Notes

Note: Malfunction Times are approximate: Malfunction are initiated at the direction of the Lead Examiner.

|        |     |  |   |
|--------|-----|--|---|
| 0 min  | 4.2 | MFW Pump Start                           | Align SW to A MFW pumps requested. SW not modeled                                   |
| 20 min | 4.3 | Power escalation                         | Action as requested by crew   |
| 30 min | 4.4 | PCV-431A Failure<br>Insert Trigger 1     |   |
| 37 min | 4.5 | "A" MFRV Fails Open<br>Insert Trigger 2  | Report ADFAC Alarm as "A" MFRV output card failure when requested to check printer. |
| 50 min | 4.6 | Bus 16 Fault<br>Insert Trigger 3         | Report Bus 16 is faulted after requested to investigate.                            |
| 62 min | 4.7 | "B" RCP Hi Vibration<br>Insert Trigger 4 |   |
| 65 min | 4.8 | "B" RCP Seal Failure<br>Insert Trigger 5 |   |
| 80 min | 4.9 | Station Blackout<br>Insert Trigger 6     |   |

Terminate Scenario as directed by the lead examiner



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5. TURNOVER INFORMATION

5.1 The plant is at 2-3% power during a startup following a trip five days ago. The core is Xenon free. RCS boron concentration is 1335 ppm. Procedure O-1.2 is complete up to step 6.4.6(20). Attachment 5 Main Feed Water Pump "A" is complete through step 1.8.2.

5.2 Equipment Out of Service

"B" MFW pump is out of service due to a gear box failure.

5.3 Work in Progress

"B" MFW pump gear box repair (additional 36 hours to repair).

5.4 Planned Work

Plant startup from approximately 2% power.

5.5 Significant Events

"B" MFW pump gear box failure resulted in a Rx trip five days ago.

5.6 Remarks

Startup plant per O-1.2, hold at 50% power until work is complete on the "B" MFW pump.



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6. EVALUATION

Event: 1

Event Title: Main Feedwater Pump Start/Transition to > 5% power

|              |                      |   |
|--------------|----------------------|---|
| EVENT TASKS: | <u>041-002-01-01</u> | <u>Shift Modes of Steam Dump Operation</u>      |
|              | <u>041-002-01-02</u> | <u>Direct Steam Dump Operations</u>             |
|              | <u>059-006-01-01</u> | <u>Startup the MFW System</u>                   |
|              | <u>059-012-01-02</u> | <u>Direct Operations of MFW System</u>          |
|              | <u>061-007-01-01</u> | <u>Shutdown AFW System</u>                      |
|              | <u>061-003-01-02</u> | <u>Direct Operations of AFW and SAFW System</u> |

Expected Response/Behavior

CUES:

Procedure Direction in O-1.2

Response:

|         |  | <u>RATING</u> | <u>N/A</u> |
|---------|--|---------------|------------|
| SRO     | Conduct Shift Briefing for Power Increase and Syncing Generator  | _____         | _____      |
| BOP/SRO | Place Condenser Steam Dump in Service  | _____         | _____      |
|         | <ul style="list-style-type: none"> <li>• Verify Rx Trip from Turbine Trip Blocked (P-9) Light lit</li> <li>• Verify Air Ejector is in service</li> <li>• Verify Vacuum &gt;27.5 in Hg</li> <li>• Lower HCV-484 to 1005 psi<br/>Verify SD valves respond</li> <li>• Setup SG ARV for Auto Operation at 1050 psig</li> </ul> |               |            |
| BOP     | Place Blow down key switches to normal   | _____         | _____      |



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Response: RATING      N/A

BOP/SRO      Start the "A" MFW pump per Attachment MFW Pump A \_\_\_\_\_

- Place Blowdown key switches to Normal
- Start the "A" MFW pump

BOP      Open MOV-3977 \_\_\_\_\_

SRO      Dispatch AO to close V-39977A \_\_\_\_\_

SRO      Dispatch AO to close valves \_\_\_\_\_

- AOV 4262
- AOV 4263
- V-4060

BOP/SRO      Verify operation of MFW Reg and Bypass Valves \_\_\_\_\_

BOP/SRO      Place MFW Reg and Bypass Valves in Auto \_\_\_\_\_

(Note at this point the RO should begin to increase power to ~5%)



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|         |                                       |       |       |
|---------|---------------------------------------|-------|-------|
| BOP/SRO | Secure AFW                            |       |       |
|         | • Close MOV 4007/4008                 | _____ | _____ |
|         | • Stop AFW Pumps                      | _____ | _____ |
|         | • Notify AO to restore Blowdowns      | _____ | _____ |
|         | • Close cross-tie 4000A/B             | _____ | _____ |
|         | • Open Discharges 3996/4007/4008      | _____ | _____ |
|         | • Open TDAFW Control Valves 4297/4298 | _____ | _____ |
|         | • Close Bypass Valves 4480/4481       | _____ | _____ |
|         | • AFW Defeat Switches to Normal       | _____ | _____ |
|         | • Verify Recirc Valves Closed         | _____ | _____ |











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|           |   | <u>RATING</u> | <u>N/A</u> |
|-----------|---|---------------|------------|
| Response: |   |               |            |
| RO/SRO    | Check Spray Valves<br>Determine AOV-431A open<br>Place 431A Controller at 0% demand in manual | _____         | _____      |
| RO/SRO    | Check 431K Master Pressure Controller   | _____         | _____      |
| RO/SRO    | Check PORV - closed   | _____         | _____      |
| RO/SRO    | Check Safeties - closed   | _____         | _____      |
| RO/SRO    | Check Aux Spray - closed  | _____         | _____      |
| RO/SRO    | Check Pressure trending to 2235 psi (go to step 16)   | _____         | _____      |
| RO/SRO    | Check PRT normal  | _____         | _____      |
| RO/SRO    | Check Przr Pressure Control in Auto (leave 431A in manual)                                    | _____         | _____      |
| All       | Check Annunciator Status  | _____         | _____      |
| SRO       | Notification of Supervision   | _____         | _____      |







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Response:

|                |   | <u>RATING</u> | <u>N/A</u> |
|----------------|---|---------------|------------|
| BOP/SRO        | Verify adequate MFW flow  | _____         | _____      |
| RO/SRO/<br>BOP | Verify Stable Plant Conditions <ul style="list-style-type: none"><li>• Tavg</li><li>• Przr Press</li><li>• Przr Level</li><li>• MFW Valves</li><li>• Rod Insertion Limits</li></ul>   | _____         | _____      |
| BOP/SRO        | Check MFW System  | _____         | _____      |
| BOP/SRO        | Check Condensate System <ul style="list-style-type: none"><li>• Bypass Valve</li><li>• Hotwell Level</li><li>• Condensate Pumps (2 running)</li><li>• Trim Valves</li></ul>   | _____         | _____      |
| RO/BOP/<br>SRO | Check Controls in Auto <ul style="list-style-type: none"><li>• PCV-431K</li><li>• Spray Valve Controllers</li><li>• Przr Heaters</li><li>• Charging</li></ul> <p>(Note Check EHC, MFW Reg Valves, Rods and Steam Dump but do not realign)</p> | _____         | _____      |
| BOP/SRO        | Check AFW<br>(Not in service)   | _____         | _____      |
| RO/SRO/<br>BOP | Check Annunciator Status  | _____         | _____      |
| RO/SRO         | Check if Przr mixing required   | _____         | _____      |
| SRO            | Notify Higher Supervision   | _____         | _____      |



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6. EVALUATION

Event: 5

Event Title: Bus 16 Normal Feeder Breaker Trips

|              |                      |  |
|--------------|----------------------|--|
| EVENT TASKS: | <u>062-034-04-01</u> | <u>Respond to the loss of an individual safeguards Bus</u> |
|              | <u>062-034-04-02</u> | <u>Direct response to a loss of an individual</u>          |
|              |                      | <u>safeguard Bus</u>                                       |

Expected Response/Behavior

CUES:

Alarm L-5 Safeguard Bus Normal Feed Breaker Trip  
L-7 Bus 16 Undervoltage  
Bus 16 Voltage Zero  
Bus 16 Supplied Loads Trip

Response:

|         |   | <u>RATING</u> | <u>N/A</u> |
|---------|---|---------------|------------|
| SRO     | Recognize symptoms Enter AP-ELEC.14/16                                | _____         | _____      |
| RO/SRO  | Monitor/Control Tavg  | _____         | _____      |
| BOP     | Verify "B" D/G Running (running but will not tie in due to bus fault) | _____         | _____      |
| BOP/SRO | Verify one train of AC Buses energized and check "B" D/G status       | _____         | _____      |
| RO/SRO  | Verify "A" CCW pump has auto started.                                 | _____         | _____      |
| RO/SRO  | Verify "A" Charging Pump running                                      | _____         | _____      |



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Response:

|                |   | <u>RATING</u> | <u>N/A</u> |
|----------------|---|---------------|------------|
| BOP/SRO        | Verify MFW Controlling in Auto (manually control "A" MFRV)  | _____         | _____      |
| RO/BOP/<br>SRO | Check Buses Energized/Manually start equipment<br>• CCW Pump A<br>• Charging Pump A<br>• Przr Proportional Heaters<br>• CNMT Recirc Fans A and D<br>• Boric Acid Pump A<br>• RMW Pump A<br>• Reactor Compartment Cooler A<br>• Penetration Cooling Fan A<br>• SFP Cooling (local NLO action)<br>• Swap Lighting (local NLO action)<br>• D/G Support System (local NLO action) | _____         | _____      |
| SRO            | Direct AO to perform the following<br>• Swap Aux Bldg Lighting to MCC C<br>• Provide Alternate Room cooling to DG B<br>• Cross-connect DG A Fuel Oil transfer pump to DG B  | _____         | _____      |
| RO/SRO         | Check VCT MU System   | _____         | _____      |
| RO/SRO         | Check Charging Aligned to VCT   | _____         | _____      |
| RO/SRO         | Check the CVCS Operation (adjust "A" Charging Pump)   | _____         | _____      |
| RO/SRO         | Check Letdown in Service  | _____         | _____      |
| RO/SRO         | Check Przr Heaters in Service   | _____         | _____      |
| RO/SRO         | Check Rod in Auto (no Action Rod cannot be placed in Auto)  | _____         | _____      |



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Response:

|         |   | <u>RATING</u> | <u>N/A</u> |
|---------|---|---------------|------------|
| RO/SRO  | Stabilize Plant condition <ul style="list-style-type: none"><li>• Tavg</li><li>• Przr Pressure</li><li>• Przr Level</li></ul>                     | _____         | _____      |
| BOP/SRO | Check if normal electrical lineup can be restored <ul style="list-style-type: none"><li>• Refer to AR-L-5 (cannot restore due to fault)</li></ul> | _____         | _____      |
| SRO     | Check Tech Spec (3.8.9)   | _____         | _____      |



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# 6. EVALUATION

Event: 6

Event Title: RCP B High Vibration

|              |                      |  |
|--------------|----------------------|--|
| EVENT TASKS: | <u>003-003-04-01</u> | <u>Respond to RCP Hi Vibration</u>           |
|              | <u>003-003-04-02</u> | <u>Direct Response to RCP High Vibration</u> |
|              | <u>012-001-05-01</u> | <u>Manually Trip the Reactor</u>             |

## Expected Response/Behavior

### CUES:

Alarms AR-AA-18 RCP Vibration Alert  
 AR-AA-26 RCP Vibration Danger  
 High Vibration indicated on B RCP at Vibration Panel

### Response:

|        |  | <u>RATING</u> | <u>N/A</u> |
|--------|--|---------------|------------|
| SRO    | Enter AR procedure AA-18 RCP Vibration Alert | _____         | _____      |
| RO/SRO | Check RCP indications                        | _____         | _____      |
| SRO    | Notify Plant Personnel                       | _____         | _____      |
| SRO    | Enter AA-26 RCP Vibration Danger             | _____         | _____      |
| RO/SRO | Determine Rx Trip required Manual Trip Rx    | _____         | _____      |
| RO     | Verify Rx is Tripped                         | _____         | _____      |
| BOP    | Verify Turbine Trip                          | _____         | _____      |
| BOP    | Verify One Train AC Buses Energized          | _____         | _____      |



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Response:

|        |                           | <u>RATING</u> | <u>N/A</u> |
|--------|---------------------------|---------------|------------|
| BOP/RO | Determine SI not required | _____         | _____      |
| SRO    | Transition to ES-0.1      | _____         | _____      |

(NOTE RCP Seal Malfunction will start here.  
Some actions in ES-0.1 Rx Trip response are  
possible.)







|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-1        | REV: 0         |
|   | TITLE: SCENARIO #1 |                |
|   | DATE: 03/29/06     | PAGE: 24 of 29 |

Response:

|        |  | <u>RATING</u> | <u>N/A</u> |
|--------|--|---------------|------------|
| BOP    | Check MSIV isolation   | _____         | _____      |
| BOP    | Check MFW Isolation  | _____         | _____      |
| BOP    | Verify AFW pump running<br>A MDAFW<br>TDAFW (Manual Start)         | _____         | _____      |
| BOP    | Verify two SW pumps running<br>• Ensure one pump running on Bus 14 | _____         | _____      |
| RO     | Verify CI and CVI  | _____         | _____      |
| SRO    | Dispatch AO to verify MOV-814 (Lost Power)                         | _____         | _____      |
| RO     | Verify the A CCW pump running                                      | _____         | _____      |
| RO     | Verify SI/RHR Flow<br>(SI flow only above RHR shut-off head)       | _____         | _____      |
| BOP    | Check AFW Valve Alignment  | _____         | _____      |
| BOP    | Monitor Heat Sink<br>(Maintain S/G level 7-50%)                    | _____         | _____      |
| RO     | Check ECCS Valve Alignment   | _____         | _____      |
| RO/SRO | Check CCW to Thermal Barriers                                      | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-1        | REV: 0         |
|   | TITLE: SCENARIO #1 |                |
|   | DATE: 03/29/06     | PAGE: 25 of 29 |

Response:

|         |   | <u>RATING</u> | <u>N/A</u> |
|---------|---|---------------|------------|
| BOP     | Check TDAFW Pump (Do not stop)  | _____         | _____      |
| BOP/SRO | Control Tavg at 547°F<br>(May require throttling AFW to minimum and<br>closing MSIV's | _____         | _____      |
| RO      | Check PORV and Sprays closed  | _____         | _____      |
| RO/SRO  | Monitor RCP Trip Criteria   | _____         | _____      |
| RO      | Verify CREATS actuated  | _____         | _____      |
| BOP/SRO | Check S/G Secondary intact  | _____         | _____      |
| BOP/SRO | Check S/G Tube intact   | _____         | _____      |
| RO/SRO  | Check RCS Intact/Transition to E-1  | _____         | _____      |
| RO/SRO  | Check RCP Trip Criteria   | _____         | _____      |
| BOP/SRO | Check that S/Gs are intact  | _____         | _____      |
| BOP     | Control S/G levels  | _____         | _____      |
| BOP/SRO | Monitor S/G Radiation   | _____         | _____      |
| RO      | Check PORV and Block Valves   | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-1        | REV: 0         |
|   | TITLE: SCENARIO #1 |                |
|   | DATE: 03/29/06     | PAGE: 26 of 29 |

Response:

|        |                                     | <u>RATING</u> | <u>N/A</u> |
|--------|-------------------------------------|---------------|------------|
| RO/SRO | Reset SI                            | _____         | _____      |
| RO/SRO | Reset CI                            | _____         | _____      |
| BOP    | Start a second SW pump if required. | _____         | _____      |
| SRO    | Dispatch AO to perform SD-1         | _____         | _____      |

(At this point offsite power will be lost)







|  |                    |                |
|--|--------------------|----------------|
| <p>CONSTELLATION ENERGY</p> <p>R. E. GINNA NUCLEAR POWER PLANT</p> <p>EXAMINATION SCENARIO</p> | NO.: 06-1-1        | REV: 0         |
|  | TITLE: SCENARIO #1 |                |
|  | DATE: 03/29/06     | PAGE: 28 of 29 |

| Response: |  | <u>RATING</u> | <u>N/A</u> |
|-----------|--|---------------|------------|
| BOP       | Verify Adequate TDAFW Flow   | _____         | _____      |
| BOP       | Restore "A" D/G <ul style="list-style-type: none"> <li>• Check Unit/Auto</li> <li>• Start "A" D/G</li> <li>• Check Voltage/Freq</li> <li>• Check Cooling Available (SW pump)</li> <li>• Start the A D/G</li> </ul> | _____         | _____      |

|  |            |              |
|--|------------|--------------|
| CT #2 E-O--C   | <u>SAT</u> | <u>UNSAT</u> |
| Energize at least one train of AC Emergency buses prior to placing safeguard switch to pull to lock in ECA-0.0 | _____      | _____        |

|         |  |       |       |
|---------|--|-------|-------|
| SRO     | Transition back to E-0.  | _____ | _____ |
| SRO/RO  | Recognize SI equipment must be manually started. Go to Attachment 8.5 Loss of Offsite Power. | _____ | _____ |
| RO/SRO  | Verify CCW Pump Running  | _____ | _____ |
| BOP/SRO | Verify one SW Pump Running   | _____ | _____ |
| BOP/SRO | Verify TDAFW Pump Running  | _____ | _____ |
| RO/SRO  | Start 2 SI Pumps   | _____ | _____ |

|  |            |              |
|--|------------|--------------|
| CT #3 E-O--I   | <u>SAT</u> | <u>UNSAT</u> |
| Establish flow from at least two SI pumps prior to proceeding in E-1 following loss of off-site power. | _____      | _____        |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-1        | REV: 0         |
|   | TITLE: SCENARIO #1 |                |
|   | DATE: 03/29/06     | PAGE: 29 of 29 |

Response :

|               |            |
|---------------|------------|
| <u>RATING</u> | <u>N/A</u> |
| _____         | _____      |

|        |                      |
|--------|----------------------|
| RO/SRO | Start Equipment      |
|        | • RHR (not required) |
|        | • CNMT Recirc Fans   |

Terminate Scenario as directed by the lead examiner



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 04-04-06     | PAGE: 1 of 24 |

Written by: Ken Masker Date: 3/29/06  
Sr. License Instructor

Technical Review: Dennis Jones Date: 5/18/06

Time validated 108 minutes By: Roy Gillow Date: 5/19/06  
Shift Manager

Date of exam: \_\_\_\_\_

|           |            |
|-----------|------------|
| Examinees | Evaluators |
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |
| _____     | _____      |

Final review \_\_\_\_\_ Date: \_\_\_\_\_  
License Instructor

Approved for use \_\_\_\_\_ Date: \_\_\_\_\_  
Director Operations Training  
or Designee

| ATTRIBUTE             | #   |
|-----------------------|-----|
| Total Malfunctions    | 7   |
| Malf after EOP entry  | 1   |
| Abnormal Events       | 5   |
| Major Transients      | 1   |
| EOP's beyond SCRAM    | 2   |
| ECA's, FR's           | 1   |
| Critical Tasks        | 5   |
| T.S. Exercised Yes/No | Yes |



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 2 of 24 |

1. SCENARIO OVERVIEW

- 1.1 The plant is at 70% power MOL conditions holding power for Chemistry after returning "B" MFW Pump to Service following maintenance. C<sub>B</sub> - 900 ppm 11,000 ppm in the BAST. The "B" MDAFW pump is OOS for motor work; out for 6 hours, expected back in ~ 6-8 hours (A-52.4 submitted 72 hour clock). The "B" SW pump is out for motor replacement.
- 1.2 The "C" Condensate Pump trips. The standby pump fails to start requiring a manual start.
- 1.3 Maintenance reports the "B" MFW has developed a severe oil leak and must be shut down immediately. Power must be rapidly reduced to less than 50% using AP-TURB.5 to allow stopping the MFW Pump.
- 1.4 Following the power reduction RCS High Activity occurs due to a minor fuel failure. The crew should enter AP-RCS.3 and place a 60 gpm Orifice in service.
- 1.5 A small letdown line leak occurs (ramp up to 30 gpm) after the letdown orifice swap causing high activity in the plant vent. The operators should remove Normal Letdown from service and place excess letdown in service.
- 1.6 A small steam line leak occurs on the tap for PT-479 causing PT-479 to fail low. The steam leak is unisolable (upstream of the Root Isolation Valve and makes the area inaccessible). The operator should defeat PT-479 per ER-INST.1 and notify higher supervision.
- 1.7 A SGTR occurs in the "B" SG. The operator should respond per E-0 and E-3. Following the cooldown in E-3 ruptured S/G pressure cannot be maintained due to the steam leak and ECA-3.1 should be entered.
- 1.8 The "A" MDAFW Pump fails to Auto Start and TDAFW pump trips when it attempts to start. The operators should manually start the "A" MDAFW Pump and establish flow to the "A" S/G to maintain a secondary heat sink.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 3 of 24 |

## 2. SCENARIO OBJECTIVES

- 2.1 Respond to a Condensate Pump trip by manually starting the standby pump.
- 2.2 Perform a plant power reduction per AP-TURB.5, Rapid Load Reduction
- 2.3 Respond to an increase in RCS activity by increasing cleanup flow per AP-RCS.3, High RCS Activity
- 2.4 Respond to a letdown leak by securing letdown and placing excess letdown in service.
- 2.5 Respond to a failure of PT-479 and defeat the channel in accordance with ER-INST.1.
- 2.6 Respond to a SGTR with a secondary leak per E-0, E-3 and ECA-3.1
- 2.7 Respond to a Loss of AFW by manually starting the "A" MDAFW Pump and establishing AFW flow to the "A" S/G.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 4 of 24 |

### 3. CRITICAL TASKS (Cts)

CT #1

AP-CVCS.1-A

Task: Isolate RCS leakage path from CVCS System prior to exiting AP-CVCS.1, CVCS Leak

Cues: Aux. Building and Plant Vent Rad monitor alarms

- R-13 Plant Vent Particulate
- R-14 Plant Vent Gas
- Area Monitors in the Aux. Building

Indications of CVCS Leakage  
 Abnormal, Pressure, Temperature, Flows  
 RCS Water balance indicate unknown leakage  
 Aux. Building sump indications

Indicator: Closed valve indication on isolation valves in the leak path.

Feedback: Isolation Valve indicator closed  
 RCS water balance indicate leakage has stopped  
 Aux. Building indication return to normal

- Radiation
- Sumps

CT #2

E-0--F

Task: Establish 200 gpm AFW flow to the S/Gs before transition out of E-0 occurs.

Cues: - Indications of SI Actuated  
 - Indication that AFW Flowrate is less than minimum required  
 - Indication "A" MDAFW Pump is not running  
 - Indication of TDAFW Pump Tripped

Indicator: Manipulation of controls to establish flow to "A" S/G.

- MDAFW Pump "A" Control Switch

Feedback: Indication that at least minimum required flow is established to "A" S/G



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 5 of 24 |

### 3. CRITICAL TASKS (Cts)

CT #3

E-3--A

Task: Isolate feedwater flow and steam flow from the ruptured S/G before a transition to ECA-3.1 occurs.

Cues:

- Indications of a rupture in one S/G
- Rx Trip
- SI

Indicator: Manipulation of controls to isolate the ruptured S/G.

- MSIV
- ARV
- Blowdown and Sample Valves
- TDAFW
- AFW
- MFW
- Local Isolation

Feedback: Stable or Increasing Pressure on Ruptured S/G. No MFW or AFW flow to Ruptured S/G.

CT #4

E-3--B

Task: Establish/maintain RCS Temperature so transition out of E-3 does not occur because the RCS temperature is

- Too high to obtain 20°F subcooling required by E-3.

OR

- An Orange or Red Path occurs on the Integrity CSFST.

Cues:

Indication that

- One S/G ruptured
- Rx Trip
- SI
- Rupture S/G > 300 psig

Indicator: Manipulation of control as required to establish and maintain RCS temperature.

- Steam Dump
- ARVs

Feedback:

- Steam Flow
- RCS Temperature decreasing
- RCS Temperature less than target temperature



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 6 of 24 |

### 3. CRITICAL TASKS (Cts)

CT #5

ECA-3.1-B

Task: Cooldown the RCS to Cold Shutdown Conditions.

Cues: SI Required

AND

Indication of a Faulted/Ruptured S/G

Indicator: Manipulations of controls as required to initiate RCS cooldown

- Steam Dump or ARVs
- AFW to maintain intact S/G level

Feedback: RCS Temperature Decreasing  
Intact S/G Pressure Decreasing



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 7 of 24 |

#### 4. INSTRUCTOR ACTIONS

| <u>Problem Time</u> | <u>Actions</u>  | <u>Notes</u>   |
|---------------------|---|--|
|                     | 4.1 Initialize the Simulator to IC-27<br>(setup saved as IC-172) <ul style="list-style-type: none"> <li>• Pull stop the "B" MDAFW Pump.<br/>Place Block Tag on Pump Switch<br/>(do not hold 4000A/B or 4007)</li> <li>• Pull stop the "B" SW Pump.<br/>Place Block Tag on Pump Switch</li> </ul> Insert Malfunctions <ul style="list-style-type: none"> <li>- MALF CND04C,<br/>Trigger 1</li> <li>- OVRD CND-08F</li> <li>- MALF RCS16, 10 <math>\mu</math>ci/ml,<br/>300 sec ramp<br/>Trigger 2</li> <li>- MALF CVC2, 30 gpm, 0 ramp<br/>Trigger 3</li> <li>- MALF SGN3D 0 psig 0 Ramp<br/>Trigger 4</li> <li>- MALF STM2B, 5000 lbm/hr, 0 Ramp<br/>Trigger4</li> <li>- MALF SGN04B, 300 gpm, 0 ramp<br/>Trigger 5</li> <li>- LOA FDW 30, Pump Trip<br/>Trigger 30</li> <li>- Set Trigger 30<br/>T:N41B.LE.5.0</li> <li>- MALF RPS07K</li> </ul> IND-OVR-FDW21A/B<br>OFF | C CND Pump trips<br>B CND Auto Start<br>failure<br>RCS High Activity<br>CVCS Leak<br>PT-479 Failure<br>Small steam leak<br>SGTR B S/G<br>TDAFW Pump Trip<br>Trigger on N41<5%<br>"A" MDAFW Pump Auto<br>Start Failure<br>B MDAFW Pump oil Pump<br>Lights |
| 2 min.              | 4.2 Condensate Pump Trip<br>Trigger 1   |  |
| 10 min              | 4.3 Plant Shutdown  | Call as Maintenance<br>Supervisor to report<br>a severe oil leak om<br>"B" MFW Pump. Pump<br>should be shut down<br>immediately  |



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 8 of 24 |

4. INSTRUCTOR ACTIONS

| <u>Problem Time</u>               | <u>Actions</u>  | <u>Notes</u>  |
|-----------------------------------|---|---|
| As soon as power decrease started | 4.4    RCS High Activity Trigger 2  | When RP called report back on survey area dose per AB Area Monitors   |
| 3 min after swapping orifices     | 4.5    CVCS Leak Trigger 3  | Crew should declare a Local Rad. Emergency. AO access with RP only  |
| 35 min                            | 4.6    PT-479 Failure/Steam Leak Trigger 4  | When called to check (or after 5 min.) report Intermediate Bldg. Steam Header area full of STM. Cannot get to isolation valves. |
| 45 Min                            | 4.7    SGTR B Steam Generator Trigger 5   | If RP called for sample request applicable sample. Valve CV signal reset.   |
| When Rx is Tripped                | 4.8    Ramp Steam leak up to 20K lbm/hr<br>Malf STM2B 20000lbm/hr, 120sec ramp<br><br>Terminate Scenario per direction of the Lead Examiner |   |



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0        |
|   | TITLE: SCENARIO #2 |               |
|   | DATE: 03/29/06     | PAGE: 9 of 24 |

5. TURNOVER INFORMATION

5.1 The plant is at 70% power holding for Chemistry following return to service of "B" MFW Pump from maintenance on the oil system. RCS Boron Concentration is 900 ppm. BAST Boron Concentration is 11,000 ppm. The A and C Service Water pumps are selected for Auto start. Control Rods are in Manual due to a problem with the Rod Speed Controller.

5.2 Equipment Out of Service

"B" MDAFW pump is OOS for motor work.  
 "B" SW pump is out for motor replacement.  
 Auto Rod Control is OOS due Rod Speed Controller Failure

5.3 Work in Progress

"B" MDAFW Pump Motor Work  
 "B" SW Pump Motor Replacement  
 Rod Control System Trouble Shooting

5.4 Planned Work

Nothing additional.

5.5 Significant Events

"B" SW Pump Motor was removed from service due to overheating of the winding.

5.6 Remarks

Continue power increase to 100% when Chemistry in spec. Perform AFW PT for the "B" MDAFW pump when work is complete (6-8 hours).



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 10 of 24 |

6. EVALUATION

Event: 1

Event Title: Condensate Pump Trips

EVENT TASKS: 056-001-04-01 Respond to a loss of a Condensate Pump.

056-001-04-02 Direct Response to a loss of a Condensate Pump

Expected Response/Behavior

CUES:

C Condensate Pump Trip  
MFW Pump NPSH Alarm  
MFW Pump Low Suction Press Alarm

Response:

|         |   | <u>RATING</u> | <u>N/A</u> |
|---------|---|---------------|------------|
|         | Note the operator may also enter AP-FW.1 for actions      |               |            |
| SRO     | Enter AR-H-1  |               |            |
| BOP     | Check Condensate Pressure open                            |               |            |
| BOP/SRO | Determine that the C Condensate Pump has tripped.         |               |            |
| BOP/SRO | Start the Standby Condensate Pump                         |               |            |
| BOP     | Check HDT pump and CND BST pump                           |               |            |
| BOP     | Check Trim Valve and Reject Valves.                       |               |            |
| BOP     | Stabilize Secondary Side<br>Close Condensate Bypass Valve |               |            |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 11 of 24 |

6. EVALUATION

Event: 2

Event Title: Plant Shutdown to 50% power to remove "B" MFW from service

EVENT TASKS:

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Expected Response/Behavior

CUES:

Notification by Maintenance Supervisor of severe Oil Leak on "B" MFW Pump requiring pump Shutdown as soon as possible

Response:

|         |                                       | <u>RATING</u> | <u>N/A</u> |
|---------|---------------------------------------|---------------|------------|
| SRO     | Enter AP-TURB.5, Rapid Shutdown       | _____         | _____      |
| RO/SRO  | Verify Rod in Auto. Initiate Boration | _____         | _____      |
| BOP/SRO | Initiate Load Reduction               | _____         | _____      |
| RO      | Monitor Tavg                          | _____         | _____      |
| BOP     | Verify IA available to CNMT           | _____         | _____      |
| RO      | Monitor Przr Press/Level              | _____         | _____      |
| BOP     | Monitor S/G Levels                    | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 12 of 24 |

6. EVALUATION (continued)

Response:

|     |                           | <u>RATING</u> | <u>N/A</u> |
|-----|---------------------------|---------------|------------|
| BOP | Monitor Steam Dump Status | _____         | _____      |
| RO  | Add Boric Acid            | _____         | _____      |











|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 15 of 24 |

Response:

RATING      N/A

RO/SRO      Check Letdown. Determine Abnormal Isolate Letdown.  
                 • Close AOV-427, 200A, B 202  
                 • Close 371  
                 • Close HCV-142 while adjusting charging  
                 • Close AOV-294

\_\_\_\_\_

\_\_\_\_\_

CT #1 AP-CVCS.1-A  
  
Isolate leakage path from CVCS prior to exiting AP-CVCS.1, CVCS Leak

SAT      UNSAT

\_\_\_\_\_

\_\_\_\_\_

RO/SRO      Verify leak stopped

\_\_\_\_\_

\_\_\_\_\_

RO/SRO      Place Excess L/D in service

\_\_\_\_\_

\_\_\_\_\_

RO/SRO      Establish Auto Control  
                 • Charging  
                 • Przr Heaters

\_\_\_\_\_

\_\_\_\_\_

All            Check Annunciators

\_\_\_\_\_

\_\_\_\_\_

SRO            Notify Higher Supervision.

\_\_\_\_\_

\_\_\_\_\_



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 16 of 24 |

6. EVALUATION

Event: 5

Event Title: Steam Leak on PT-479 Sensing Line

EVENT TASKS: 012-006-01-01      Place a Rx Protection Channel in the Tripped Condition

\_\_\_\_\_

\_\_\_\_\_

Expected Response/Behavior

CUES:

PT-479 Fails Low  
ADFAC Trouble Alarm

Response:

|         |  | <u>RATING</u> | <u>N/A</u> |
|---------|--|---------------|------------|
|         | Note: The operator may begin to shutdown the plant                             |               |            |
| BOP/SRO | Verify MFW Reg and Bypass Valves Operating Normally (AR-G-22)                  | _____         | _____      |
| SRO     | Recognize PT-479 Failed Low<br>Enter ER-INST.1 (AR-G-22)<br>Review Precautions | _____         | _____      |
| SRO     | Dispatch AO to Investigate Steam Noise   | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
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BOP/SRO            Refer to Attachment for PT-479            \_\_\_\_\_

BOP            Defeat Switches for PT-479 Defeat  
                 479 Loop B-2  
                 • LoLo Press SI  
                 • Lo Press  
  
                 475 Loop B-2  
                 • High Trip  
                 • HiHi Trip            \_\_\_\_\_

BOP            Perform Computer Defeat            \_\_\_\_\_

SRO            Check Tech Specs            \_\_\_\_\_  
  
                 3.3.2-1 func 1e  
                 3.3.2-1 func 4d and 4e  
                 3.3.3-1 func 24 and 25



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-2        | REV: 0         |
|   | TITLE: SCENARIO #2 |                |
|   | DATE: 03/29/06     | PAGE: 18 of 24 |

6. EVALUATION

Event: 6/7

Event Title: SGTR "B" S/G (Ruptured Faulted S/G)

|              |               |  |
|--------------|---------------|--|
| EVENT TASKS: | 035-010-05-01 | Respond to a SGTR with a Faulted S/G         |
|              | 035-010-05-02 | Direct Response to a SGTR with a Faulted S/G |
|              |               |  |
|              |               |  |

Expected Response/Behavior

CUES:

- Przr Level decreasing
- R-15 Alarm
- R-32 Alarm

Response:

|  |   | <u>RATING</u> | <u>N/A</u> |
|--|---|---------------|------------|
| NOTE: The SGTR is fairly small, operators may perform some Action in AP-RCS.1, RCS Leak prior to Tripping an SI occurring. |   |               |            |
| SRO/RO   | Trip/verify Rx Trip <ul style="list-style-type: none"> <li>Manual Trip Required due to failure of Auto Trip</li> </ul>                                  |               |            |
| RO/BOP   | Verify Immediate Actions <ul style="list-style-type: none"> <li>Rx trip</li> <li>Turbine trip</li> <li>Buses energized</li> <li>SI activated</li> </ul> |               |            |
| RO   | Verify SI, RHR and CNMT Recirc Fans Running   |               |            |
| RO   | Verify CNMT Spray not Required  |               |            |



|   |                    |                |
|---|--------------------|----------------|
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|   | TITLE: SCENARIO #2 |                |
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Response:

|         |  | <u>RATING</u> | <u>N/A</u> |
|---------|--|---------------|------------|
| BOP     | Check if MSIV should be closed   | _____         | _____      |
| BOP     | Verify MFW Isolation   | _____         | _____      |
| BOP     | Verify MDAFW Pumps and<br>TDAFW Pump running determine none is running | _____         | _____      |
| SRO/BOP | Start "A" MDAFW Pump and establish flow to<br>the "A" S/G              |               |            |

|   |            |              |
|---|------------|--------------|
| CT #2 E-0--F  | <u>SAT</u> | <u>UNSAT</u> |
| Establish 200 gpm AFW flow to the S/G's before transition<br>Out of E-0 occurs. | _____      | _____        |

|     |                                   |       |       |
|-----|-----------------------------------|-------|-------|
| RO  | Verify CI and CVI                 | _____ | _____ |
| RO  | Check CCW Status                  | _____ | _____ |
| RO  | Verify SI/RHR Flow (only SI flow) | _____ | _____ |
| BOP | Verify AFW Alignment              | _____ | _____ |



|   |                    |                |
|---|--------------------|----------------|
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|   | TITLE: SCENARIO #2 |                |
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Response

Rating

NA

|         |   |       |       |
|---------|---|-------|-------|
| BOP     | Monitor Heat Sink<br>• Check S/G level <50%   | _____ | _____ |
| RO      | Check if TDAFW pump can be stopped  | _____ | _____ |
| RO      | Check SI and RHR alignment  | _____ | _____ |
| BOP     | Check Tavg trending to 547°F<br>(Action will need to be taken to control AFW<br>and close the MSIV to control Tavg) | _____ | _____ |
| RO      | Check PORVs and Sprays  | _____ | _____ |
| RO/SRO  | Determine if RCP Trip Criteria is met   | _____ | _____ |
| BOP     | Verify CREATS Isolation   | _____ | _____ |
| BOP     | Check S/G Secondary intact  | _____ | _____ |
| BOP/SRO | Check S/G Tube intact<br>Determine SGTR occurred Transition to E-3  | _____ | _____ |
| SRO/RO  | Check RCP Trip criteria   | _____ | _____ |
| BOP/SRO | Identify "B" S/G as ruptured  | _____ | _____ |



|   |                    |                |
|---|--------------------|----------------|
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|         |                                   |       |       |
|---------|-----------------------------------|-------|-------|
| BOP/SRO | Isolate Ruptured S/G              | _____ | _____ |
|         | • ARV 1050 psi in Auto            |       |       |
|         | • TDAFW Stm Valve closed          |       |       |
|         | • Blowdown Valve closed           |       |       |
|         | • MSIV closed                     |       |       |
|         | • Attachment 16.0 (AO Dispatched) |       |       |

|         |                                      |       |       |
|---------|--------------------------------------|-------|-------|
| BOP/SRO | Check Rupture S/G Level              | _____ | _____ |
|         | Isolate AFW to Rupture S/G           |       |       |
|         | • MOV 4008 closed                    |       |       |
|         | • B MDAFW Pump Pull Stop             |       |       |
|         | • AOV 4298 closed (TDAFW to "B" S/G) |       |       |
|         | • MOV 4000A, B closed                |       |       |

|  |            |              |
|--|------------|--------------|
| CT #3 E-3--A   | <u>SAT</u> | <u>UNSAT</u> |
| Isolate feed flow into and steam flow from the ruptured S/G before a transition to ECA-3.1 occurs. | _____      | _____        |

|         |  |       |       |
|---------|--|-------|-------|
| BOP/SRO | Establish Temperature Control on the "A" ARV (or Condenser Steam dump if the "A" MSIV is still open. | _____ | _____ |
|---------|--|-------|-------|

|        |          |       |       |
|--------|----------|-------|-------|
| RO/SRO | Reset SI | _____ | _____ |
|--------|----------|-------|-------|



|   |                    |                |
|---|--------------------|----------------|
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|   | TITLE: SCENARIO #2 |                |
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BOP/SRO      Initiate RCS Cooldown

- Determine Cooldown Temperature
- Check Rupture MSIV closed
- Dump Steam via "A" ARV (or condenser steam dump if available)
- Stop Cooldown and Control
- Tavg when less than required temp.

| CT #4 E-3--B   | <u>SAT</u> | <u>UNSAT</u> |
|--|------------|--------------|
| Establish/maintain a RCP Temp. So that transition from E-3 does not occur because RCS Temp. Is either of the following conditions: |            |              |
| • Too high to obtain 20°F subcooling (E-3 step 20)   |            |              |
| • Below the Red or Orange Path Criteria of the Integrity CSFST   |            |              |

BOP      Monitor Intact S/G levels

RO      Check PORV and Block Valves open

RO/SRO      Reset CI

BOP      Verify all Buses supplied by off-site power

BOP      Verify adequate SW flow

SRO/RO      Establish IA to CNMT

- 13/15 Normal Feed closed
- 2 SW pumps running
- Turbine Building SW isolation valves open
- Verify adequate air compressor



|   |                    |                |
|---|--------------------|----------------|
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- "C" Instrument
- Or
- Service Air
- Or
- Both A and B Instruments
- Reset XY Relay for AOV-5392
- Verify AOV-5392 open

|            |  |       |       |
|------------|--|-------|-------|
| RO         | Stop RHR pumps   | _____ | _____ |
| RO         | Establish Charging Flow <ul style="list-style-type: none"> <li>• Align Charging to RWST</li> <li>• Start charging and align to get 75 gpm charging flow</li> </ul>   | _____ | _____ |
| BOP/SRO    | Check if Cooldown should be stopped (should already be stopped)  | _____ | _____ |
| BOP/SRO    | Check Rupture S/G pressure stable or increasing<br>(Note: Pressure will be decreasing when it decreases to < 250 psig above the intact - transition to ECA-3.1)  | _____ | _____ |
| RO/BOP/SRO | Verify ECA-3.1 Action (already completed in E-3) <ul style="list-style-type: none"> <li>• Reset SI/CI (step 1,2)</li> <li>• SW adequate (step 3)</li> <li>• IA restored to CNMT (step 4)</li> <li>• AC Buses (step 5)</li> </ul> | _____ | _____ |
| RO/SRO     | Deenergize Przr Heater   | _____ | _____ |
| RO         | Check CNMT Spray stopped   | _____ | _____ |
| BOP/SRO    | Check Ruptured S/G level   | _____ | _____ |
| RO         | Check RHR pumps stopped  | _____ | _____ |
| SRO/RO/BOP | Evaluate plant status <ul style="list-style-type: none"> <li>• Aux. Building Rad.</li> </ul>   | _____ | _____ |



|   |                    |                |
|---|--------------------|----------------|
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- Samples
- Shroud and Reactor Compartment Coolers

|         |  |       |       |
|---------|--|-------|-------|
| RO      | Verify 75 gpm charging established   | _____ | _____ |
| BOP/SRO | Check Secondary Sides of S/G intact<br>(B decreasing but already isolated) | _____ | _____ |
| BOP     | Control "A" (Intact) S/G levels  | _____ | _____ |
| BOP/SRO | Initiate Cooldown to Cold Shutdown<br>• Dump steam from the "A" ARV        | _____ | _____ |

|                                    |            |              |
|------------------------------------|------------|--------------|
| CT #5 ECA-3.1                      | <u>SAT</u> | <u>UNSAT</u> |
| (Initiate) Cooldown the RCS to CSD | _____      | _____        |

Terminate the scenario when a satisfactory cooldown rate is established.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
|   | DATE: 4/19/06      | PAGE: 1 of 25 |

Written by: Ken Masker  
Sr. License Instructor

Date: 3/30/06

Technical Review: Dennis Jones  
Sr. License Instructor

Date: 5/18/06

Time validated 86 minutes By: Roy Gillow  
Shift Manager

Date: 5/18/06

Date of exam: \_\_\_\_\_

Examinees

Evaluators

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Final review \_\_\_\_\_  
License Instructor

Date: \_\_\_\_\_

Approved for use \_\_\_\_\_  
Director Operations Training  
or Designee

Date: \_\_\_\_\_

| ATTRIBUTE             | #   |
|-----------------------|-----|
| Total Malfunctions    | 7   |
| Malf after EOP entry  | 1   |
| Abnormal Events       | 5   |
| Major Transients      | 1   |
| EOP's beyond SCRAM    | 1   |
| ECA's, FR's           | 1   |
| Critical Tasks        | 3   |
| T.S. Exercised Yes/No | Yes |



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
|   | DATE: 04/19/06     | PAGE: 2 of 25 |

1. SCENARIO OVERVIEW

- 1.1 The plant is at 100% power MOL conditions RCS C<sub>B</sub> - 845 ppm, BAST C<sub>B</sub> - 11,000 ppm. Xenon is at equilibrium. The "A" SI Pump is out of service for motor work. "B" Charging Pump is out of service for belt replacement, "B" SW Pump is out of service for motor work.
- 1.2 A Loop "B" Thot fails high. The Tav<sub>g</sub>- average Tav<sub>g</sub> rod stops fail to function. The operators should manually control rods and defeat the channel per ER-INST.1.
- 1.3 A 20 gpm CCW leak develops in the Seal Water Heat Exchanger. The operators respond using AP-CCW.2, Loss of CCW during Power Operation, to control CCW Surge Tank level and bypass the Seal Water Heat Exchanger.
- 1.4 Both Generator Bus Duct Cooling Fans trip. This requires a load decrease to approximately 70% power in 10 minutes (AR-J-4) using procedure AP-TURB.5.
- 1.5 During the load decrease a rod lift coil for a D Bank rod fails (blown fuse) causing a misaligned rod. The operator will respond per AP-RCC.1, RCC/RPI Manlfuction. (Tech Spec 3.1.4)
- 1.6 The "D" Service Water Pump trips. The operators should respond by attempting to start the "C" SW Pump per AP-SW.2, Loss of Service Water. (Tech Spec 3.7.8. One SW Train inoperable)
- 1.7 The "C" Service Water Pump trips immediately when started resulting in only one SW Pump in service. The operators should respond by placing DG "B" in Pull Stop and isolate non-essential loads.
- 1.8 An inadvertent SI occurs. When MOV 852B opens (RHR to Rx Vessel) CV-853B fails causing an inter-system LOCA (to RHR). The RHR common header fails from over pressure resulting in a LOCA outside Containment. The operators should respond per E-0, ECA-1.2 and E-1.
- 1.9 The "B" SI Pump fails to Auto start on the SI resulting in inadequate SI for the LOCA. The operator should resond per E-0 and manully start the "B" SI Pump.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
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## 2. SCENARIO OBJECTIVES

- 2.1 Respond to a Thot RTD failure by controlling rods in manual and defeating the effected channel.
- 2.2 Respond to a CCW Seal Water Heat Exchanger leak per AP-CCW.2
- 2.3 Perform a rapid load reduction per AP-TURB.5 in response to a loss of Bus Duct Cooling.
- 2.4 Respond to a misaligned RCC during the power reduction using AP-RCC.2 (Apply Tech Spec 3.1.4)
- 2.5 Respond to a SW Pump trip per AP-SW.2 (Apply Tech Spec 3.7.8)
- 2.6 Respond to an inadvertant SI causing a LOCA outside Containment using E-0, ECA-1.2 and E-1.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
|   | DATE: 04/19/06     | PAGE: 4 of 25 |

### 3. CRITICAL TASKS (Cts)

#### CT #1

E-0--I

Task: Establish flow from at least two SI Pumps before transition out of E-0

Cues: Indications that SI is required

- SI Actuation
- RCS Pressure less than SI shutoff head

AND

Indication that less than 2 SI Pumps are injecting into the RCS

- Control Switch Position indicate that breakers for 2 SIPs are NOT closed

Indicator: Manipulation of control required to establish flow from at least 2 SIPs

Feedback: Indication at least 2 SI Pumps are injecting

- SI Pump Flowrate

#### CT #2

E-1--C

Task: Trip all RCPs within 5 minutes of reaching Trip Criteria

Cues: Indications of a Small Break LOCA

AND

Indications of SI

AND

Indications of only one train of SI available

AND

RCP Trip Criteria met

Indicator: Manipulation of controls required to trip both RCPs

Feedback: Both RCPs stopped

- RCP Breaker position lights
- RCS Flow decreasing



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
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3. CRITICAL TASKS (Cts)

CT #3

ECA-1.2--A

Task: Isolate the LOCA outside Containment before transitioning out of ECA-1.2

Cues: Indication SI is actuated and required

AND

Indication of abnormally high radiation levels in the Auxiliary Building

Indicator: Manipulation of control to close the isolation valve upstream of the break (MOV 852B)

Feedback: Indication of increasing RCS pressure



|  |                    |               |
|--|--------------------|---------------|
| <p>CONSTELLATION ENERGY</p> <p>R. E. GINNA NUCLEAR POWER PLANT</p> <p>EXAMINATION SCENARIO</p> | NO.: 06-1-3        | REV: 0        |
|  | TITLE: Scenario #3 |               |
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4. INSTRUCTOR ACTIONS

| <u>Problem Time</u> | <u>Actions</u>   | <u>Notes</u>   |
|---------------------|--|--|
|                     | <p>4.1 Initialize the Simulator to IC-19 (setup saved as IC-173)</p> <p>Pull stop and place Hold Tags on the following components:</p> <ul style="list-style-type: none"> <li>• A SI Pump</li> <li>• B Charging Pump (A &amp; C running)</li> <li>• B SW Pump (A &amp; D running)</li> <li>• Set Lake Temp at 45°F<br/>EVN MIS06 45, 300 sec ramp</li> </ul> <p>Insert Malfunctions</p> <ul style="list-style-type: none"> <li>- MALF ROD12<br/>Option 1</li> <li>- MALF CLG1C</li> <li>- MALF RPS7B</li> <li>- MALF RCS-11E, 980°F, 300 sec ramp<br/>Trigger 1</li> <li>- MALF CLG06, 20 gpm, 0 ramp<br/>Trigger 2</li> <li>- ANN OVR EDS11<br/>Trigger 3</li> <li>- MALF ROD3-C7, 0<br/>Trigger 30</li> </ul> <p>SET Trigger 30 T:N41B.LE.85</p> <ul style="list-style-type: none"> <li>- MALF CLG1D<br/>Trigger 4</li> <li>- MALF SIS1,1<br/>Trigger 5</li> <li>- MALF RCS19D, 900 gpm<br/>Trigger 5</li> </ul> | <p>Submit A52.4 for all components</p> <p>Rod Stop Failure</p> <p>SW Pump C trip</p> <p>B SIP Auto Start Failure</p> <p>Loop B Thot Fail High</p> <p>Seal Water HX Leak</p> <p>Isophase Bus duct Cooler Alarm</p> <p>Rod C-7 sticks at 85% power</p> <p>SW Pump D trip</p> <p>Inadvertant SI "B" Train</p> <p>LOCA to RHR System</p> |
| 2 min               | 4.2 B Loop Thot Failure<br>Trigger 1   |  |
| 15 min              | 4.3 Seal Water HX Leal<br>Trigger 2  | When called to check Seal Water HX flow report flow has decreased by 20 gpm from previous value  |



|   |                    |               |
|---|--------------------|---------------|
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|   | TITLE: Scenario #3 |               |
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35 min            4.4      Bus Duct Cooler Failures  
                         Trigger 3

When requested report  
"A Fan Belt broken  
and "B" Fan tripped.

During power decrease  
D Bank Rod will stick  
When requested report  
no visible damage or  
alarms at the rod  
drive cabinets

Verify trigger 30  
actuates at 85%

48 min            4.5      "D" SW Pump Trip  
                         Trigger 4

If called to observe  
start of "C" SW Pump  
report no abnormal  
indication locally  
except breaker  
tripped immediately  
on closure

When requested to  
check "D" SW Pump  
after trip report  
smell of burnt  
insulation.

56 min            4.6      LOCA Outside CNMT  
                         Trigger 5

Note Aux Building  
Radiation levels will  
be high

SI Pump Discharge  
Breakers

MOV-878B - LOA EDS037  
MOV-878D - LOA EDS038

Terminate Scenario per direction of the  
Lead Examiner.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
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5. TURNOVER INFORMATION

5.1 The plant is at 100% power. Xenon is at equilibrium. RCS Boron Concentration is 845 ppm. BAST Boron Concentration is 11,000 ppm. The A and C Service Water pumps are selected for Auto start.

5.2 Equipment Out of Service

"A" SI pump is OOS for motor work.  
 "B" SW pump is out for motor replacement.  
 Generator Hydrogen Control is in Manual  
 "B" Charging Pump

5.3 Work in Progress

"A" SI pump  
 "B" SW Pump Motor Replacement  
 "B" Charging Pump belt Replacement  
 (See A52.4's)

5.4 Planned Work

Nothing additional.

5.5 Significant Events

"A" SI Pump had high vibration during testing that was traced to the inboard motor bearing

"B" SW Pump Motor was removed from service due to overheating of the winding.

"B" Charging pump belt failed.

5.6 Remarks

Continue 100% operation.



|   |                    |               |
|---|--------------------|---------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0        |
|   | TITLE: Scenario #3 |               |
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6. EVALUATION

Event: 1

Event Title: Loop "B" Thot fails High

EVENT TASKS:   001-023-01-01      Operate Control Rods in manual at power  
                  012-006-01-01      Place a Reactor Protection Channel in a tripped condition

Expected Response/Behavior

CUES:

Rods Stepping IN  
Temp. Channels T403/407 failing HIGH  
Tavg - Tavg Alarm

Response:

|   |  | <u>RATING</u> | <u>N/A</u> |
|---|--|---------------|------------|
| NOTE: May enter AP-RCC.1 to place rods in manual. This scenario is written for entering into AP-RCC.1 |  |               |            |
| BOP/SRO   | Check Rod operability                                | _____         | _____      |
|   | • Turbine Load Stable                                |               |            |
|   | • Place Rods in Manual                               |               |            |
|   | • Verify Rod Motion Stops                            |               |            |
| RO/SRO  | Restore Tavg to Tref                                 | _____         | _____      |
| RO/SRO  | Check Tavg Channels                                  | _____         | _____      |
|   | • Determine T403 Failed                              |               |            |
|   | • Refer to ER-INST.1                                 |               |            |
| RO/BOP/SRO  | Defeat T403/407 per ER-INST.1                        |               |            |
| RO  | Operate Rods in Manual                               | _____         | _____      |
| BOP   | Check Steam Dump not operating                       | _____         | _____      |
| RO  | Place Charging in Manual/Manually control PRZR Level | _____         | _____      |
| RO  | Check RIL Alarms                                     | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|     |  | <u>RATING</u> | <u>N/A</u> |
|-----|--|---------------|------------|
| SRO | Determine Hot Leg Streaming not occurring  | _____         | _____      |
| BOP | Defeat the Channel per Attachment<br>Tavg 403 / Delta T 407  | _____         | _____      |
| BOP | Verify Rods in Manual/ Charging in Manual  | _____         | _____      |
| BOP | RIL Rack- Place T/405F to Loop B Unit 1  | _____         | _____      |
| BOP | Steam Dump Rack- Place T/401B to Loop B Unit 1   | _____         | _____      |
| BOP | B-1 Protection Rack- Place the following<br>switches to TRIP<br><br>403 Loop B-1<br>• High Tavg<br>• Low Tavg<br><br>407 Loop B-1<br>• Over Temp Trip<br>• Over Power Trip | _____         | _____      |
| BOP | Verify Bistable Lights   | _____         | _____      |
| BOP | Delete 403/407 group from PPCS Scanning  | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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|            |  |       |       |
|------------|--|-------|-------|
| RO/SRO     | Restore Control System to Auto   | _____ | _____ |
|            | <ul style="list-style-type: none"><li>● PRZR Level Control</li><li>● Rod Control</li></ul>   |       |       |
| SRO        | Check Tech Specs   | _____ | _____ |
|            | <ul style="list-style-type: none"><li>● 3.3.1 Table 3.3.1-1 5,6</li><li>● 3.3.2 Table 3.3.2-1 4.d</li></ul>  |       |       |
| RO/BOP/SRO | Verify Control Systems in Auto   | _____ | _____ |
|            | <ul style="list-style-type: none"><li>● Rods</li><li>● EHC</li><li>● PRZR Press.</li><li>● PRZR Level</li><li>● Steam Dump</li><li>● MFW</li><li>● ARV's</li></ul> |       |       |
| SRO        | Notify Supervision/Maintenance   | _____ | _____ |







|   |                    |                |
|---|--------------------|----------------|
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6. EVALUATION (continued)

Response:

|        |   | <u>RATING</u> | <u>N/A</u> |
|--------|---|---------------|------------|
| RO     | Check Letdown   | _____         | _____      |
| RO/SRO | Check CCW Valve alignment <ul style="list-style-type: none"><li>• Attachment 1.0 (MCB)</li><li>• Attachment 1.1 (NLO)</li></ul> | _____         | _____      |
| SRO    | Dispatch NLO to check Seal Water HX<br><br>(NLO reports flow is 20 gpm lower than normal)                                       | _____         | _____      |
| SRO    | Direct NLO to bypass and isolate the Seal Water HX  | _____         | _____      |
| SRO    | Notify RP to sample the RCS for Chromates   | _____         | _____      |
| RO     | Terminate Makeup to CCW Surge Tank when level ~50%  | _____         | _____      |
| RO     | Check for leakage in CNMT and Auxiliary Building (Step 8, 9)  | _____         | _____      |
| SRO    | Verify leak identified and isolated   | _____         | _____      |
| RO     | Verify Normal LTDN in service   | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
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6. EVALUATION

Event: 3/4

Event Title: Isophase Bus Duct Cooling Failure / Stuck Rod

EVENT TASKS:   001-019-04-01       Restore Misaligned Control Rod  
                  004-013-01-01       Perform a Boration of the RCS  
                  045-027-04-01       Respond to a Rapid Load Reduction  
                  045-027-04-02       Direct Response to a Rapid Load Reduction

Expected Response/Behavior

CUES:  
      Alarm AR-J-4

Response:

|            |  | <u>RATING</u>  | <u>N/A</u>     |
|------------|--|----------------|----------------|
| BOP        | Check SW System  | _____          | _____          |
| SRO        | Dispatch an AO to investigate<br>Note: AO will report no fans running  | _____          | _____          |
| SRO        | Direct Load Reduction to ~70% power. Enter AP-TURB.5   | _____          | _____          |
| RO/BOP/SRO | Initiate Load Reduction <ul style="list-style-type: none"><li>• Verify Rods in Auto (RO)</li><li>• EHC Rate Selected and Load Reduction initiated. (BOP)</li></ul>     | _____<br>_____ | _____<br>_____ |
|            | NOTE: This step is applicable only if the normal boration method is not available  | _____          | _____          |
| SRO        | Determine Boration Technique <ul style="list-style-type: none"><li>• Dispatch AO to open V-356<br/>OR</li><li>• Borate from the RWST (Open 112B, Close 112C)</li></ul> | _____          | _____          |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|  |   | <u>RATING</u> | <u>N/A</u> |
|--|---|---------------|------------|
| RO   | Monitor Tavg 545°F - 566°F  | _____         | _____      |
| BOP  | Verify IA available to CNMT   | _____         | _____      |
| RO   | Monitor PRZR Pressure   | _____         | _____      |
| BOP  | Monitor S/G Level Control   | _____         | _____      |
| RO   | Monitor PRZR Level Control  | _____         | _____      |
| BOP  | Monitor Steam Dump  | _____         | _____      |
| NOTE: At 85% power the Stuck Rod Malfunction will Auto Actuate |   |               |            |
| RO   | Determine Rod C-7 misaligned  | _____         | _____      |
| SRO  | Enter AP-RCC.2  | _____         | _____      |
| SRO/RO   | Place Rods in Manual (will need to finish Load Reduction on Boric Acid or RWST to control reactivity)           | _____         | _____      |
| RO   | Check for Dropped Rod   | _____         | _____      |
| RO   | Check Tavg - Place EHC in Manual  | _____         | _____      |
| BOP  | Check Steam Dump  | _____         | _____      |
| BOP  | Check Generator Load > 15 MW  | _____         | _____      |
| RO/BOP/SRO   | Stabilize Plant conditions  | _____         | _____      |
|  | <ul style="list-style-type: none"><li>• Tavg</li><li>• PRZR Press.</li><li>• PRZR Level</li><li>• MFW</li></ul> |               |            |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|        |                             | <u>RATING</u> | <u>N/A</u> |
|--------|-----------------------------|---------------|------------|
| RO/SRO | Check Rod Alignment         | _____         | _____      |
| SRO    | Refer to Tech spec 3.1.4    | _____         | _____      |
| RO/SRO | Check QPTR within limits    | _____         | _____      |
| RO     | Verify MRPI system operable | _____         | _____      |
| RO/SRO | Check Rod Operability       | _____         | _____      |







|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|     |   | <u>RATING</u> | <u>N/A</u> |
|-----|---|---------------|------------|
| BOP | Start the Service Air Compressor            | _____         | _____      |
|     |   | _____         | _____      |
| BOP | Stop the C Inst Air Compressor              | _____         | _____      |
| SRO | Dispatch AOs to monitor SW cooled equipment | _____         | _____      |
| SRO | Notify Supervision                          | _____         | _____      |
| BOP | Check SW System                             | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION

Event: 6/7

Event Title: LOCA Outside Containment

EVENT TASKS:   002-025-05-01       Respond to a LOCA Outside Containment  
                  002-025-05-02       Direct Response to a LOCA Outside Containment  
                  \_\_\_\_\_

Expected Response/Behavior

CUES:

SI Actuated  
RX Trip  
PRZR Level/Press Decreasing  
Auxiliary Building Radiation Alarms

Response:

|        |   | <u>RATING</u> | <u>N/A</u> |
|--------|---|---------------|------------|
| SRO    | Recognize Rx Trip/ SI<br>Enter E-0  | _____         | _____      |
| RO/BOP | E-0 Immediate Actions<br><ul style="list-style-type: none"><li>• Verify Rx Trip</li><li>• Verify Turbine Trip</li><li>• Verify Busses Energized</li><li>• Check SI Actuated (Manually Actuate SI)</li></ul> | _____         | _____      |
| RO/SRO | Recognize "B" SI Pump fail to auto start  | _____         | _____      |
| RO     | Manually Start "B" SI Pump  | _____         | _____      |

|   |            |              |
|---|------------|--------------|
| CT #1 E-0--I  | <u>SAT</u> | <u>UNSAT</u> |
| Establish flow from at least 2 SI pumps before<br>transition out of E-0 | _____      | _____        |

|    |                                 |       |       |
|----|---------------------------------|-------|-------|
| RO | Verify CNMT Recirc Fans Running | _____ | _____ |
|----|---------------------------------|-------|-------|



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|     |  | <u>RATING</u> | <u>N/A</u> |
|-----|--|---------------|------------|
| RO  | Verify CNMT Spray not required   | _____         | _____      |
| BOP | Check if MSIVs should be closed  | _____         | _____      |
| BOP | Verify MFW Isolation   | _____         | _____      |
| BOP | Verify MDAFW Pumps running   | _____         | _____      |
| BOP | Verify SW Pumps running  | _____         | _____      |
| RO  | Verify CI and CVI  | _____         | _____      |
| RO  | Check CCW Status   | _____         | _____      |
| RO  | Verify SI/RHR Flow<br>(Only SI Flow)   | _____         | _____      |
| BOP | Verify AFW Alignment   | _____         | _____      |
| BOP | Monitor Heat Sink <ul style="list-style-type: none"><li>• Check S/G Level &lt;50%<ul style="list-style-type: none"><li>- Secure AFW to S/G with &gt;50% level</li><li>- Control SG levels between 17-50%</li></ul></li></ul> | _____         | _____      |
| RO  | Check SI and RHR Alignment   | _____         | _____      |
| RO  | Check CCW to Thermal Barriers  | _____         | _____      |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|        |  | <u>RATING</u> | <u>N/A</u> |
|--------|--|---------------|------------|
| BOP    | Check if TDAFW Pump can be stopped <ul style="list-style-type: none"><li>Stop the TDAFW Pump</li></ul> | _____         | _____      |
| BOP    | Check Tav <sub>g</sub> trending to 547°F   | _____         | _____      |
| RO     | Check PORVs and Spray Valves   | _____         | _____      |
| RO/SRO | Determine RCP Trip Criteria is met <ul style="list-style-type: none"><li>Trip RCP's when met</li></ul> | _____         | _____      |

|  |            |              |
|--|------------|--------------|
| CT #2 E-1--C   | <u>SAT</u> | <u>UNSAT</u> |
| Trip RCPs within 5 minutes of reaching Trip Criteria | _____      | _____        |

|         |                            |       |       |
|---------|----------------------------|-------|-------|
| BOP     | Verify CREAT Isolation     | _____ | _____ |
| BOP     | Check S/G Secondary intact | _____ | _____ |
| BOP/SRO | Check S/G Tubes intact     | _____ | _____ |



|   |                    |                |
|---|--------------------|----------------|
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|            |  |       |       |
|------------|--|-------|-------|
| RO/SRO     | Check RCS intact (No LOCA inside CTMT) | _____ | _____ |
| RO/BOP/SRO | Check SI Termination Criteria          | _____ | _____ |
| SRO        | Notify STA to monitor CSFST            | _____ | _____ |
| BOP        | Control S/G Levels                     | _____ | _____ |
| RO         | Reset SI/CI                            | _____ | _____ |
| BOP/SRO    | Check SW Flow                          | _____ | _____ |
|            | • Dispatch AO to perform SD-1          |       |       |
| BOP/SRO    | Establish IA to CNMT                   | _____ | _____ |
| BOP/SRO    | Check S/G Rad Levels                   | _____ | _____ |



|  |                    |                |
|--|--------------------|----------------|
| CONSTITUTION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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6. EVALUATION (continued)

Response:

|        |  | <u>RATING</u> | <u>N/A</u> |
|--------|--|---------------|------------|
| RO/SRO | Check Aux Building Rad Levels  | _____         | _____      |
|        | <ul style="list-style-type: none"><li>Determine Rad levels are abnormal and Transistion to ECA-1.2</li></ul> |               |            |

NOTE: The operators, based on abnormal RHR System indications may perform an anticipatory action per A-503.1 and go to the steps for isolating RHR (Step 3)

|    |   |       |       |
|----|---|-------|-------|
| RO | Verify normal RHR Alignment   | _____ | _____ |
|    | <ul style="list-style-type: none"><li>700/701 Closed</li><li>720/721 Closed</li></ul> |       |       |

|    |  |       |       |
|----|--|-------|-------|
| RO | Verify CVCS Alignment  | _____ | _____ |
|    | <ul style="list-style-type: none"><li>310/296/392A Closed</li><li>313/371 Closed</li></ul> |       |       |



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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|        |  |       |       |
|--------|--|-------|-------|
| SRO/RO | Check for backflow into ECCS System      |       |       |
|        | • SI Reset                               | _____ | _____ |
|        | • Close 852A                             | _____ | _____ |
|        | • Check for RCS pressure increase (none) | _____ | _____ |
|        | • Open 852A                              | _____ | _____ |
|        | • Close 852B                             | _____ | _____ |
|        | • Verify RCS Pressure increasing         | _____ | _____ |

|  |            |              |
|--|------------|--------------|
| CT #3 ECA-1.2--A   | <u>SAT</u> | <u>UNSAT</u> |
| Isolate the LOCA Outside Containmant before<br>transistioning out of ECA-1.2 | _____      | _____        |

|        |                           |       |       |
|--------|---------------------------|-------|-------|
| RO/SRO | Check if Leak is isolated | _____ | _____ |
|        | • Go to E-1               |       |       |

NOTE: At some point SI Termination Criteria will be met. When it is, the operator should trainsition to ES-1.1, SI Termination.

NOTE: Action Step 1-9 have already been completed in E-0. Step 10 begins new actions.



|   |                    |                |
|---|--------------------|----------------|
| CONSTELLATION ENERGY<br>R. E. GINNA NUCLEAR POWER PLANT<br>EXAMINATION SCENARIO | NO.: 06-1-3        | REV: 0         |
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|            |   |  |  |
|------------|---|--|--|
| RO/BOP/SRO | Verify action already completed (Steps 1-9)   |  |  |
|            | <ul style="list-style-type: none"><li>• RCP Trip Criteria</li><li>• S/Gs intact</li><li>• Control S/G levels</li><li>• Monitor Secondary Rad levels</li><li>• PORVs</li><li>• Reset SI/CI</li><li>• SW Flow</li><li>• IA to CNMT restored</li></ul> |  |  |
| BOP/SRO    | Verify Normal Power to Busses 14/16   |  |  |
| RO         | Establish Charging Flow   |  |  |
|            | <ul style="list-style-type: none"><li>• Check RCP Seal Cooling</li><li>• Align Charging Suction to RWST</li><li>• Start Charging to restore PRZR level</li></ul>  |  |  |
| RO/BOP/SRO | Check SI Termination Criteria   |  |  |
|            | <ul style="list-style-type: none"><li>• Transition to ES-1.1</li></ul>  |  |  |