

CONSTELLATION ENERGY R. E. GINNA NUCLEAR POWER PLANT EXAMINATION SCENARIO	NO.: Exam 04-2 Scenario 1	REV: 0
	TITLE: NRC Exam Scenario 04-2-1	
	DATE: 9/13/04	PAGE: 1 of 16

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Date: 9/13/04

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Date: 9/16/04

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Examinees

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<p>CONSTELLATION ENERGY</p> <p>R. E. GINNA NUCLEAR POWER PLANT</p> <p>EXAMINATION SCENARIO</p>	NO.: Exam 04-2 Scenario 1	REV: 0
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# 1. SCENARIO OVERVIEW

- 1.1 The plant is initially at approximately 47% power following a load decrease to clean condenser water boxes. The operators are currently in procedure O-5.2, Load Increases and are ready to start the second Main Feedwater Pump and increase power to 100% at the normal rate of 10%/hr. The "B" Charging Pump is out of service for an overhaul and cannot be restored in less than 24 hours.
- 1.2 The crew will start the B MFW pump IAW O-5.2 Load Increases, step 5.2.11 and Attachment MFW Pump B and continue with the load increase at 10%/hr.
- 1.3 PT-449 Przr Pressure Controlling channel fails high causing full spray and RCS pressure to decrease rapidly. The crew should take manual control of PC-431K to close the spray valves and defeat the channel per ER-INST.1. The CRF should check Tech Specs for operability requirements (defeat in 6 hrs) (Tech Spec 3.3.1).
- 1.4 Safeguard Bus 16 Faults causing the bus to deenergize. The crew should respond using procedure AP-ELEC.14/16 and start redundant equipment and prepare for plant shutdown. The CRF should check Tech Specs for operability requirements (Tech Spec 3.8.9).
- 1.5 Charging Pump "A" trips causing loss of all charging flow. The crew should enter AP-CVCS.3, Loss of all Charging. They should initiate a rapid shutdown.
- 1.6 A main steamline rupture occurs resulting in a SI and PTS condition. The operator should respond per E-0, E-2, ECA-2.1 and FR-P.1 and take actions to reduce AFW Flow and Terminate SI to prevent over pressurizing the RCS.

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## 2. SCENARIO OBJECTIVES

2.1 Demonstrate the following abilities during the simulator scenario.

- 2.1.1 Ability to start a MFW pump and increase power at normal rates.
- 2.1.2 Ability to respond to a loss of PT-449 which causes a rapid RCS depressurization and to defeat the channel and restore normal operations.
- 2.1.3 Ability to respond to a loss of Safeguard Bus 16 and to take compensatory measures and start redundant equipment.
- 2.1.4 Ability to respond to a loss of all charging by performing a rapid power decrease taking the plant offline and shutting the reactor down.
- 2.1.5 Ability to respond to a PTS event by limiting the cooldown and terminating SI.

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### 3. CRITICAL TASKS (CTs)

#### CT FR-P.1-B

Task: Control the AFW flow rate in order to minimize RCS cooldown rate before transition out of FR-P.1.

Cues: RCS cold leg cooldown rate > 100°F in last 60 minutes  
and  
 Cold leg temperature on either cold leg is < 285°F  
and  
 AFW flow rate to faulted S/G is > 50 gpm

Indication: Manipulation of control to throttle AFW flow to both faulted S/G to 50 gpm (within the ability to control the AFW control valves)

Feedback: RCS cooldown slow and eventually stops

#### CT FR-P.1-A

Task: Terminate SI flow so that if the challenge to integrity CSF is  
 - severe, an extreme challenge is prevented  
 - extreme, SI is terminated by the end of the scenario

Cues: Indication of a red or orange challenge to the integrity CSFST  
and  
 SI and Rx trip actuated  
and  
 Indication that SI termination criteria are met

Indication: Manipulation of controls to terminate SI flow and SI and RHR pump breakers

Feedback: SI and RHR flow rate zero

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#### 4. INSTRUCTOR ACTIONS

<u>Problem Time</u>	<u>Actions</u>	<u>Notes</u>
4.1	Startup and setup the simulator per OTG-3.2	
	NOTE: Times may be varied at the discretion of the lead evaluator	
4.2	Initial Conditions	
4.2.1	IC-20 47% Power MOL Xenon increasing (Setup saved as IC-171)	Print out Xenon plant for plant conditions.
4.2.2	Verify A, C Charging Pumps running. Pull Stop "B" Charging Pump	A-52.4 on B Charging Pump out 4 days overhaul (Tracking only) TRM 3.1.1
4.2.3	Verify A MFW running B MFW Pump in Pull Stop	Fill out O-5.2 up to Step 5.2.11 (N/A up to step 5.2.10) B MFW Att fill out up to Step 8.0 (N/A A MFW Attachment).
4.2.4	Set up Turbine EHC for 10%/hour increase setter to 95% in Imp In, Place in Hold	
4.3	Insert Malfunctions	
4.3.1	PT-449 Fails High MALF PZR02D, 3100 psig, 30 sec Ramp, 0 sec TD Trigger 1	
4.3.2	Bus 16 Fault MALF EDS04B, 0 sec TD Trigger 2	
4.3.3	Trip of A Charging Pump MALF CVC12A, 0 sec TD, Trigger 3	

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4.3.4 Main Steam Line Rupture/Both  
MSIV's Stuck Open  
MALF STM05A, 100%, 0 sec TD  
MALF STM05B, 100%, 0 sec TD  
MALF STM03, 5E6 lbm/hr, 0 sec  
Ramp, 0 sec TD, Trigger 4

#### 4.4 Event Initiation

0 min	4.4.1 Start MFW Pump	Note: If CRF calls mechanic the B MFW motor shaft has already been centered.
10 min	4.4.2 PT-449 Fails High Trigger 1	
25 min	4.4.3 Bus 16 Faults Trigger 2	When notified to investigate, call back after 20 minutes, respond that it will take a few hours to repair (failed insulator on bus bar).
40 min	4.4.4 "A" Charging Pump Trip Trigger 3	AO reports burnt insulation smell in Charging Pump Room on investigation.
55 min	4.4.5 Steamline Rupture Trigger 4	AO cannot gain access to MSIV's due to steam.

Terminate scenario at direction of Lead Examiner.

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## 5. TURNOVER INFORMATION

### 5.1 Plant Status

47% Power MOL C<sub>B</sub> 850 ppm, Xenon increasing slightly. Came down from 100% 8 hours ago to look at one of the condenser water boxes (cleaned). The plant is ready to go back to 100% power. Currently at step 5.2.11 of O-5.2.

### 5.2 Equipment Out of Service

"B" Charging Pump is out for a major overhaul. It cannot be restored in less than 24 hours.

### 5.3 Work in Progress

Power increase per O-5.2  
 "B" Charging Pump overhaul

### 5.4 Planned Work

Return to 100% power

### 5.5 Significant Events

### 5.6 Remarks

Start the "B" MFW pump and increase load.

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6. EVALUATION

Event: 1

Event Title: Start the "B" MFW Pump

Expected Response/Behavior

CUES: Procedure O-5.2 directs start of the pump

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Direct BOP to start the B MFW pump IAW O-5.2 step 5.2.11 and Attachment B MFW pump	_____	_____
RO/BOP	Start the B MFW pump	_____	_____

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6 EVALUATION

Event: 2

Event Title: PT-449 Fails High

Expected Response/Behavior

CUES: PI-449 Fails High  
Hi PRZR Press Alarm  
Lo PRZR Press Alarm  
Both Spray Valves Open  
PI-429, 430, 431 Rapidly decreasing

Response:

		<u>RATING</u>	<u>N/A</u>
RO/BOP	Notify SRO of PT-449 Failing High Rapid decreasing PRZR Pressure	_____	_____
SRO	Direct RO to place PC-431K in manual and to manually control PRZR Pressure	_____	_____
SRO	Enter AP-PRZR.1 Abnormal PRZR Pressure	_____	_____
SRO	Direct RO to check PRZR Pressure Channels/Determine PT-449 has failed Refer to ER-INST.1	_____	_____
SRO	Enter ER-INST.1	_____	_____
SRO	Determine that PORV do not have to be isolated and Hot leg streaming is not an issue (no power reduction required)	_____	_____
SRO	Direct BOP to defeat PT-449 per attachment (STA or RO to peer or IV)	_____	_____
SRO	When attachment complete, direct RO to restore PC-431K to Auto	_____	_____

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SRO	Check Tech Spec - 3.3.1 functions 5, 7a - 3.3.1 functions 1 and 6 (all satisfied after defeat A-52.4 for tracking only)	_____
SRO	Return to AP-PRZR.1	_____
SRO	Direct restoration of normal plant conditions - PRZR Heater/Sprays - PORV - 431K	_____
SRO	Notify Higher Supervision	_____

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## 6. EVALUATION

Event: 3

Event Title: Bus 16 Fault

### Expected Response/Behavior

CUES: Breaker Trip  
 Bus 16 deenergized  
 B D/G starts but does not load

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Determine Bus 16 is lost, enter AP-ELEC.14/16	_____	_____
SRO	Direct rod be placed in manual	_____	_____
SRO	Check D/G's and Buses Determine ECA-0.0 should not be entered (Step 3 RNO)	_____	_____
SRO/RO/ BOP	Check Equipment - CCW Pumps - Charging Pumps - MFW Reg Valves	_____	_____
SRO	Direct starting of redundant equipment on Bus 14 - Boric Acid Pumps - RMW Pump - Rx Compartment Cooling Fan - Penetration Cooling Fan - SFP Cooling	_____	_____
SRO	Direct AO to Swap Aux Building Lighting	_____	_____
SRO	Direct AO to supply alternate cooling to D/G B and to cross connect the fuel oil transfer systems (ER-D/G.1)	_____	_____
SRO/RO	Check the following - VCT Makeup - Charging Pump (one running) - > 20 gpm Charging line flow	_____	_____

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- Letdown line flow
- Przr Heaters
- Rod

SRO	Direct crew to stabilize plant condition	_____	_____
	<ul style="list-style-type: none"> <li>- Tavg</li> <li>- PRZR Press</li> <li>- PRZR Level</li> </ul>		
SRO	Determine Bus 16 not restored	_____	_____
SRO	Check DC Loads	_____	_____
	<ul style="list-style-type: none"> <li>- TDAFW Pump Oil Pump</li> <li>- Battery Chargers <ul style="list-style-type: none"> <li>• Direct electricians crosstie B Battery to TSC</li> </ul> </li> </ul>		

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6. EVALUATION

Event: 4

Event Title: "A" Charging Pump Trip

Expected Response/Behavior

CUES: Loss of Charging Line and Seal Injection Flow  
 Regen Hx Hi Outlet Temp Alarm (A-4)  
 Motor Off Alarm (G-25)

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Recognize loss of charging Enter AP-CVCS.3	_____	_____
SRO	Direct restart of "A" Charging Pump	_____	_____
SRO	Direct Letdown be isolated	_____	_____
SRO	Direct RO/BOP to check the following: - Thermal Barrier Cooling - PRZR Level - VCT M/U	_____	_____
SRO	Determine no Charging Pumps available Go to Step 17 (Load Reduction)	_____	_____
SRO	Direct Load Reduction/4160V Bus Transfer	_____	_____
SRO	Direct monitoring of plant parameters - Tavg - IA - PRZR Press - MFW Reg Valves	_____	_____
SRO	Direct one MFW be secured	_____	_____

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SRO	Direct Checking - Trim valves - AMSAC - HDT pump	_____
SRO	Direct MFW Bypass Valve be placed in Auto and systems aligned for low power operations	_____
SRO	Direct Turbine Trip and Verification of Steam Dump operation	_____
SRO	Direct Rx Shutdown	_____

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6. EVALUATION

Event: 5

Event Title: Steamline Rupture Both MSIV Stuck Open

Expected Response/Behavior

CUES: Loud Noise in MCR  
Steam Pressure decreases rapidly  
SI

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Recognize SI occurred Transition to E-0	_____	_____
SRO	Verify Immediation Actions - Rx Trip - Turbine Trip - Power - SI	_____	_____
SRO	Verify Auto Actions (step 5-13) One Train only (Bus 16 deenergized)	_____	_____
SRO	Monitor Heat Sink	_____	_____
SRO	Direct RO/BOP to check System Alignments - SI/RHR - CCW to RCP Thermal Barriers - TDAFW (Do not stop)	_____	_____
NOTE: May throttle AFW to 50 gpm/SG based on ECA-2.1, Anticipatory Action.			
SRO	Check RCS Temp - Decreasing uncontrollably - Direct throttling AFW to 200 gpm total - Attempt to close MSIV's	_____	_____
SRO	Check S/G Secondary Sides Determine they are faulted Transition to E-2	_____	_____

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(Note: At some point, depending on the rate they proceed through E-2 and ECA-2.1, they will reach an Orange Path on FR-P Integrity Status Tree. When they reach that point, the SRO should transition to FR-P.1)

SRO	Direct attempt to close MSIV's	_____	_____
SRO	Determine both S/G's Faulted Transition to ECA-2.1	_____	_____
SRO	Direct attempt to isolate S/G (ECA-2.1 Step 1)	_____	_____

		SAT	UNSAT
CT FR P.1-B	Control the AFW Flow Rate before an extreme (Red Path) challenge develops to the integrity CSFST (Throttle AFW to ~ 50 gpm/SG)	_____	_____

(More actions may be taken in ECA-2.1 depending on timing)

SRO	Determine Orange Path exists Transition to FR-P.1	_____	_____
SRO	Check RCS Pressure and Cold Leg Temp (Control AFW flow)	_____	_____
SRO	Check SI Pump Running	_____	_____
SRO	Determine SI can be terminated	_____	_____
SRO	Direct Reset of SI	_____	_____
SRO	Direct stopping all SI and RHR pumps	_____	_____

		SAT	UNSAT
CT FR P.1-A	Terminate SI flow so that if the challenge to The integrity CSF is severe and extreme Challenging is powerful and if extreme, SI is Terminated prior to the end of the scenario.	_____	_____

(NOTE: Do not terminate scenario until a Red Path exists on the Integrity CSFST in order to allow for proper classification.)

End Scenario

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Date: 9/16/04

Time validated 80 minutes By: Ken Masker  
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Examinees

Evaluators

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Final review \_\_\_\_\_  
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# 1. SCENARIO OVERVIEW

- 1.1 The plant is at 100% power, MOL, Xenon Equilibrium condition. The "B" RHR pump is OOS due to a seal cooler leak and the CNMT Recirc Fan B is OOS due to a motor cooler leak.
- 1.2 PT-427 Przr level fails low causing a letdown isolation. The crew should respond using ER-INST.1 to defeat the channel and S-3.2E to restore letdown.
- 1.3 Upon restoring Letdown, a leak develops in the non-regen Hx causing loss of RCS coolant to the CCW system. The crew should terminate the leak per AP-CCW.1.
- 1.4 RCS Flow Transmitter FT-412 fails low. The crew should defeat it per ER-INST.1.
- 1.5 High turbine vibration occurs. The crew should enter AP-TURB.3 and reduce load to stabilize vibration.
- 1.6 A SBLOCA occurs. The crew should respond using E-0 and E-1.
- 1.7 The only available RHR pump trips. The crew should enter ECA-1.1 start a 100°F/hr cooldown and minimize the amount of injection water.

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## 2. SCENARIO OBJECTIVES

2.1 Demonstrate the following abilities during the simulator scenario.

- 2.1.1 Ability to respond to a failure of LT-427 by placing the channel in defeat and restoring Letdown.
- 2.1.2 Ability to respond to a non-regen Hx leak by isolating Letdown and placing Excess Letdown in service.
- 2.1.3 Ability to respond to a FT-412 failure by defeating the channel per ER-INST.1.
- 2.1.4 Ability to respond to a High Turbine Vibration by reducing load to stabilize vibration.
- 2.1.5 Ability to respond to a SBLOCA by utilizing E-0 and E-1.
- 2.1.6 Ability to respond to a loss of emergency coolant recirculation.

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### 3. CRITICAL TASKS (CTs)

#### CT E-1--C

Task: Trip the RCPs within 5 minutes of the time RCP trip criteria met

Cues: Two SI pumps running

and

RCS pressure minus maximum SG pressure is < 175 psig (400 psig adverse)

Indication: RCPs are manually tripped

Feedback: RCPs indicate tripped from status lights  
No flow indicated on loop flow instruments

#### CT ECA-3.1-B

Task: Cool down the RCS to cold shutdown conditions at highest rate achievable but less than 100°F/hr. In both RCS cold legs.

Cues: Indication that SI is required

- RCS pressure

and

Emergency coolant recirculation cannot be established

- RHR pump cannot be started

and

RWST inventory being depleted

- RWST level indicators

Indication: Manipulation of controls as required to initiate RCS cooldown at the highest rate achievable but less than 100°F/hr. In both RCS cold legs.

- ARV or condenser steam dump

- Control SG water level to maintain heat sink

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### 3. CRITICAL TASKS (CTs)

#### CT ECA-1.1-B

Task: Minimize RWST outflow.

Cues: Indication that SI is required

- RCS pressure

and

Emergency coolant recirculation cannot be established

- RHR pump cannot be started

and

RWST inventory being depleted

- RWST level indicators

and

Procedure directs that SI flow be reduced

Indication: Manipulation of controls to reduce injection flow in accordance with ECA-1.1.

Feedback: SI and charging flow

Reduced depletion rate of RWST

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#### 4. INSTRUCTOR ACTIONS

<u>Problem Time</u>	<u>Actions</u>	<u>Notes</u>
4.1	Startup and setup the simulator per OTG-3.2	
	NOTE: Times may be varied at the discretion of the lead evaluator	
4.2	Initial Conditions	
4.2.1	Set up Simulator to IC-19 100% MOL (NOTE: Setup saved as IC-172)	
4.2.2	Place the following components in pull stop	
	- RHR Pump B	A-52.4 TS 3.5.2A 24 hours into 72 hr clock
	- CNMT Recirc Fan B	A-52.4 TS 3.6.6F 8 hours into 7 day clock
	- Start the C Recirc Fan	
4.2.3	Insert Malfunctions	
4.2.3.1	Pressurizer Level Malfunction MALF PZR03B, 0, 10 sec ramp, 0 time delay Trigger 1	
4.2.3.2	Non-Regen Hx Leak MALF CLG03 25 gpm, 0 sec ramp, 0 time delay Trigger 2	
4.2.3.3	RCS Flow Transmitter Failure MALF RCS10B, 0, 30 sec ramp, 0 time delay Trigger 3	

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4.2.3.4 Turbine High Vibration  
MALF TUR05E, 9 mils, 600  
sec ramp, 0 time delay  
Trigger 4

4.2.3.5 RCS SBLOCA  
MALF RCS02B, 1000 gpm,  
0 sec ramp, 0 time delay  
Trigger 5

4.2.3.6 RHR Pump A Trip  
MALF RHR01A, 0 time delay  
Trigger 6

#### 4.4 Event Initiation

2 min                      4.4.1 LT-427 Failure  
Trigger 1

15 min  
(After  
Letdown  
restored)                      4.4.2 Non-Regen Hx Leak  
Trigger 2

25 min                      4.4.3 RCS Flow Transmitter fails  
Trigger 3

35 min                      4.4.4 Turbine High Vibration  
Trigger 4

When the operator decreases power by 5%, lower turbine vibration to 5 mils, 120 sec ramp

50 min                      4.4.5 SB LOCA  
Trigger 5

~60 min                      4.4.6 RHR Pump Trip  
Trigger 6

Trigger RHR pump trip immediately following transition to E-1.

Terminate scenario as directed by the Lead Examiner.

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5. TURNOVER INFORMATION

5.1 Plant Status

The plant is at 100% MOL condition, C<sub>x</sub> 845 ppm Xenon Equalibrium.

5.2 Equipment Out of Service

"B" RHR Pump (A-52.4 out for 24 hours on a 72 hour clock)

"B" CNMT Recirc Fan (A-52.4 out for 8 hours on a 7 day clock)

5.3 Work in Progress

"B" RHR Pump Cooler Repair

5.4 Planned Work

CNMT entry later this shift for work on the B CNMT Recirc Fan Cooler

5.5 Significant Events

None

5.6 Remarks

Continue 100% power operation, restore "B" RHR pump and "B" CNMT Recirc Fan as soon as repairs are complete.

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## 6. EVALUATION

Event: 1

Event Title: LT-427 Fails Low

### Expected Response/Behavior

CUES: Pressurizer Lo Level Alarm (F-11)  
 Letdown Isolation  
 Mismatch between LI-426, 428 and 427

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Recognize LT-427 Failure. Enter ER-INST.1.	_____	_____
SRO	Direct RO to perform the following: - Place charging to manual - Minimize charge flow - Adjust HCV-142 - Close AOV's 427, 200A/B, 202	_____	_____
SRO	Direct BOP to defeat LT-427 per Attachment PRZR LEVEL LI-427 White Channel	_____	_____
SRO	When attachment is complete, direct RO to restore PRZR Heaters and perform S-3.2E to restore Letdown	_____	_____
SRO	Check Tech Specs 3.3.1 Function 8, 3.3.3 Function 2, 3.4.9	_____	_____

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6. EVALUATION

Event: 2

Event Title: Non-Regen Hx Tube Leak

Expected Response/Behavior

CUES: R-17 CCW Surge Tank Radiation Alarm  
 CCW Surge Tank Level increasing

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Recognize symptom of leakage into CCW Enter AP-CCW.1	_____	_____
SRO	Direct RP to perform CH-PRI-CCW-LEAK	_____	_____
SRO/RO	Determine leak not in Thermal Barrier	_____	_____
SRO	Determine leak in Non-Regen Hx Direct RO to isolate letdown	_____	_____
SRO	Determine leakage stopped Direct RO to place Excess L/D in service per Attachment 9.1	_____	_____
SRO	Direct RO/BOP to stabilize plant	_____	_____
SRO	Determine plant operation can continue	_____	_____
SRO	Consult with RP about draining CCW Surge Tank (if > 50% level)	_____	_____
SRO	Notify higher supervision	_____	_____

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6. EVALUATION

Event: 3

Event Title: RCS Flow Transmitter Failure

Expected Response/Behavior

CUES: RCS Low Flow Channel Alert  
 FI-412 Indicates Zero

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Enter ER-INST.1	_____	_____
SRO	Direct BOP to defeat LT-412 per attachment IA-2 Rx Coolant Flow FI-412 White Channel	_____	_____
SRO	Check Tech Specs Section 3.3.1 Functions 9a and 9b	_____	_____

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## 6. EVALUATION

Event: 4

Event Title: Turbine High Vibration

### Expected Response/Behavior

CUES: High Vibration Alarm (I-27)

Response:

		<u>RATING</u>	<u>N/A</u>
SRO	Enter AP-TURB.3	_____	_____
SRO	Direct BOP to monitor Turb Vib	_____	_____
SRO	When vibration greater than 7 mil, refer to AP-TURB.5 and reduce load	_____	_____
SRO	Direct RO/BOP to initiate Load Reduction - Rods in Auto - EHC/Rate - Steam Dump Operation	_____	_____
SRO	Verify vibration stabilized Direct load decrease to be stopped	_____	_____
SRO	Direct RO/BOP to stabilize plant Restore normal equipment lineup	_____	_____
SRO	Direct AO to check turbine for noise	_____	_____
SRO	Notify higher supervision	_____	_____

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## 6. EVALUATION

Event: 5/6

Event Title: RCS SBLOCA/Loss Emergency Coolant Recirc

### Expected Response/Behavior

CUES: RCS Pressure decreasing  
 CNMT Radiation Alarms  
 PRZR Level decreasing

Response:

(NOTE: May enter AP-RCS.1 RCS Leak but time in this procedure will be limited)

RATING

N/A

SRO Recognize Rx Trip. Enter E-0.

\_\_\_\_\_

SRO Verify Immediate Actions (May manually actuate SI)

\_\_\_\_\_

SRO Direct verifications of equipment status (steps 5-18)

\_\_\_\_\_

SRO Direct throttling of AFW as necessary (16)  
 Control Tavg (20)

\_\_\_\_\_

		SAT	UNSAT
CT E-1--C	Trip the RCP within 5 minutes of RCP Trip criteria being met	_____	_____

SRO Check for Steam Line break, SGTR, LOCA  
 Determine LOCA has occurred, go to E-1

\_\_\_\_\_

NOTE: At this time, the "A" RHR will trip

SRO Check Secondary Side Parameters  
 - Intact  
 - Level  
 - Radiation

\_\_\_\_\_

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SRO	Direct Reset of SI and CI	_____	_____
SRO	Direct Restoration of Inst Air - Check SW - Restore IA to CNMT	_____	_____
SRO	Direct Charging Flow be established	_____	_____
SRO	Determine SI cannot be terminated	_____	_____
SRO	Check RCS Temp/Pressure Continue with Step 16 (LOCA exists)	_____	_____
SRO	Direct BOP to stop D/G	_____	_____
SRO	Determine Sump Recirc not available. Transition to ECA-1.1.	_____	_____
SRO	Check Recirc Equipment - RHR Pump not available - Direct attempts to restore RHR be initiated	_____	_____
SRO	Check Recirc Fans all running and RWST > 15%	_____	_____

		SAT	UNSAT
CT ECA 1.1-B	Minimize RWST Outflow - Reduce CNMT Spray per table (Step 4) - Establish one train of ECCS (Step 10) - Limit RCS injection (Step 17)	_____	_____

		SAT	UNSAT
CT ECA 3.1-B	Cooldown the RCS to CSD at highest rate achievable but less than 100°F/hr in both Cold Legs	_____	_____

SRO	Direct RO to establish 20 gpm charging time flow	_____	_____
SRO	Check if an RCP can be started Direct start of an RCP (May not meet subcooling at this time and, therefore, not start the RCP	_____	_____

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Terminate Scenario