
Scenario Event Description

NRC Scenario 1

Ginna 2007 NRC Scenario #1

The plant is at approximately 48% power (BOL), with both A and B MFW Pumps operating. Load was reduced due to 'A' MFW pump vibration. Pump repairs have been made, the pump has been tested and restarted, and a Load Ascension is anticipated.

The following equipment is Out-Of-Service: A EDG (Expected back in 4 hours), and Containment Pressure channel PT-945 (The channel has been defeated per ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure.")

Following turnover the SRO directs the RO to swapover Letdown Orifice valves from AOV-202 to AOV-200B in accordance with S-3.2P, "Swapping CVCS Letdown Orifice Valves."

Shortly afterwards, seat leakage will develop from PORV PCV-430. The operator will respond in accordance with AR-F-19, "Przr PORV outlet Hi Temp 145°F." The operator will address AP-PRZR.1, "Abnormal Pressurizer Pressure," and close Block Valve MOV-516. The SRO will address Technical Specifications 3.4.11, "Pzr Power Operated Relief Valves," and 3.4.13, "RCS Operational Leakage," as well as Technical Requirements Manual section 3.4.3, "ATWS Mitigation."

Shortly after the PORV isolation, the Energy Control Center notifies the Control Room that the Post-Contingency Low Voltage Alarm has been received for the Off-Site Power System. The operator will enter O-6.9, "Operating Limits for Ginna Station Transmission," and address Technical Specification 3.8.1, "AC Sources Modes 1-4." (LER 2006-02) The operator will expedite restoration of the A EDG.

Shortly after this, VCT Level Transmitter LT-112 will fail low. The operator will respond in accordance with AR-A-2, "VCT Level 14%86," and control the Reactor Makeup System manually.

Following this an Electrical Ground Fault occurs on Safeguards Bus 16, and the bus deenergizes. The operator will respond in accordance with AR-L-5, "Safeguards Bus Main Breaker Overcurrent Trip," and AR-L-7, "Bus 16 Undervoltage Safeguards," And ultimately respond in accordance with AP-ELEC.14/16, "Loss of Safeguards Bus 14/16." Technical Specification 3.8.1, "AC Sources Modes 1-4," will be addressed, as will Technical Specification 3.8.9, "Distribution Systems Modes 1-4." At this point, Plant Management will make a decision to conduct a plant shutdown at 1%/Minute. The crew will start a shutdown in accordance with AP-TURB.5, "Rapid Load Reduction."

During the load decrease, a Control Rod will drop into the Reactor core. The operator will respond in accordance with AR-E-28, "Power Range Rod Drop Rod Stop -5%/5sec," and transition to AP-RCC.3, "Dropped Recovery." Shortly afterwards a second Control Rod will drop into the Reactor core. The operator will manually trip the reactor, and enter E-0, "Reactor Trip or Safety Injection." The operator will transition to ES-0.1, "Reactor Trip Response."

While in ES-0.1 recovering the plant a total loss of Off-Site Power will occur. The operator will need to transition to ECA 0.0, "Loss of All AC Power," and respond to a station blackout. The TDAFW Pump will fail to auto start. The operator will need to open these valves to restore AFW flow.

With AFW flow restored the Work Control Center will call and indicate that the "A" EDG is now ready for service. The operator will start the "A" EDG and restore power to Bus 14 and 18.

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The scenario will end with the "A" EDG powering busses 14 and 18, and the operator has returned to ES-0.1, "Reactor Trip Response."

Critical Tasks:

CT ECA-0.0--B

- Establish greater than 200 gpm AFW flow before both S/G's levels decrease to < 35" wide range level.

CT ECA-0.0

- Restore AC Power to at least one Emergency Bus prior to placing pump control switches in Pull-Stop in ECA-0.0.

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Simulator Malfunction List

At Start:

IC # 171

Place Hold Tags on:

- Bus 14 Emergency Feeder Breaker
- Bus 18 Emergency Feeder Breaker
- A EDG Control Switch
- A EDG Pushbutton

Place Protected Equipment Tags on:

- Bus 16 Emergency Feeder Breaker
- Bus 17 Emergency Feeder Breaker
- B EDG Control Switch
- B EDG Pushbutton

Malf.	GEN04A	"A" EDG Failure
Malf.	IND-MIS36	PT-945 Failure
Malf.	RPS-07M	TDAFW Pump Failure
Malf.	RPS-07N	TDAFW Pump Failure

Event #1	NONE
Event #2	Malf. Pzr05A (2%) on Trigger #1
Event #3	E-MIS 10 to 1.0 (Ramp in over 60 sec.) on Trigger #2
Event #4	Malf. CVC10A to 0% on Trigger #3
Event #5	Malf. EDS04B on Trigger #4
Event #6	NONE
Event #7	Malf. ROD02-J4 on Trigger #5
Event #8	Malf. ROD02-J10 on Trigger #6
Event #9	Malf. EDS06 1 (FAST) on Trigger #7
Event #10	NONE
Event #11	Clear Malf. GEN04A

Scenario Event Description

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Shift Turnover:

The plant is at approximately 48% power (BOL), with both A and B MFW Pumps operating. Load was reduced due to 'A' MFW pump vibration. Pump repairs have been made, the pump has been tested and restarted, and a Load Ascension is anticipated.

Power history is as follows: Power reduced from 100% Steady-State conditions 48 hours ago. Stable since then while MFW Pump repairs were made.

The following equipment is Out-Of-Service: A EDG (Expected back in 4 hours), and Containment Pressure channel PT-945 (The channel has been defeated per ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure.").

Hold Tags have been placed on:

- Bus 14 Emergency Feeder Breaker
- Bus 18 Emergency Feeder Breaker
- A EDG Control Switch
- A EDG Pushbutton

Protected Equipment Tags have been placed on:

- Bus 16 Emergency Feeder Breaker
- Bus 17 Emergency Feeder Breaker
- B EDG Control Switch
- B EDG Pushbutton

Chemistry has requested you to swapover Letdown Orifice valves from AOV-202 to AOV-200B.

Scenario Event Description
NRC Scenario 1

A-52.4

Equipment	Date	Time	Reason	Required Actions	Required Completion Date/Time	Required Action not met
PT-945	_/_/07	0330	Failed Channel	<p>ITS 3.3.2 Condition A Enter Condition referenced on Table 3.3.2-1 (1c, 2c, 4c) immediately.</p> <p>Condition F (From 4c) – Place Channel in Trip within 6 hours.</p> <p>Condition J (From 1c, 2c) – Place Channel in Trip within 6 hours.</p>	TRACKING ONLY	<p>Condition G – Be in Mode 3 within 6 hours, and Mode 4 within 12 hours.</p> <p>Condition K – Be in Mode 3 within 6 hours, and Mode 5 within 36 hours.</p>
'A' Emergency Diesel Generator	_/_/07	_____	Breaker maintenance	<p>ITS 3.8.1 Condition B</p> <ul style="list-style-type: none"> • Perform SR 3.8.1.1 for the Offsite Circuit within 1 hour and Once per 8 hours thereafter. • Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable within 4 hours of the discovery of Condition B concurrent with inoperability of required redundant features. • Determine operable DG is not inoperable due to a common cause failure; OR, Perform SR3.8.1.2 for operable DG within 24 hours. • Restore DG to operable within 7 days. 	_/_/07 _____	

Op Test No.:	<u>1</u>	Scenario #	<u>1</u>	Event #	<u>1</u>	Page	<u>7</u>	of	<u>35</u>
Event Description: Swap Letdown Orifice Valves									
Time	Position	Applicant's Actions or Behavior							

Following turnover the SRO directs the RO to swapover Letdown Orifice valves from AOV-202 to AOV-200B in accordance with S-3.2P, "Swapping CVCS Letdown Orifice Valves."

Booth Operator Instructions: NA

Indications Available: NA

S-3.2P "Swapping CVCS Letdown Orifice Valves."

5.2 Decreasing Letdown Flow from 60 gpm to 40 gpm.

NOTE: PCV-135 should be adjusted to control Letdown pressure at - 300 psig to accommodate the pressure decrease when swapping from a 60 gpm orifice to a 40 gpm orifice.

RO

Place PCV-135 to MANUAL AND adjust as necessary to control Low Pressure Letdown pressure at approximately 300 psig.

RO

Place TCV-130 to MANUAL if desired and adjust as necessary. N/A if not desired.

NOTE: The next step requires two actions, ensure AOV-202 closed prior to opening AOV-200A or AOV-200B.

RO

Close 60 gpm orifice valve, THEN immediately open 40 gpm orifice valve (N/A 40 gpm orifice valve not opened).

RO

Adjust PCV-135 to achieve Letdown pressure of - 250 psig on PI-135.

RO

Ensure PCV-135 controller signal is nulled/balanced and then Place PCV-135 to AUTO, if desired.

Op Test No.: 1 Scenario # 1 Event # 1 Page 8 of 35Event Description: **Swap Letdown Orifice Valves**

Time	Position	Applicant's Actions or Behavior
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	RO	Place or ensure TCV-130 is in AUTO, if desired.
	RO	Monitor Charging/Letdown mismatch. IF desired, THEN place charging in manual. IF not desired, THEN N/A this step.
At the Discretion of the Lead Examiner Move to Event #2.		

Op Test No.:	1	Scenario #	1	Event #	2	Page	9	of	35
Event Description: PORV Leakage on PCV-430									
Time	Position	Applicant's Actions or Behavior							

Shortly afterwards, seat leakage will develop from PORV PCV-430. The operator will respond in accordance with AR-F-19, "Przr PORV outlet Hi Temp 145°F." The operator will address AP-PRZR.1, "Abnormal Pressurizer Pressure," and close Block Valve MOV-516. The SRO will address Technical Specifications 3.4.11, "Pzr Power Operated Relief Valves," and 3.4.13, "RCS Operational Leakage," as well as Technical Requirements Manual section 3.4.3, "ATWS Mitigation."

Booth Operator Instructions: **Operate Trigger #1 (PZR 05A (2%)).**

Indications Available:

		PPCS Alarm (PORV Mid-position)/F-19
		Both Valve Position Status lights for PORV 430 are lit.

AR-F-19 PRZR PORV Outlet HI Temp 145°F.

	SRO	IF Pressurizer pressure is decreasing, THEN GO TO AP-PRZR.1.
		NOTE: SRO may carry out AP-PRZR.1 and AR-F-19 simultaneously.

AP-PRZR.1 "Abnormal Przr Pressure"

	RO	Check PRZR Pressure:
		<ul style="list-style-type: none"> All 4 narrow range channels – APPROXIMATELY EQUAL All 4 narrow range channels – TRENDING TOGETHER
	RO	Check Reactor Power – STABLE
	RO	Check PRZR Pressure:
		<ul style="list-style-type: none"> Pressure – LESS THAN 2235 PSIG Pressure – GREATER THAN 2000 PSIG
	RO	Check PRZR Heater Status:
		<ul style="list-style-type: none"> PRZR proportional heater breaker – CLOSED. PRZR heater backup group - ON

Op Test No.: 1 Scenario # 1 Event # 2 Page 10 of 35Event Description: **PORV Leakage on PCV-430**

Time	Position	Applicant's Actions or Behavior
	RO	Verify Normal PRZR Spray Valves - CLOSED
NOTE: With PRZR pressure controller 431K in manual, PORV-431C will not operate in the automatic mode (refer to TR 3.4.3).		
	RO	Check PRZR Pressure Controller, 431K, Demand – LESS THAN 50%.
NOTE: The Reactor Operator will attempt to close the PORV without direction, and upon discovering that the PORV will not close, attempt to close Block valve MOV-516. Once this action is complete, or during the process that it is occurring the RO will report this to the SRO.		
	RO	Check PRZR PORVs:
		<ul style="list-style-type: none"> PORVs – CLOSED. (Note: PCV 430 is indication mid-position)
	RO	Manually close PORVs.
	RO	IF any valve can NOT be closed, THEN manually close the associated block valve.
		<ul style="list-style-type: none"> MOV-516 for PCV-430.
	RO	Annunciator F-19, PRZR PORV OUTLET HI TEMP 145°F Extinguished. (This annunciator will not be extinguished)
		If PORV leakage is indicated, then perform the following:
		<ul style="list-style-type: none"> Close PORV Block Valve one at a time and check if Pressure stabilizes.
		<ul style="list-style-type: none"> If leaking PRZR PORV is identified, then open any non-leaking PORV Block Valve and go to step 8.
		NOTE: It is expected that MOV 516 will be closed upon arrival of this action. The SRO will note this and move on to step 8.

Op Test No.: 1 Scenario # 1 Event # 2 Page 11 of 35Event Description: **PORV Leakage on PCV-430**

Time	Position	Applicant's Actions or Behavior
	RO	Attempt to reseal any leaking PORV
		<ul style="list-style-type: none"> Verify affected PORV Block Valve closed. Cycle the leaking PORV open and closed. Verify leakage has stopped. If leakage continues Then: Reclose leaking PORV Block Valve. Refer to ITS section 3.4.11 and TR 3.4.3. Go to Step 11.
	RO	Check PRZR Pressure Control Restored:
		<ul style="list-style-type: none"> Pressure – TRENDING TO 2235 PSIG
	RO	Check PRT Indications:
		<ul style="list-style-type: none"> Level – BETWEEN 61% AND 84% Pressure – APPROXIMATELY 1.5 PSIG AND STABLE Temperature – AT CNMT AMBIENT TEMPERATURE AND STABLE
	RO	Establish PRZR Pressure Control In Auto:
		<ul style="list-style-type: none"> Verify 431K in AUTO Verify PRZR spray valves in AUTO. Verify PRZR heaters restored:
	Crew	Evaluate MCB Annunciator Status
	SRO	Notify Higher Supervision
	SRO	Notify Reactor Engineer for Transient Monitoring Program

Op Test No.: 1 Scenario # 1 Event # 2 Page 12 of 35Event Description: **PORV Leakage on PCV-430**

Time	Position	Applicant's Actions or Behavior															
		AR-F-19 PRZR PORV Outlet HI Temp 145°F.															
		NOTE: SRO may carry out AP-PRZR.1 and AR-F-19 simultaneously.															
	RO	Check PRZR PORV Outlet temperature, TI-438.															
	RO	Check PRT parameters.															
	RO	Check Containment temperature.															
	SRO/RO	Start OR swap Containment Recirc Fans per Shift Supervisor directions.															
	SRO	Refer to ITS LCO 3.4.11 and 3.4.13.															
	SRO	LCO 3.4.11															
		Each PORV and associated block valve shall be OPERABLE.															
		<table> <thead> <tr> <th><u>CONDITION</u></th><th><u>REQUIRED ACTION</u></th><th><u>COMPLETION TIME</u></th></tr> </thead> <tbody> <tr> <td rowspan="3">One PORV Inoperable.</td><td>B.1 Close associated block valve.</td><td>1 hour</td></tr> <tr> <td>AND</td><td></td></tr> <tr> <td>B.2 Remove power from associated block valve.</td><td>1 hour</td></tr> <tr> <td rowspan="2">AND</td><td></td><td></td></tr> <tr> <td>B.3 Restore PORV to OPERABLE status.</td><td>72 hours</td></tr> </tbody> </table>	<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>	One PORV Inoperable.	B.1 Close associated block valve.	1 hour	AND		B.2 Remove power from associated block valve.	1 hour	AND			B.3 Restore PORV to OPERABLE status.	72 hours
<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>															
One PORV Inoperable.	B.1 Close associated block valve.	1 hour															
	AND																
	B.2 Remove power from associated block valve.	1 hour															
AND																	
	B.3 Restore PORV to OPERABLE status.	72 hours															
	SRO	LCO 3.4.13															
		RCS operational LEAKAGE															
		NOTE: SRO will check and determine insufficient data to quantify leakage/no entry.															
	SRO	TRM 3.4.3															

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Event Description: PORV Leakage on PCV-430									
Time	Position	Applicant's Actions or Behavior							

		Anticipated Transients Without Scram (ATWS) Mitigation		
		<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>
		A. One or more PORV automatic flow path inoperable.	A.1 Declare ATWS mitigating capability inoperable.	Immediately
At the Discretion of the Lead Examiner Move to Event #3.				

Op Test No.: 1 Scenario # 1 Event # 3 Page 14 of 35Event Description: **Post Contingency Low Voltage Alarm Occurs**

Time

Position

Applicant's Actions or Behavior

Shortly after the PORV isolation, the Energy Control Center notifies the Control Room that the Post-Contingency Low Voltage Alarm has been received for the Off-Site Power System. The operator will enter O-6.9, "Operating Limits for Ginna Station Transmission," and address Technical Specification 3.8.1, "AC Sources Modes 1-4." (LER 2006-02) The operator will expedite restoration of the A EDG.

Booth Operator Instructions: **Operate Trigger #2 (E-MIS10 (1.0 ramp in over 60 seconds))**

Booth Operator Instructions: **Call Control Room with Energy Operations phone. Tell SRO that the Ginna Post Contingency Low Voltage Alarm has occurred due to the system load. You will inform him when it has cleared.**

Indications Available:**O-6.9 "Operating Limits for Ginna Station Transmission."**

	SRO	6.3 Low Voltage Condition at 13A With Generator Output Breaker(s) Closed
	SRO	IF RG&E ECC informs the Control Room that a Ginna Post Contingency Low Voltage Alarm has occurred THEN DECLARE offsite power inoperable (Refer to ITS 3.8.1).

NOTE: **RG&E ECC will be taking action to clear the Post Contingency Low Voltage Alarm. WHEN the alarm has cleared, THEN RG&E ECC will inform the Control Room that the alarm has cleared and the post-contingency voltage is above the minimum required voltage.**

	SRO	LCO 3.8.1
		AC Sources – MODES 1, 2, 3, and 4

CONDITIONREQUIRED ACTIONCOMPLETION TIME

C. Offsite power to one or more 480V safeguards bus(es) inoperable.

C.1 Restore required offsite circuit to OPERABLE status.

12 hours

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Event Description: Post Contingency Low Voltage Alarm Occurs									
Time	Position	Applicant's Actions or Behavior							

		AND	OR			
		One DG inoperable.	C.2	Restore DG to OPERABLE status.	12 hours	
	SRO	TR 3.8.1				
		<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>		
		B. Two Off-Site Power Circuits inoperable.	B.1 Enter LCO 3.8.1.	Immediately		
	SRO	Contact Maintenance Department and check on availability of A EDG. Ask that work be expedited.				
At the Discretion of the Lead Examiner Move to Event #4.						

Op Test No.:	1	Scenario #	1	Event #	4	Page	16	of	35
Event Description: VCT Level Transmitter (LT-112) Fails Low									
Time	Position	Applicant's Actions or Behavior							

Shortly after this, VCT Level Transmitter LT-112 will fail low. The operator will respond in accordance with AR-A-2, "VCT Level 14%86," and control the Reactor Makeup System manually.		
Booth Operator Instructions: Operate Trigger #3 (CVC10A (0%))		
Indications Available:		
		A-2 VCT LEVEL 14% 86
		MCB VCT level at "0%"
AR-A-2, "VCT LEVEL 14% 86."		
	SRO	IF channel failure is indicated, THEN refer to Attachment 1 and Figure 1 to respond to VCT level transmitter failure.
		LT-112 FAILED LOW
	SRO/RO	<ul style="list-style-type: none"> Notify AO to monitor LI-139 in valve alley, and report reading.
	RO	<ul style="list-style-type: none"> Auto makeup will start and operate continuously. Upon verification from AO that VCT level as indicated on LI-139 is greater than 30%, secure auto makeup by taking control switch to OFF.
	RO	<ul style="list-style-type: none"> Inform AO to notify Control Room for makeup requirement when LI-139 indicates approximately 20%.
NOTE: Booth Operator should verify and report VCT Level from LI-139 using VCT Screen Drawing VCT 1.		
	RO	<ul style="list-style-type: none"> Perform makeup by one of the following methods:
		<ul style="list-style-type: none"> Rearm auto makeup to start the auto makeup, then disarm when LI-139 is greater than 30%.
At the Discretion of the Lead Examiner Move to Event #5.		

Op Test No.:	<u>1</u>	Scenario #	<u>1</u>	Event #	<u>5</u>	Page	<u>17</u>	of	<u>35</u>
Event Description: An Electrical Ground Fault Occurs on Safeguards Bus 16									
Time	Position	Applicant's Actions or Behavior							

Following this an Electrical Ground Fault occurs on Safeguards Bus 16, and the bus deenergizes. The operator will respond in accordance with AR-L-5, "Safeguards Bus Main Breaker Overcurrent Trip," and AR-L-7, "Bus 16 Undervoltage Safeguards," And ultimately respond in accordance with AP-ELEC.14/16, "Loss of Safeguards Bus 14/16." Technical Specification 3.8.1, "AC Sources Modes 1-4," will be addressed, as will Technical Specification 3.8.9, "Distribution Systems Modes 1-4."

Booth Operator Instructions: Operate Trigger #4 (EDS04B)

Indications Available:

		L-5 SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP
		L-7 BUS 16 UNDER VOLTAGE SAFEGUARDS
		Voltage on Bus 16 goes to "0"
AR-L-5, "SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP."		
		NOTE: Operator may diagnose no voltage on Bus 16 and immediately enter AP-ELECT.14/16.
NOTE:	DO NOT attempt to reset affected Safeguards bus normal feed breaker until overcurrent condition has been identify and isolated.	
	RO	To prevent the D/G from loading on the affected Safeguards bus while troubleshooting is in progress, PULL STOP the affected D/G supply breaker.
	SRO	Notify the following:
		• Electricians
		• Scheduling
		• Operations Supervision
	SRO	Refer to ITS LCO 3.8.1 OR 3.8.2.
	SRO	Direct Electricians to investigate cause of overcurrent condition.
AR-L-7, "BUS 16 UNDER VOLTAGE SAFEGUARDS"		

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Event Description: An Electrical Ground Fault Occurs on Safeguards Bus 16									
Time	Position	Applicant's Actions or Behavior							

		NOTE: Operator may diagnose no voltage on Bus 16 and immediately enter AP-ELECT.14/16.
	SRO	Refer to ITS LCO 3.8.1 OR 3.8.2.

Op Test No.:	1	Scenario #	1	Event #	5	Page	19	of	35
Event Description: An Electrical Ground Fault Occurs on Safeguards Bus 16									
Time	Position	Applicant's Actions or Behavior							

AP-ELEC.14/16, "Loss of Safeguards Bus 14/16"		
	RO	Monitor Tavg.
		Place Rods in Manual.
		Manually move Control Rods to control Tavg.
	RO	Verify that Emergency D\G associated with affected bus is running. (NOTE: B EDG is running)
	BOP	Verify Both Trains of Emergency Busses Energized to at least 420 volts.
	RO	If one train deenergized Then:
		<ul style="list-style-type: none"> Ensure D\G is aligned for Unit Operation Mode Switch in UNIT. Voltage Control Selector in AUTO. Check D\G running.
		NOTE: Crew will note that the procedure step cannot be carried out because of the overcurrent lockout on Bus 16.
	RO	Verify CCW Pump Status
		At least one CCW Pump running.
		Annunciator A-22, CCW Pump Discharge LO Press 60 PSIG-Extinguished.
	RO	Verify Charging Pump Status – Atr Least one pump running.
	BOP	Check MFW Regulating Valves – Restoring S/G Level to 52% in AUTO.
	BOP	Verify Bus 14 – Energized to at least 420 volts.

Op Test No.: 1 Scenario # 1 Event # 5 Page 20 of 35Event Description: **An Electrical Ground Fault Occurs on Safeguards Bus 16**

Time	Position	Applicant's Actions or Behavior
	BOP	Verify Bus 16 – Energized to at least 420 volts.
		NOTE: Bus 16 will be deenergized and incapable of being restored.
	RO/BOP	Ensure the following equipment is running:
		CCW Pump A
		Charging Pump A
		PRZR Proportional Heaters
		Containment Recirc Fans A and D
		Boric Acid Pump A in Automatic
		RMW Pump A in Automatic
		Reactor Compartment Cooling Fan A
		Penetration Cooling Fan A (NOTE: Cooling Fan B is running. Will need to be stopped and Cooling Fan A started.)
		SFP Cooling
	SRO	Direct AO to swap Aux Bldg lighting to MCC C.
	SRO	Provide alternate room cooling for D/G B
	SRO	Cross Connect D/G A Fuel Oil transfer pump to D/G B.
	RO	Check VCT Makeup System
		NOTE: Crew must recognize that LT 112 is failed low and the system must be maintained in accordance with AR-A-2.
	RO	Check Charging Pump suction aligned to VCT.
		VCT Level > 20%
		Align Charging Pumps to VCT
		LCV-112C Open
		LCV-112B Closed

Op Test No.: 1 Scenario # 1 Event # 5 Page 21 of 35Event Description: **An Electrical Ground Fault Occurs on Safeguards Bus 16**

Time	Position	Applicant's Actions or Behavior
	RO	Check CVCS Operation
		Charging Pumps – At least one running.
		Charging line flow > 20 gpm.
		Check Letdown indications:
		Przr level > 13%
		Letdown Flow approximately 40 gpm.
		Letdown flow stable.
		Adjust Charging Pump speed and HCV-142 to restore Przr level and labyrinth seal DPs.
	RO	Verify Przr Heaters restored
		Przr Proportional Heaters Breaker closed.
		Przr Backup Heater Breaker - Reset, in AUTO.
	RO	Verify normal Rod Control restored.
		Annunciator C-5, PPCS Rod Sequence or Rod Deviation – Extinguished.
		Annunciator E-28, Power Range Rod Drop Rod Stop – Extinguished.
		Annunciator F-15, RCS TAVG DEV 4°F – Extinguished.
		Place Rods in AUTO if desired.
	SRO	Establish Stable Plant Conditions
		Check Tavg Trending to Tref.
		Check Przr Pressure – Trending to 2235 psig in AUTO.
		Check Przr Level – Trending to program in AUTO control.
	BOP	Restore normal Electric System Alignment.
		Verify all AC Bus Breakers closed.
		NOTE: The Bus 16 Breakers will not be able to be closed.

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Event Description: An Electrical Ground Fault Occurs on Safeguards Bus 16									
Time	Position	Applicant's Actions or Behavior							

	SRO	If normal power is not restored, go to step 17.
	SRO	Establish normal plant conditions.
	RO	Verify two charging pumps running.
		Verify at least two Containment Recirc Fans running.
		Check CCW pumps – Only one running.
		Check radiation monitors:
		• CNMT Sample Pump running.
		• Plant Vent Sample Pump running.
		• All area and process monitors operating as required.
	BOP	Check Status of DC System loads.
		Verify the TDAFW pump DC oil pump Off in AUTO.
	BOP	Check status of battery chargers.
		Battery chargers A or A1 energized.
		Battery chargers B or B1 energized.
	SRO	Restore Equipment alignment.
		Verify Annunciator L-1, Aux Bldg. Vent System Control Panel – Extinguished.
		Restore Affected Bus equipment as power supply permits.
		Evaluate MCB Annunciators status
		Verify control board valve alignment – normal.
	SRO	Establish control systems in AUTO.
	Crew	Evaluate MCB Annunciator status.

Op Test No.: 1 Scenario # 1 Event # 5 Page 23 of 35Event Description: **An Electrical Ground Fault Occurs on Safeguards Bus 16**

Time	Position	Applicant's Actions or Behavior
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	SRO/BOP	Verify Emergency AC Bus normal feeder breakers closed.						
		NOTE: Recognize that Bus 16 cannot be energized and that procedure loop is in effect until Bus is restored.						
		LCO 3.8.1						
	SRO	AC Sources – MODES 1, 2, 3, and 4						
		CONDITION						
		Offsite power to one or more 480 V safeguards bus(es) inoperable.						
		AND						
		One DG inoperable.						
		Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – MODES 1, 2, 3, and 4," when Condition C is entered with no AC power source to one distribution train.						
		LCO 3.8.9						
		Distribution Systems – MODES 1, 2, 3, and 4						
		<table border="1"> <thead> <tr> <th><u>CONDITION</u></th> <th><u>REQUIRED ACTION</u></th> <th><u>COMPLETION TIME</u></th> </tr> </thead> <tbody> <tr> <td>E. Two trains with inoperable electrical power distribution subsystems that result in a loss of safety function.</td> <td>E.1 LCO 3.0.3.</td> <td>Immediately</td> </tr> </tbody> </table>	<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>	E. Two trains with inoperable electrical power distribution subsystems that result in a loss of safety function.	E.1 LCO 3.0.3.	Immediately
<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>						
E. Two trains with inoperable electrical power distribution subsystems that result in a loss of safety function.	E.1 LCO 3.0.3.	Immediately						
NOTE: This event leaves the plant with the B EDG running unloaded.								
At the discretion of the Lead Examiner move to Event #6								

Op Test No.: 1 Scenario # 1 Event # 6 Page 24 of 35Event Description: **Load Decrease at 1%/Minute**

Time	Position	Applicant's Actions or Behavior
------	----------	---------------------------------

At this point, Plant Management will make a decision to conduct a plant shutdown at 1%/Minute. The crew will start a shutdown in accordance with AP-TURB.5, "Rapid Load Reduction."

Booth Operator Instructions: **Call SRO as plant management a direct load decrease @ 1%/minute.**

Indications Available:

AP-TURB.5, "Rapid Load Reduction."		
	SRO	Initiate a Load Reduction
	RO	Verify rods in AUTO
	BOP	Reduce Turbine Load in AUTO.
	RO	Initiate boration at ≈2 gal/% load reduction.
	RO	Place Przr Backup Heaters to ON.
	RO	Monitor RCS Tavg
		Tavg > 545°F
		Tavg < 579°F
	RO	Adjust boric acid addition rate as necessary to:
		Maintain rods above RIL.
		Match Tavg and Tref.
		Compensate for Xenon.
	RO	Monitor Przr Pressure – Trending to 2235 psig in AUTO.
	BOP	Monitor MFW Regulating Valves – restoring S/G level to 52% in AUTO.
	RO	Monitor Przr Level – Trending to program in Auto Control.

Op Test No.: 1 Scenario # 1 Event # 6 Page 25 of 35Event Description: **Load Decrease at 1%/Minute**

Time	Position	Applicant's Actions or Behavior
	RO	Check Instrument Air to Containment
		IA Pressure > 60 psig.
		IA to CNMT Isolation Valve AOV 5392 open.
	RO	Check Steam Dump Status
		Annunciator G-15, Steam Dump Armed - Lit
		Steam Dump operating properly in AUTO.
	BOP	Check Hotwell Level
		Hotwell level controller in Auto.
		Controller demand < 60%.
		Hotwell level at setpoint.
After load has been decreased 30 MW, and at the discretion of the Lead Examiner move to Event 7.		

Op Test No.: 1 Scenario # 1 Event # 7 Page 26 of 35Event Description: **Dropped Rod**

Time	Position	Applicant's Actions or Behavior
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During the load decrease, a Control Rod will drop into the Reactor core. The operator will respond in accordance with AR-E-28, "Power Range Rod Drop Rod Stop -5%/5sec," and transition to AP-RCC.3, "Dropped Recovery."

Booth Operator Instructions: Operate Trigger #5 (ROD02-J4)**Indications Available:**

		E-28 POWER RANGE ROD DROP ROD STOP – 5% /5 SEC
--	--	--

	SRO	Refer to AP-RCC.3
--	-----	-------------------

NOTE: Booth Operator should note discussion among the crew. If there is decision to Trip reactor that is imminent, move to Event 8 and drop second Control Rod immediately.

AP-RCC.3, "DROPPED ROD RECOVERY."

	RO	Verify Only One Rod has Dropped.
--	----	----------------------------------

	RO	Place Rods to MANUAL.
--	----	-----------------------

CAUTION: Bank Rod Withdrawal should not be performed until the dropped rod is recovered.

	RO	Check Tavg – STABLE AT PROGRAM
--	----	--------------------------------

	BOP	Perform the following:
--	-----	------------------------

- Place EH control in MNAUAL.
- Manually adjust turbine load to match Tavg and Tref.

	RO/BOP	Verify Annunciator G-15, STEAM DUMP ARMED – EXTINGUISHED
--	--------	--

	BOP	Check Main Generator Load – GREATER THAN 15 MW
--	-----	--

Op Test No.: 1 Scenario # 1 Event # 7 Page 27 of 35Event Description: **Dropped Rod**

Time	Position	Applicant's Actions or Behavior
	RO	Establish Stable Plant Conditions:
		<ul style="list-style-type: none"> Tavg – TRENDING TO TREF
	RO	If Tavg greater than Tref, THEN restore Tavg to Tref by one or more of the following:
		<ul style="list-style-type: none"> Insert control rods
		<ul style="list-style-type: none"> Boration
	RO/BOP	IF Tavg less than Tref, THEN restore Tavg to Tref by one or more of the following:
		<ul style="list-style-type: none"> Reduce turbine load
		<ul style="list-style-type: none"> Dilution of RCS
	RO	PRZR pressure – TRENDING TO 2235 PSIG IN AUTO
	RO	PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL
	BOP	MFV Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO
If not done already, at the discretion of the Lead Examiner move to Event 8.		

Op Test No.: 1 Scenario # 1 Event # 8 Page 28 of 35Event Description: **Second Dropped Rod**

Time	Position	Applicant's Actions or Behavior
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Shortly afterwards a second Control Rod will drop into the Reactor core. The operator will manually trip the reactor, and enter E-0, "Reactor Trip or Safety Injection." The operator will transition to ES-0.1, "Reactor Trip Response."

Booth Operator Instructions: Operate Trigger #6 (ROD02-J10)**Indications Available:**

		Second rod drops into the core.
AP-RCC.3, "DROPPED ROD RECOVERY."		
	RO	Verify Only One Rod Has Dropped.
	SRO	IF 2 or more rods dropped, THEN trip the reactor AND go to E-0, REACTOR TRIP OR SAFETY INJECTION.
E-0, "REACTOR TRIP OR SAFETY INJECTION."		
	RO	Verify Reactor Trip:
	BOP	Verify Turbine Stop Valves – CLOSED
	BOP	Verify Both Trains of AC Emergency Busses Energized To At Least 420 VOLTS:
	RO/BOP	Check if SI is Actuated:
		<ul style="list-style-type: none"> Any SI Annunciator - LIT
		IF any of the following conditions are met, THEN manually actuate SI and CI:
		<ul style="list-style-type: none"> PRZR pressure less than 1750 psig
		OR
		<ul style="list-style-type: none"> Steamline pressure less than 514 psig

Op Test No.: 1 Scenario # 1 Event # 8 Page 29 of 35Event Description: **Second Dropped Rod**

Time	Position	Applicant's Actions or Behavior
		OR
		• CNMT pressure greater than 4 psig
		OR
		• SI sequencing started
		OR
		• Operator determines SI required
		IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.
		ES-0.1, "REACTOR TRIP RESPONSE"
		CAUTION: If SI Actuation occurs during this procedure, THEN E-0, Reactor Trip Or Safety Injection, should be performed.
	RO	Monitor RCS Tavg – STABLE AT OR TRENDING TRO 547°F
	RO	Check PRZR Level Control:
		• Verify charging pumps – ANY RUNNING
		• PRZR LEVEL – greater than 13%
		• Verify letdown – IN SERVICE
		• PRZR level – TRENDING TO 20%
		• Check PRZR heaters - ENERGIZED
		• PRZR proportional heaters
		• PRZR heater backup group
		NOTE: Booth Operator may move to event 9 at any time from this point, on cue of Lead Examiner, if necessary for time control of scenario.
	BOP	Check S/G Feed Flow Status:
		• Check RCS Tavg – LESS THAN 554°F

Op Test No.:	1	Scenario #	1	Event #	8	Page	30	of	35
Event Description: Second Dropped Rod									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> Verify MFW flow control valves - CLOSED
		<ul style="list-style-type: none"> MFW regulating valves
		<ul style="list-style-type: none"> MFW bypass valves
		<ul style="list-style-type: none"> Verify total AFW flow – GREATER THAN 200 GPM
		<ul style="list-style-type: none"> Close MFW pump discharge valves
		<ul style="list-style-type: none"> MOV-3977, A MFW pump
		<ul style="list-style-type: none"> MOV-3976, B MFW pump
		<ul style="list-style-type: none"> Stop MFW pumps and place in PULL STOP
		<ul style="list-style-type: none"> WHEN both MFP pumps are stopped, THEN depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers AND adjust to 0% demand.
		<ul style="list-style-type: none"> S/G A. HCV-466 and HCV-480
		<ul style="list-style-type: none"> S/G B. HCV-476 and HCV-481
	RO	Verify MRPI Indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM
At the discretion of the Lead Examiner move to event 9.		

Op Test No.: 1 Scenario # 1 Event # 9 Page 31 of 35

Event Description: **A Total Loss of Off-Site Power Occurs**

Time	Position	Applicant's Actions or Behavior
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While in ES-0.1 recovering the plant a total loss of Off-Site Power will occur. The operator will need to transition to ECA 0.0, "Loss of All AC Power," and respond to a station blackout.

Booth Operator Instructions: **Operate trigger #7 (EDS06 1 (FAST))**

Indications Available:

		Control Room lights go out.
		No voltage on Emergency Busses 14/16

EVALUATOR'S NOTE: "B" EDG now running without Service Water. SI signal occurs because two Containment Pressure instruments have failed (PT-945 initial conditions, PT-949 on LOP from Instrument Bus B).

Deleted: have failed

	SRO	IF Bus 14 AND Bus 16 are deenergized, THEN go to ECA-0.0, LOSS OF ALL AC POWER, Step 1.
--	-----	---

ECA-0.0, "LOSS OF ALL AC POWER."

CAUTION: Due to potentially extreme environmental conditions. Caution should be used when entering the intermediate building for local actions.

NOTE:

- CFSTs should be monitored for information only. PR procedures should not be implemented.
- Local actions may require portable lighting and communication devices.

	RO	Verify Reactor Trip:
--	----	----------------------

	BOP	Verify Turbine Stop Valves - CLOSED
--	-----	-------------------------------------

NOTE: **FOLDOUT page should be open and monitored periodically.**

Op Test No.: 1 Scenario # 1 Event # 9 Page 32 of 35Event Description: **A Total Loss of Off-Site Power Occurs**

Time	Position	Applicant's Actions or Behavior
	BOP	Adjust S/G ARVs To Control Tavg At Approximately 547°F
	RO	Stop Both RCPs
	RO	Check If RCS Is Isolated:
		• PRZR PORVs – CLOSED
		• Verify RCS isolation valves closed:
		• Place letdown orifice valve switches to CLOSE
		• AOV-200A
		• AOV-200B
		• AOV-202
		• Place letdown isolation valve switches – to CLOSE
		• AOV-371
		• AOV-427
		• Place excess letdown isolation valve switch to CLOSE (AOV-310)
Move to Event #10		

Op Test No.: 1 Scenario # 1 Event # 10 Page 33 of 35Event Description: **TDAFW Pump Failure**

Time	Position	Applicant's Actions or Behavior
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The TDAFW Pump will fail to auto start. The operator will need to open these valves to restore AFW flow.

Booth Operator Instructions: NA**Indications Available:**

		TDAFW Pump is NOT running.
	BOP	Verify Adequate TDAFW Flow:
		<ul style="list-style-type: none"> Verify TDAFW pump – RUNNING
	BOP	Verify governor valve, V-3652, latched.
	BOP	Manually or locally open at least one TDAFW pump steam supply valve.
		<ul style="list-style-type: none"> MOV-3505A
		<ul style="list-style-type: none"> MOV-3504A

Critical Task (ECA-0.0-B) Establish greater than 200 gpm AFW flow before both S/G's levels decrease to < 35" wide range level.

	BOP	Verify TDAFW pump flow – GREATER THAN 200 GPM

Move to Event #11

Op Test No.: 1 Scenario # 1 Event # 11 Page 34 of 35Event Description: **A EDG is restored to service.**

Time

Position

Applicant's Actions or Behavior

With AFW flow restored the Work Control Center will call and indicate that the "A" EDG is now ready for service. The operator will start the "A" EDG and restore power to Bus 14 and 18.

Booth Operator Instructions: Clear malf. GEN04A.**Indications Available:****NOTE:**

- Conditions should be evaluated for Site Contingency Reporting (Refer to EPIP-1.0, GINNA STATION EVENT EVALUATION AND CLASSIFICATION).
- AO should frequently monitor the TDAFW pump until AC power is restored.

BOOTH OPERATOR'S NOTE: Call SRO as work control center and inform that "A" EDG is available and the clearance may be lifted.

SRO/RO

Try To Restore Power to Any Train of AC Emergency Busses:

- Verify emergency D/G aligned for unit operation
- Mode switch in UNIT
- Voltage control selector in AUTO

RO

Manually align switches on rear of MCB.

SRO/RO

- Check emergency D/Gs – BOTH D/G RUNNING.

RO

WHEN non-running D/G available for starting, THEN perform the following:

- Depress D/G FIELD RESET pushbutton
- Depress D/G RESET pushbutton
- Start D/G
- IF D/G starts, THEN go to Step 7.c.

Op Test No.: 1 Scenario # 1 Event # 11 Page 35 of 35Event Description: **A EDG is restored to service.**

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> CHECK D/G voltage and frequency
		<ul style="list-style-type: none"> Voltage – APPROXIMATELY 480v
		<ul style="list-style-type: none"> Frequency – APPROXIMATELY 60 Hz
	RO/BOP	<ul style="list-style-type: none"> Verify adequate D/G cooling
		<ul style="list-style-type: none"> Bus 17 and/or Bus 18 – ENERGIZED
		<ul style="list-style-type: none"> One SW Pump running for each running D/G
		<ul style="list-style-type: none"> Verify at least one train of AC emergency busses - ENERGIZED
		<ul style="list-style-type: none"> Bus 14 and Bus 18
Critical Task (ECA-0.0)		Restore AC Power to at least one Emergency Bus prior to placing pump control switches in Pull-Stop in ECA-0.0.
	SRO	Return to procedure and step in effect.
		SRO goes to ES-0.1, and then transition to E-0 based on SI having actuated.
BOOTH OPERATOR:		Freeze simulator.
EAL 6.1.3 (Alert) EDG A only AC Source for > 15 minutes.		
Or		
6.1.4 (SAE) Loss of both Trains of AC Power for > 15 minutes		

Ginna 2007 NRC Scenario #2

The Plant is at 100% power Steady-State (BOL), and been for the last 9 days following Refueling Outage.

The following equipment is Out-Of-Service: A MDAFW Pump (Expected back in 24 hours), Steam Flow channel FT-475 (The channel has been defeated per ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure.") and MCB Annunciator J-8 has alarmed spuriously several times over the last hour (I&C is investigating).

Shortly after turnover, R-12 (Containment Gas Monitor) will fail high. The operator will respond in accordance with AR-A-25, "Containment Ventilation Isolation," and/or AR-RMS-12.2, "Cnmt Gas Fail Alarm." The operator will address Technical Specifications 3.3.5, "Containment Ventilation Isolation Instrumentation," 3.4.15, "RCS Leakage Detection Instrumentation," and 3.6.3, "Containment Isolation Boundaries."

Shortly after this, a Small SG Tube Leak (.4 gpm) develops on B SG. The operator will respond in accordance with AR-PPCS-1, "SGTL Indicated," and AP-SG.1, "Steam Generator Tube Leak." The operator will address Technical Specification 3.7.14, "Secondary Specific Activity," and 3.4.13, "RCS Operational Leakage." With the SG Tube Leak at >150 GPD, the Operations Manager will decide to shutdown the plant. The Operator will commence a plant shutdown to Hot Standby at 1%/minute in accordance with AP-TURB.5, "Rapid Downpower."

Following the start of the shutdown, uncontrolled rod motion will occur. The operator will respond in accordance with AP-RCC.1, "Continuous Control Rod Withdrawl/Insertion," and place rods in manual.

Once AP-RCC.1 is complete, the shutdown will recommence. During the shutdown, Pressurizer Level Channel LT-428 will slowly fail high. The operator will respond in accordance with AR-F-4, "Pressurizer Level Deviation -5 Normal +5," and AR-F-28, "Pressurizer High Level Channel Alert 87%," and then address ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure." The operator will take manual control of the Charging Pumps and control Pzr Level. The operator will address Technical Specifications 3.3.1, "Reactor Trip System Instrumentation," 3.3.2, "ESFAS Instrumentation," and 3.3.3, "PAM Instrumentation."

After about 10-15% power reduction, an inadvertent Safety Injection signal will occur (The Automatic Reactor Trip is blocked, and the manual MCB pushbuttons will not operate). The operator will enter E-0, "Reactor Trip or Safety Injection," and de-energize Busses 13 and 15 to de-energize the Rod Drive Motor Generators and cause a reactor trip.

The B MDAFW Pump will fail to automatically start. When started by the operator, the pump will trip within 60 seconds. Upon start up of the TDAFW Pump, the pump will trip on overspeed and be damaged to the point that it can no longer be used. This will eventually cause a Red Path on Heat Sink and the operator will transition to FR-H.1, "Response to Loss of Secondary Heat Sink."

The operator will attempt to start the SAFW system to provide flow to one SG, however, both Flow Transmitters (FT-4084 and 4085) will have been isolated from Shutdown, and the SAFW pumps when started will reach runout conditions and trip on overcurrent within 60 seconds. (LER 2006-4)

Scenario Event Description

NRC Scenario 2

Feed flow will be restored to one Steam Generator using a Condensate and a Main Feedwater Pump. Once feed flow is restored to one Steam Generator the operator will transition back to ES-0.1, "Reactor Trip Response."

Critical Tasks:

- E-0-A Trip the reactor before both Steam Generator Wide Range Levels decrease to less than 35".
- FR-H.1-A Establish Feedwater flow into at least one Steam Generator before Bleed and Feed Criteria is met in FR-H.1.

Simulator Set Up

IC-172

Place Hold Tags on:

- A MDAFW Pump Control Switch
- Close and Tag MOV 4007 Control Switch

Place Protected Equipment Tags on:

- B MDAFW Pump Control Switch

Insert:

FDW11A – A MDAFW Trip, (Pull/Stop, Hold Tag, Close MOV-4007, Protective Covers on B MDAFW Pump)

FDW12 (0 RPM) – TDAFW Pump Overspeed

RPS05A – Fail A Rx Trip Bkr (Manual Unavailable)

RPS05B – Fail B Rx Trip Bkr (Manual Unavailable)

STM01B (0) – Fail SF FT-475 (Perform Defeat per ER-INST.1)

RPS07L – B MDAFW Pump fails to auto start

Ino/ovr IND-FW31 (SAFW Flow) to "0"

Ino/ovr IND-FW33 (SAFW Flow) to "0"

Events:

1	Trigger 1 – Malf. RMS02B ($1e^{+007}$)
2	Trigger 2 – Malf. SGN04B (.4gpm)
	When requested – LOA SGN24 (0) (Close V-996A)
3	Trigger 3 – Malf. ROD1A-66 (Insert prior to commencing boration and Load Reduction)
4	None (Malfunction inserted prior to event #3)
5	Trigger 4 – Malf. PZR03C (100% @30second ramp)
6	Trigger 5 - Malf. SIS01 (0) Train A
7	None (RPS05A and B set at T0)
8	(RPS07L – B MDAFW Pump fails to auto start at T0), once started trip 2 minutes later by inserting FWD11B on Trigger 30.
9	None (FDW12 (0 RPM) – TDAFW Pump Overspeed at T0)
10	Trigger 29 – FWD15A – 60 delay (Initiated when C SAFW Pump is manually started).
	Trigger 28 – FWD15B – 60 delay (Initiated when D SAFW Pump is manually started).

Scenario Event Description

NRC Scenario 2

Shift Turnover:

The Plant is at 100% power Steady-State (BOL), and been for the last 9 days following Refueling Outage.

The following equipment is Out-Of-Service: A MDAFW Pump (Expected back in 24 hours), Steam Flow channel FT-475 (The channel has been defeated per ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure.") and MCB Annunciator J-8 has alarmed spuriously several times over the last hour (I&C is investigating).

Hold Tags have been placed on:

- A MDAFW Pump Control Switch
- Close and Tag MOV 4007 Control Switch

Protected Equipment Tags have been placed on:

- B MDAFW Pump Control Switch

Scenario Event Description
NRC Scenario 2

A-52.4

Equipment	Date	Time	Reason	Required Actions	Required Completion Date/Time	Required Action not met
FT-475 (Steam Flow Channel, B SG)	_/_/07	_____	Failed Channel	ITS 3.3.2 Condition A Enter Condition referenced on Table 3.3.2-1 (4d, 4e) immediately. Condition F (From 4d, e) – Place Channel in Trip within 6 hours.	TRACKING ONLY	Condition G – Be in Mode 3 within 6 hours, and Mode 4 within 12 hours.
A MDAFW Pump	_/_/07	_____	Bearing replacement	ITS 3.7.5 Condition B Restore MDAFW train to operable status within 7 days.	_/_/07 _____	Condition G – Required action and associated completion time for Condition B not met, be in Mode 3 within 6 hours, and Mode 4 within 12 hours.

Op Test No.: 1 Scenario # 2 Event # 1 Page 7 of 32Event Description: **R-12 Failure**

Time	Position	Applicant's Actions or Behavior
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Shortly after turnover, R-12 (Containment Gas Monitor) will fail high. The operator will respond in accordance with AR-A-25, "Containment Ventilation Isolation," and/or AR-RMS-12.2, "Cnmt Gas Fail Alarm." The operator will address Technical Specifications 3.3.5, "Containment Ventilation Isolation Instrumentation," 3.4.15, "RCS Leakage Detection Instrumentation," and 3.6.3, "Containment Isolation Boundaries."

Booth Operator Instructions: Operates Trigger #1 (RMS02B (1e⁺⁰⁰⁷)).

Indications Available:

		A-25 CONTAINMENT VENTILATION ISOLATION
		E-16 RMS Process Monitor High Activity
		High indication on R-12 channel.

AR-A-25, "CONTAINMENT VENTILATION ISOLATION."

	RO	Monitor Area Radiation Monitors – R-2, R-7.
	SRO	Refer to ITS LCO 3.3.5.
	SRO	Notify RP to sample CNMT.

AR-RMS-12.2 CNMT GAS FAIL ALARM

	SRO/RO	Evaluate the cause of the alarm.
	SRO	Perform the following:
		<ul style="list-style-type: none"> Initiate an A-52.4.
		<ul style="list-style-type: none"> Notify RP.
		<ul style="list-style-type: none"> Notify I&C.
		<ul style="list-style-type: none"> Submit WO.
	SRO	REFER TO ITS 3.3.5, 3.4.15, 3.6.3.

Op Test No.: 1 Scenario # 2 Event # 1 Page 8 of 32Event Description: **R-12 Failure**

Time	Position	Applicant's Actions or Behavior		
	SRO	LCO 3.3.5		
		CONTAINMENT VENTILATION ISOLATION INSTRUMENTATION		
		<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>
		A. One radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	4 hours
	SRO	LCO 3.4.15		
		RCS LEAKAGE DETECTION INSTRUMENTATION		
		<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>
		B. Gaseous containment atmosphere radioactivity monitor inoperable.	B.1 Verify particulate containment atmosphere radioactivity monitor OPERABLE.	1 hour
	SRO	LCO 3.6.3		
		CONTAINMENT ISOLATION BOUNDARIES		
		(Not affected)		
At the Discretion of the Lead Examiner Move to Event #2.				

Op Test No.: 1 Scenario # 2 Event # 2 Page 9 of 32Event Description: **B Steam Generator Tube Leak**

Time	Position	Applicant's Actions or Behavior
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Shortly after this, a Small SG Tube Leak (.4 gpm) develops on B SG. The operator will respond in accordance with AR-PPCS-1, "SGTL Indicated," and AP-SG.1, "Steam Generator Tube Leak." The operator will address Technical Specification 3.7.14, "Secondary Specific Activity," and 3.4.13, "RCS Operational Leakage." With the SG Tube Leak at >150 GPD, the Operations Manager will decide to shutdown the plant.

Booth Operator Instructions: Operates Trigger #2 (SGN04B (.4 gpm)).

		AR-PPCS-1 SGTL Indicated
		R-15 in alarm (≈3 minutes delayed)

AR-PPCS-1, "SGTL INDICATED."

	RO	Trend PPCS points R15A5G.
	SRO	Notify RP/Chemistry to IMMEDIATELY obtain and analyze an air ejector grab sample per CH-SAMP-SG-LEAKRATE.
	RO	Determine the estimated leak rate using the R15A5G.
	SRO	IF any condition below is met, THEN go to AP-SG.1:
		<ul style="list-style-type: none"> R15A5G (PPCS) greater than 5 gpd AND INCREASING for greater than one (1) minute.

AP-SG.1, "STEAM GENERATOR TUBE LEAK."

	RO	Monitor PRZR Level.
		NOTE: Przr Level will be stable at this leak rate.
	RO	Monitor S/G Tube Leak Rate:
		<ul style="list-style-type: none"> PPCS Point R15A5G
	RO/BOP	Trend S/G Leak Rate:
		<ul style="list-style-type: none"> While continuing with this procedure, perform Part A of ATT-16.1, ATTACHMENT SGTL

Op Test No.:	<u>1</u>	Scenario #	<u>2</u>	Event #	<u>2</u>	Page	<u>10</u>	of	<u>32</u>
Event Description: B Steam Generator Tube Leak									
Time	Position	Applicant's Actions or Behavior							

		<ul style="list-style-type: none"> Determine S/G leak rate:
		<ul style="list-style-type: none"> PPCS point R15A5G
		NOTE: SGTL rate will exceed the TS Limit of 150 gpd.
ATT-16.1, "ATTACHMENT SGTL."		
	SRO	Primary to secondary leakage in at least one S/G ≥ 5 gpd
		<ul style="list-style-type: none"> Request RP perform a second sample
		<ul style="list-style-type: none"> Notify RP to implement procedure CH-SAMP-SG-LEAKRATE.
		<ul style="list-style-type: none"> Refer to ITS LCO 3.7.14
		<ul style="list-style-type: none"> Notify Chemistry to determine desired S/G blowdown flowpath.
	RO	<ul style="list-style-type: none"> Check operability of the following monitors.
		<ul style="list-style-type: none"> R-15
		<ul style="list-style-type: none"> R-15A
		<ul style="list-style-type: none"> R-19
		<ul style="list-style-type: none"> R-31
		<ul style="list-style-type: none"> R-32
	SRO	<ul style="list-style-type: none"> Dispatch an AO to perform T-35H, Nuclear House Heating Steam To Boiler Steam Supply change Over.
	RO	<ul style="list-style-type: none"> IF the leaking S/G has NOT been identified, THEN perform the following to identify the leaking S/G. (Valves located in IB hot side, outside sample room).
	RO	<ul style="list-style-type: none"> Direct an AO to close V-996A, inlet block valve to FI-2027 (S/G blowdown Hx A outlet flow)
BOOTH OPERATOR'S NOTE: LOA SGN 24 to "0" to CLOSE V-996A.		
	RO	Monitor R-19 for approximately two (2) minutes.
		<ul style="list-style-type: none"> IF R-19 increases, THEN leakage is in S/G B.

Op Test No.: 1 Scenario # 2 Event # 2 Page 11 of 32Event Description: **B Steam Generator Tube Leak**

Time	Position	Applicant's Actions or Behavior
	RO	Open V-996A, inlet block valve to FI-2027 (S/G blowdown Hx A outlet flow).
BOOTH OPERATOR'S NOTE: LOA SGN024 to 100% to OPEN V-996A.		
AP-SG.1, "STEAM GENERATOR TUBE LEAK."		
	SRO	Determine If Shutdown Required:
		<ul style="list-style-type: none"> S/G tube leak rate GREATER THAN OR EQUAL TO 75 GPD
		<ul style="list-style-type: none"> S/G tube leak rate – STABLE OR RISING
		<ul style="list-style-type: none"> Go to Step 6.
	SRO	Confirm S/G Leak Rate:
		<ul style="list-style-type: none"> Notify higher supervision
		<ul style="list-style-type: none"> While continuing with this procedure, perform Parts A AND B of ATT-16.1, ATTACHMENT SGTL
ATT-16.1, "ATTACHMENT SGTL."		
	SRO	Primary to secondary leakage in at least one S/G \geq 75 gpd
		<ul style="list-style-type: none"> Refer to ITS LCO 3.4.13
		<ul style="list-style-type: none"> Refer to ITS LCO 3.7.14
		<ul style="list-style-type: none"> Refer to EPIP-1.0, Ginna Station Event Evaluation and Classification.
		<ul style="list-style-type: none"> Refer to 0-9-3, NRC IMMEDIATE NOTIFICATION.
	BOP	Place Hotwell level controller in Manual at 50% position.

Op Test No.:	<u>1</u>	Scenario #	<u>2</u>	Event #	<u>2</u>	Page	<u>12</u>	of	<u>32</u>
Event Description: B Steam Generator Tube Leak									
Time	Position	Applicant's Actions or Behavior							

	RO	Start the A and B CNMT Auxiliary Charcoal Filter Fans.
	SRO	Consult with R/P Chemistry.
	BOP/AO	Shift Support Heating Steam Trap Outlet Valves from the trap header to Blowdown Tank.
	BOP/AO	Request identification of leaking S/G from the Control Room.
	BOP/AO	Close trap drain isolation valve upstream of MSIV on the leaking S/G.
	BOP/AO	Verify Blowdown Tank discharge valve V-5714 is closed (at S/G Blowdown Tank).
	BOP/AO	Isolate Blowdown from the leaking S/G.
	SRO	Refer to ITS LCO 3.7.5.
	SRO	Refer to TRM 3.4.3.
	BOP	PULL STOP the TDAFW Pump Steam Admission valve from the leaking S/G.
	SRO	Notify RP to survey.
	SRO	Notify RPs to verify that airborne contaminants that may be discharging from steam reliefs OR the Air Ejector are NOT being pulled into the supply air handling units.
AP-SG.1, "STEAM GENERATOR TUBE LEAK."		

Op Test No.: 1 Scenario # 2 Event # 2 Page 13 of 32Event Description: **B Steam Generator Tube Leak**

Time	Position	Applicant's Actions or Behavior
	SRO	Initiate Plant Shutdown
		<ul style="list-style-type: none"> Determine S/G leak rate every 15 minutes
		<ul style="list-style-type: none"> Check S/G leak rate – RISING LESS THAN 30 GPD/HR
		<ul style="list-style-type: none"> Check R15A5 – OPERABLE
		<ul style="list-style-type: none"> Check S/G leak rate – HAS REMAINED LESS THAN 144 GPD SINCE LEAK INITIATION
	SRO	Be in Mode 3 within 6 hours of exceeding 144 gpd. (Refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN)
	SRO	<ul style="list-style-type: none"> Refer to ITS
		<ul style="list-style-type: none"> LCO 3.4.13
		<ul style="list-style-type: none"> LCO 3.4.16
		<ul style="list-style-type: none"> LCO 3.7.14
	SRO	Check following Tech Specs
	SRO	LCO 3.7.14
		SECONDARY SPECIFIC ACTIVITY
	SRO	LCO 3.4.16
		RCS SPECIFIC ACTIVITY
	SRO	LCO 3.4.13
		RCS OPERATIONAL LEAKAGE
		RCS operation LEAKAGE shall be limited to 150 gallons per day primary to secondary leakage through any one SG.

Op Test No.: 1 Scenario # 2 Event # 2 Page 14 of 32Event Description: **B Steam Generator Tube Leak**

Time	Position	Applicant's Actions or Behavior
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		<u>CONDITION</u>	<u>REQUIRED ACTION</u>	<u>COMPLETION TIME</u>
		A. RCS LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours

At the Discretion of the Lead Examiner Move to Event #3.

Op Test No.: 1 Scenario # 2 Event # 3 Page 15 of 32Event Description: **Rapid Downpower**

Time	Position	Applicant's Actions or Behavior
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The Operator will commence a plant shutdown to Hot Standby at 1%/minute in accordance with AP-TURB.5, "Rapid Downpower."

Booth Operator Instructions: **Operate Trigger #3 (ROD1A-66).**

(Note that this will cause the Continuous Rod Withdrawal malfunction to occur as soon as Rods receive a signal to move in Automatic).

Indications Available: NA

AP-TURB.5, RAPID LOAD REDUCTION

	SRO	Initiate Load Reduction
	RO	<ul style="list-style-type: none"> Verify rods in AUTO
	BOP	<ul style="list-style-type: none"> Reduce turbine load in AUTO at follows:
		<ul style="list-style-type: none"> Place Turbine EH control in OPER PAN. IMP PRESS OUT. If desired.
		<ul style="list-style-type: none"> Select desired rate on thumbwheel
		<ul style="list-style-type: none"> Reduce the setter to the desired load.
		<ul style="list-style-type: none"> Depress the GO button.
	RO	<ul style="list-style-type: none"> Initiate boration at ~2 gal/% load reduction.
	RO	<ul style="list-style-type: none"> Place PRZR backup heaters switch to ON.
	RO	Monitor RCS Tavg
		<ul style="list-style-type: none"> Tavg – GREATER THAN 545°F
		<ul style="list-style-type: none"> Tavg – LESS THAN 579°F
	RO	Adjust Boric Acid Addition Rate As Necessary To (Refer to OPG-REACTIVITY-CALC):
		<ul style="list-style-type: none"> Maintain rods above the insertion limit.
		<ul style="list-style-type: none"> Match Tavg and Tref
		<ul style="list-style-type: none"> Compensate for Xenon

Op Test No.: 1 Scenario # 2 Event # 3 Page 16 of 32Event Description: **Rapid Downpower**

Time	Position	Applicant's Actions or Behavior
	RO	Monitor PRZR Pressure – TRENDING TO 2235 PSIG IN AUTO
	BOP	Monitor MFW Regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO
	RO	Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL
	RO	Check IA Available To CNMT
		<ul style="list-style-type: none"> IA pressure – GREATER THAN 60 PSIG Instr Air to CNMT Isol Valve AOV-5392 - OPEN
	BOP	Check Steam Dump Status:
		<ul style="list-style-type: none"> Annunciator G-15, STEAM DUMP ARMED - LIT Steam dump operating properly in AUTO
	BOP	Check Hotwell Level:
		<ul style="list-style-type: none"> Hotwell level controller in AUTO Controller demand LESS THAN 60% Hotwell level at setpoint
	BOP	Check if Condensate Booster Pumps Should be secured.
At the Discretion of the Lead Examiner Move to Event #4.		

Op Test No.: 1 Scenario # 2 Event # 4 Page 17 of 32Event Description: **Uncontrolled Automatic Rod Motion Occurs**

Time	Position	Applicant's Actions or Behavior
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Following the start of the shutdown, uncontrolled rod motion will occur. The operator will respond in accordance with AP-RCC.1, "Continuous Control Rod Withdraw/Insertion," and place rods in manual.

Booth Operator Instructions: NA (Malfunction inserted at time of Event #3)**Indications Available:**

		Control Rods step out in automatic.
AP-RCC.1, "CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION."		
	RO/BOP	Evaluate Rod Control System Operability:
		<ul style="list-style-type: none"> • Check turbine load – STABLE
		<ul style="list-style-type: none"> • Place Rods to MANUAL
		<ul style="list-style-type: none"> • Verify control rod motion STOPS
	RO	Monitor Tavg:
		Check Tavg – TRENDING TO Tref
		Check RCS Tavg Channel Indications:
	BOP	Check Turbine 1 st Stage Pressure Channel, PI-485 – APPROXIMATELY EQUAL TO PI-486
	RO	Check NIS PR Indication:
		All Power Range Channels approximately equal.
		All ΔI Indicators approximately equal.
	RO	Establish Stable Plant Conditions:
		Tavg Trending to Tref.
		Przr Pressure Trending to 2235 psig in Auto.
		Przr Level trending to Program in Auto control.
		RIL Alarms – Extinguished.

Op Test No.: 1 Scenario # 2 Event # 4 Page 18 of 32Event Description: **Uncontrolled Automatic Rod Motion Occurs**

Time	Position	Applicant's Actions or Behavior
		NIS PR ΔI within desired operating band.
	RO	Verify Control Rods Operable In Manual:
		• Insert/withdraw control rods to MRPI transition
		• Verify MRPI indicates control rod motion
		• Restore control rods to desired position
	RO	Establish Control Systems In Auto:
		Control Rods in Auto.
		Przr Pressure in Auto.
		Spray Valves in Auto.
		Przr Heaters restored.
		Verify one Charging Pump in Auto.
	Crew	Evaluate MCB Annunciator Status
	SRO	Notify Higher Supervision
At the Discretion of the Lead Examiner Move to Event #5.		

Op Test No.: 1 Scenario # 2 Event # 5 Page 19 of 32Event Description: **Przr Level Instrument Malfunction**

Time	Position	Applicant's Actions or Behavior
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Once AP-RCC.1 is complete, the shutdown will recommence. During the shutdown, Pressurizer Level Channel LT-428 will slowly fail high. The operator will respond in accordance with AR-F-4, "Pressurizer Level Deviation -5 Normal +5," and AR-F-28, "Pressurizer High Level Channel Alert 87%," and then address ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure." The operator will take manual control of the Charging Pumps and control Pzr Level. The operator will address Technical Specifications 3.3.1, "Reactor Trip System Instrumentation," 3.3.2, "ESFAS Instrumentation," and 3.3.3, "PAM Instrumentation."

Booth Operator Instructions: Operate Trigger #4 (PZR03C (100)).

Indications Available:

		Charging Flow decreases.
		F-4, PRESSURIZER LEVEL DEVIATION – 5 NORMAL + 5
		F-28, PRESSURIZER HIGH LEVEL CHANNEL ALERT 87%
AR-F-4, PRESSURIZER LEVEL DEVIATION – 5 NORMAL + 5		
	RO	Perform a channel check.
	RO	Verify Backup Heaters on at + 5%.
	RO	Check charging pump speed and controls.
	RO	Check Letdown in service.
	RO	Control Charging and Letdown as necessary to control level.
		<ul style="list-style-type: none"> ER-INST.1 for failed channel.
AR-F-28, "PRESSURIZER HIGH LEVEL CHANNEL ALERT 87%."		
	RO	Perform a channel check.
	RO	Check charging and letdown.

Op Test No.:	<u>1</u>	Scenario #	<u>2</u>	Event #	<u>5</u>	Page	<u>20</u>	of	<u>32</u>
Event Description: Przr Level Instrument Malfunction									
Time	Position	Applicant's Actions or Behavior							

	SRO	For failed channel go to ER-INST.1.
ER-ISNT.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure."		
	SRO/RO	Identify the failed instrument channel by observation of the bistable status light board, MCB annunciators, and the MCB metering indication.
	SRO	When identified, refer to the appropriate section for PRZR Level Failure (4.5).
	SRO	(4.5) PRZR LEVEL CHANEL FAILURE
	SRO	IF PRZR low level heater cut and has occurred, THEN monitor PRZR pressure AND DEFEAT failed channel in a timely manner to allow restoration of PRZR heaters.
		NOTE: Przr Level Instrument has failed high, and low level Heater Cutout has not occurred.
	SRO	If Letdown Isolation Valve, AOV-427 has closed, Then perform the following:
		NOTE: Letdown Isolation Valve AOV-427 has NOT closed.
	SRO	Refer to the appropriate attachment for defeat of the associated control functions.
		<ul style="list-style-type: none"> Przr Level LI-428 Blue Channel
BLUE CHANNEL ATTACHMENT PRZR LI-428		
	RO	In the PLP PRZR PRESS AND LEVEL rack, check PRZR level defeat switch L\428A position.

Op Test No.: 1 Scenario # 2 Event # 5 Page 21 of 32Event Description: **Przr Level Instrument Malfunction**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> If L428A is in Normal, THEN place L-428A to DEFEAT-3.
		OR
		<ul style="list-style-type: none"> If L428A is NOT in Normal, THEN notify the Shift Manager.
	RO	<p>In the (BLUE) B-1 Protection Channel 3 rack, PLACE the bistable proving switch 428, Channel 3 High Level Trip to Defeat (Up). Proving light will be off if the channel failed high.</p> <p>If any proving light status is not correct, then submit a Condition Report on the discrepancy and continue with the channel defeat steps.</p>
	RO	Place Przr Level Recorder transfer switch to position 427.
	RO	Verify the bistable status light above is lit. If the bistable status light is NOT lit, Then the channel may not be in the tripped condition. Further investigation is necessary to ensure ITS requirements are met.
	RO	Remove the PRZR Level channel from the PPCS.
		NOTE: Attachment is complete, SRO will return to body of procedure.
ER-ISNT.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure."		
	RO	Reset PRZR Heater breakers as necessary.
	RO	Restore normal letdown.
		NOTE: Normal letdown was not lost during this event.
	RO	When PRZR Level is restored to normal, Then place an operating charging pump controller in AUTO.
	SRO	Check the following Technical Specifications:

Op Test No.: 1 Scenario # 2 Event # 5 Page 22 of 32Event Description: **Przr Level Instrument Malfunction**

Time	Position	Applicant's Actions or Behavior										
		<ul style="list-style-type: none">Section 3.3.1, Table 3.3.1-1, Function 8.										
		<ul style="list-style-type: none">Section 3.3.3, Table 3.3.3-1, Function 2.										
		<ul style="list-style-type: none">Section 3.4.9.										
	SRO	LCO 3.3.1 – The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.										
	SRO	Applicability: According to Table 3.3.1-1. Function 8 – Przr Water Level High.										
	SRO	<table><thead><tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr></thead><tbody><tr><td>D. As required by Required Action A.1 and referenced by Table 3.3.1-1.</td><td>D.1 ----- - NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----- Place channel in trip.</td><td> 6 hours</td></tr></tbody></table>			CONDITION	REQUIRED ACTION	COMPLETION TIME	D. As required by Required Action A.1 and referenced by Table 3.3.1-1.	D.1 ----- - NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----- Place channel in trip.	 6 hours		
CONDITION	REQUIRED ACTION	COMPLETION TIME										
D. As required by Required Action A.1 and referenced by Table 3.3.1-1.	D.1 ----- - NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. ----- Place channel in trip.	 6 hours										
	SRO	<table><thead><tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr></thead><tbody><tr><td>G. Required Action and associated Completion Time of Condition D, E, or F is not met.</td><td>G.1 Be in MODE 3.</td><td>6 hours</td></tr></tbody></table>			CONDITION	REQUIRED ACTION	COMPLETION TIME	G. Required Action and associated Completion Time of Condition D, E, or F is not met.	G.1 Be in MODE 3.	6 hours		
CONDITION	REQUIRED ACTION	COMPLETION TIME										
G. Required Action and associated Completion Time of Condition D, E, or F is not met.	G.1 Be in MODE 3.	6 hours										
	SRO	LCO 3.3.3 – The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.										
	SRO	Applicability: Modes 1, 2 and 3.										
	SRO	<table><thead><tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr></thead><tbody><tr><td rowspan="2">F. As required by Required Action E.1 and referenced in Table 3.3.3-1.</td><td>F.1 Be in MODE 3.</td><td>6 hours</td></tr><tr><td>AND F.2 Be in MODE 4.</td><td>12 hours</td></tr></tbody></table>			CONDITION	REQUIRED ACTION	COMPLETION TIME	F. As required by Required Action E.1 and referenced in Table 3.3.3-1.	F.1 Be in MODE 3.	6 hours	AND F.2 Be in MODE 4.	12 hours
CONDITION	REQUIRED ACTION	COMPLETION TIME										
F. As required by Required Action E.1 and referenced in Table 3.3.3-1.	F.1 Be in MODE 3.	6 hours										
	AND F.2 Be in MODE 4.	12 hours										

Op Test No.: 1 Scenario # 2 Event # 5 Page 23 of 32Event Description: **Przr Level Instrument Malfunction**

Time	Position	Applicant's Actions or Behavior
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	SRO	LCO 3.4.9 – The Pressurizer shall be OPERABLE.												
	SRO	Applicability: Modes 1, 2 and 3												
	SRO	<table><tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr><tr><td rowspan="3">A. Pressurizer water level not within limit.</td><td>A.1 Be in MODE 3 with reactor trip breakers open.</td><td>6 hours</td></tr><tr><td>AND</td><td></td></tr><tr><td>A.2 Be in MODE 4.</td><td>12 hours</td></tr></table>			CONDITION	REQUIRED ACTION	COMPLETION TIME	A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours	AND		A.2 Be in MODE 4.	12 hours
CONDITION	REQUIRED ACTION	COMPLETION TIME												
A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours												
	AND													
	A.2 Be in MODE 4.	12 hours												
		NOTE: Once it is determined that a Przr Level Instrumentation failure exists, This Technical Specification will not be of concern.												
At the Discretion of the Lead Examiner Move to Events #6-9.														

Op Test No.: 1 Scenario # 2 Event # 6,7,8 & 9 Page 24 of 32Event Description: **Inadvertent SI, ATWS, B MDAFW Pump Trip, TDAFW Pump Trip**

Time	Position	Applicant's Actions or Behavior
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After about 10-15% power reduction, an inadvertent Safety Injection signal will occur (The Automatic Reactor Trip is blocked, and the manual MCB pushbuttons will not operate). The operator will enter E-0, "Reactor Trip or Safety Injection," and de-energize Busses 13 and 15 to de-energize the Rod Drive Motor Generators and cause a reactor trip. The B MDAFW Pump will fail to automatically start. When started by the operator, the pump will trip within 60 seconds. Upon start up of the TDAFW Pump, the pump will trip on overspeed and be damaged to the point that it can no longer be used. This will eventually cause a Red Path on Heat Sink and the operator will transition to FR-H.1, "Response to Loss of Secondary Heat Sink."

Booth Operator Instructions: Operate Trigger #5 (SIS01 (0)).

Indications Available:

		One Train of SI actuates.
		Reactor remains at power.

E-0, "REACTOR TRIP OR SAFETY INJECTION."

	RO	Verify Reactor Trip
		NOTE: Reactor does not trip on Inadvertent SI and must be tripped manually.
	RO	Manually trip reactor.
		NOTE: The manual pushbuttons are not successful in tripping the reactor.
	BOP	Trip the reactor as follows:
		• Open Bus 13 and Bus 15 normal feeder breakers.
		• Verify Rod Drive MG Sets tripped.
		• Close Bus 13 and Bus 15 normal feeder breakers.
		• Reset Lighting Breakers.

Critical Task (E-0-A) Trip the reactor before both Steam Generator Wide Range Levels decrease to less than 35".

	BOP	Verify Turbine Stop Valves – CLOSED.
	BOP	Verify Both Trains of AC Emergency Busses Energized To At Least 420 VOLTS:

Op Test No.: 1 Scenario # 2 Event # 6,7,8 & 9 Page 25 of 32Event Description: **Inadvertent SI, ATWS, B MDAFW Pump Trip, TDAFW Pump Trip**

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Check if SI is Actuated:
		<ul style="list-style-type: none"> SI sequencing – BOTH TRAINS STARTED.
	RO	Manually actuate SI and CI.
	RO	Verify CNMT Spray Not Required:
	SRO	Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION
		NOTE: The CRS will assign one board operator to perform Attachment 27.0, while the other board operator works with the CRS to continue on in E-0.
	BOP	Verify Both MDAFW Pumps Running
	BOP	Manually start both MDAFW pumps.
		NOTE: A MDAFW Pump OOS and B MDAFW will fail to Auto Start. It must be started manually.
	BOP	IF less than 2 MDAFW pump are running, THEN manually open TDAFW pump steam supply valves.
	BOP	Verify AFW Valve Alignment:
	BOP	Manually align valves as necessary.
BOOTH OPERATOR'S NOTE: Operate Trigger #30 (FWD11B) and Trip "B" MDAFW Pump 2 minutes after pump start.		
	BOP	Monitor Heat Sink:
		<ul style="list-style-type: none"> Check S/G narrow range level – GREATER THAN 7%.
	BOP	Verify total AFW flow – GREATER THAN 200 GPM

Op Test No.: 1 Scenario # 2 Event # 6,7,8 & 9 Page 26 of 32Event Description: **Inadvertent SI, ATWS, B MDAFW Pump Trip, TDAFW Pump Trip**

Time	Position	Applicant's Actions or Behavior
	SRO	IF total AFW is less than 200 gpm, THEN manually start pumps and align valves to establish greater than 200 gpm AFW flow. IF AFW flow greater than 200 gpm can NOT be established. THEN go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1.
		FR-H.1, "RESPONSE TO LOSS OF SECONDARY HEAT SINK."
	RO/BOP	Check If Secondary Heat Sink Is Required:
		<ul style="list-style-type: none"> RCS pressure – GREATER THAN ANY NON-FAULTED S/G PRESSURE
		<ul style="list-style-type: none"> Check RCS cold leg temperature – GREATER THAN 350°F
	BOP	Monitor Secondary Heat Sink:
		<ul style="list-style-type: none"> Verify either S/G level – WIDE RANGE GREATER THAN 50 inches.
		<ul style="list-style-type: none"> Verify PRZR pressure – LESS THAN 2335 PSIG.
	BOP	Try to Establish AFW Flow To At Least One Intact S/G:
		<ul style="list-style-type: none"> Verify 2 MDAFW pumps – AVAILABLE
		NOTE: Both MDAFW Pumps are unavailable.
	BOP	Verify TDAFW pump available.
		NOTE: The TDAFW Pump has undergone an Overspeed Trip and cannot be reset.
	RO	Stop Both RCPs.
		Move to Event #10.

Op Test No.: 1 Scenario # 2 Event # 10 Page 27 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
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The operator will attempt to start the SAFW system to provide flow to one SG, however, both Flow Transmitters (FT-4084 and 4085) will have been isolated from Shutdown, and the SAFW pumps when started will reach runout conditions and trip on overcurrent within 60 seconds. (LER 2006-4). Feed flow will be restored to one Steam Generator using a Condensate and a Main Feedwater Pump. Once feed flow is restored to one Steam Generator the operator will transition back to ES-0.1, "Reactor Trip Response."

Booth Operator Instructions: Operate trigger #29 at the start of SAFW pump C (FWD15A 60 seconds delayed).

Indications Available:

	RO	Reset SI If Actuated
	RO	Try To Establish SAFW Flow To At Least One Intact S/G:
		<ul style="list-style-type: none"> Align SAFW system for operation (Refer to ATT-5.1.
ATT-5.1, "ATTACHMENT SAFW."		
	RO	Align SAFW Pump C to selected S/G as follows:
		<ul style="list-style-type: none"> Ensure SI Reset
		<ul style="list-style-type: none"> Ensure the following valves open:
		<ul style="list-style-type: none"> MOV-9701A, SAFW PUMP C DISCHARGE VLV
		<ul style="list-style-type: none"> MOV-4616, AUX BLDG SW ISOL VLV
		<ul style="list-style-type: none"> MOV-9704A, SAFW PUMP C ISOL VLV
		<ul style="list-style-type: none"> Open MOV-9629A, SAFW PUMP C SUCTION VLV.
	BOP	<ul style="list-style-type: none"> Verify at least 1 SW pump running.
		<ul style="list-style-type: none"> To feed S/G A.
		<ul style="list-style-type: none"> Restore SAFW flow as directed by procedure in effect.
		<ul style="list-style-type: none"> Determine SAFW flow requirements per ATT-22.0, ATTACHMENT RESTORING FEED FLOW

Op Test No.: 1 Scenario # 2 Event # 10 Page 28 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
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ATT-22.0, "ATTACHMENT RESTORING FEED FLOW."

	SRO/BOP	Initiate Feed flow as follows:
	SRO/BOP	IF feedwater flow to affected S/G greater than 50 gpm OR affected SG level greater than 50 inches (100 inches adverse CNMT). THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.
	SRO/BOP	IF NOT, THEN establish less than or equal to 100 gpm feed flow to affected S/G. WHEN S/G level greater than 50 inches (100 inches adverse CNMT), THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.
	RO	<ul style="list-style-type: none"> Start selected SAFW pump(s).

NOTE: Pump will start and trip 60 seconds later. Crew will return to Step 6 and attempt to start D SAFW pump.

	RO	Try to Establish SAFW Flow To At Least One Intact S/G:
		<ul style="list-style-type: none"> Perform the following:
		<ul style="list-style-type: none"> Align SAFW system for operation (Refer to ATT-5.1 ATTACHMENT SAFW)

ATT-5.1, "ATTACHMENT SAFW."

	RO	Align SAFW Pump D to selected S/G as follows:
		<ul style="list-style-type: none"> Ensure SI Reset
		<ul style="list-style-type: none"> Ensure the following valves open:
		<ul style="list-style-type: none"> MOV-9701B, SAFW PUMP D DISCHARGE VLV

Op Test No.: 1 Scenario # 2 Event # 10 Page 29 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> MOV-4615, AUX BLDG SW ISOL VLVS
		<ul style="list-style-type: none"> MOV-9704B, SAFW PUMP D ISOL VLV
		<ul style="list-style-type: none"> MOV-9746, SAFW PMP D EMERG DISCH VLV
		<ul style="list-style-type: none"> Open MOV-9629B, SAFW PUMP D SUCTION VLV.
	BOP	<ul style="list-style-type: none"> Verify at least 1 SW pump running.
	RO	<ul style="list-style-type: none"> To feed S/G A, perform the following:
		<ul style="list-style-type: none"> Close MOV-9704B, SAFW PUMP D ISOL VLV
		<ul style="list-style-type: none"> Open either SAFW CROSSOVER VLV:
		<ul style="list-style-type: none"> MOV-9703A
		OR
		<ul style="list-style-type: none"> MOV-9703B
		<ul style="list-style-type: none"> Verify open MOV-9704A, SAFW PUMP C ISOL VLV
	RO	<ul style="list-style-type: none"> Restore SAFW flow as directed by procedure in effect.
		<ul style="list-style-type: none"> Determine SAFW flow requirements per ATT-22.0 ATTACHMENT RESTORING FEED FLOW
ATT-22.0, "ATTACHMENT RESTORING FEED FLOW."		
	SRO/BOP	Initiate Feed flow as follows:
	SRO/BOP	IF feedwater flow to affected S/G greater than 50 gpm OR affected SG level greater than 50 inches (100 inches adverse CNMT). THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.
	SRO/BOP	IF NOT, THEN establish less than or equal to 100 gpm feed flow to affected S/G. WHEN S/G level greater than 50 inches (100 inches adverse CNMT), THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.

Op Test No.: 1 Scenario # 2 Event # 10 Page 30 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
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	RO	Start selected SAFW pump(s)
	SRO	IF greater than 235 gpm total SAFW flow can NOT be established, THEN go to Step 7
BOOTH OPERATOR NOTE: Operate trigger #28 at the start of SAFW D (FWD15B 60 seconds delayed).		
FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK		
	BOP	Try to Establish MFW Flow to at Least One S/G
		<ul style="list-style-type: none"> • Check any MFW pump AVAILABLE
		<ul style="list-style-type: none"> • Check condensate system: <ul style="list-style-type: none"> • Condensate pump – ANY RUNNING • MFW pump suction pressure GREATER THAN 200 PSIG
	BOP	<ul style="list-style-type: none"> • Establish MFW flow: <ul style="list-style-type: none"> • Check MFW pump discharge valves – CLOSED • Verify MFW regulating or bypass valves – OPERABLE • Depress MANUAL pushbuttons for A and B MFW regulating valve and bypass valve controllers AND adjust to 0% demand. • Open MFIV's for both S/G's: <ul style="list-style-type: none"> • S/G A, AOV-3995 • S/G B, AOV-3994 • Dispatch AO to restore MFW pump SW cooling • Verify S/G blowdown key switches in NORMAL • Ensure Annunciator H-4, MAIN FEED PUMP OIL SYSTEM – EXTINGUISHED

Op Test No.: 1 Scenario # 2 Event # 10 Page 31 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> Close Condensate Bypass valve, AOV-3959.
		<ul style="list-style-type: none"> Ensure Annunciator H-11, FEED PUMP SEAL WATER LO DIFF PRESS 15 PSI – EXTINGUISHED
		<ul style="list-style-type: none"> Ensure one MFW pump recirc valve – OPEN
		<ul style="list-style-type: none"> Start Selected MFW pump
		<ul style="list-style-type: none"> Open MFW pump discharge valve
		<ul style="list-style-type: none"> Open MFW regulating or bypass valves to control MFW flow per requirements of ATT-22.0, ATTACHMENT RESTORING FEED FLOW
ATT-22.0, ATTACHMENT RESTORING FEED FLOW		
	SRO/BOP	Initiate Feed flow as follows:
	SRO/BOP	IF feedwater flow to affected S/G greater than 50 gpm OR affected SG level greater than 50 inches (100 adverse CNMT), THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.
	SRO/BOP	IF NO, THEN establish less than or equal to 100 gpm feed flow to affected S/G. WHEN S/G level greater than 50 inches (100 inches adverse CNMT), THEN fill as desired to restore narrow range greater than 7% (25% adverse CNMT) and go to step 2 of this attachment.
		NOTE: There are no useable flow meters to ensure feeding requirements are restricted when using Main Feedwater. The direction must be "Slowly feed Steam Generators to establish a rising level."
Critical Task (FR-H.1-A) Establish Feedwater flow into at least one Steam Generator before Bleed and Feed Criteria is met in FR-H.1.		
	RO	Check RCS Loop Hot Legs - BOTH HOT LEG TEMPERATRUES DECREASING

Op Test No.: 1 Scenario # 2 Event # 10 Page 32 of 32Event Description: **SAFW Flow Transmitters are Isolated Resulting in Pump Run Out of SAFW Pump. (Pumps Trips < 60 Seconds After Start)**

Time	Position	Applicant's Actions or Behavior
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	BOP	Verify affected S/G is not faulted or ruptured.
		NOTE: The SG with the higher level is the B SG with a Tube Leak. Efforts should be made to feed this generator regain a Heat Sink, and then continue to feed the A SG.
FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK		
	SRO	Go to Step 11.
	BOP	Check S/G Levels:
		<ul style="list-style-type: none"> Narrow range level in at least one S/G – GREATER THAN 7% (25% adverse CNMT)
	SRO	<ul style="list-style-type: none"> Return to procedure and step in effect.
Booth Instructor: Freeze the Simulator		
EAL 1.3.1 (SAE) Red Path on Heat Sink Modes 1-4.		

Scenario Event Description

NRC Scenario 4

Ginna 2007 NRC Scenario #4

The Plant is at 100% power Steady-State (BOL), and has been for the last 9 days following Refueling Outage.

The following equipment is Out-Of-Service: A MDAFW Pump (Expected back in 24 hours), Containment Pressure channel PT-945 (The channel has been defeated per ER-INST.1) and MCB Annunciator J-8 has alarmed spuriously several times over the last hour (I&C is investigating).

Shortly after taking the watch, a nitrogen leak will develop on the B Accumulator. The operator will respond in accordance with AR-C-12, "Accumulator 1B (Loop A) Press 720 Psi 760." The crew will investigate and determine a slow N₂ leak has occurred, and seek to add Nitrogen in accordance with S-16.2, "Nitrogen Make-Up To The SI Accumulators." The operator will address Technical Specification 3.5.1, "Accumulators."

After the Accumulator Technical Specification is addressed, the 1st Stage Pressure Transmitter PT-485 will fail low. The control rods will move inward if in Auto, and the operator will respond in accordance with AP-RCC.1, "Continuous Control Rod Withdrawal/Insertion." The operator will address ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure," to defeat the channel.

Shortly after this, the "A" FRV controller will fail such that the FRV will start to close. The operator will need to recognize the failure, and take manual control of the controller, re-open the FRV, and stabilize the plant. The operator will enter AP-FW.1, "Abnormal Main Feedwater Flow." The Condensate Booster Pumps will trip if the "A" FRV closes. If this occurs the operator will be directed to reduce power to < 80% in accordance with AP-TURB. 5, "Rapid Load Reduction."

After completion of AP-FW.1, the main turbine will experience high vibrations. The operator will respond in accordance with AR-I-27, "Rotor Eccentricity Or Vibration," which will require that AP-TURB.3, "Turbine Vibration," be addressed. This will require a load decrease in accordance with AP-TURB.5, "Rapid Load Reduction."

During the load decrease a rod lift coil for a D Bank rod fails (Blown fuse) causing a misaligned rod. The operator will respond in accordance with AP-RCC.2, "RCC/RPI Malfunction," and address Technical Specification 3.1.4, "Rod Group Alignment Limits."

Following this, an electrical fault will occur on the C Instrument Bus resulting in a loss of the bus, and a Safety Injection actuation. The operator will enter E-0, "Reactor Trip or Safety Injection." On the Safety Injection actuation, both the A and B SI Pumps will fail to auto start and require manual starting.

When MOV-852B opens (RHR to Rx Vessel) on the SI actuation, CV-853B fails causing an inter-system LOCA (to RHR). The RHR common header fails from overpressure resulting in a LOCA outside Containment. The operator will transition to ECA-1.2, "LOCA Outside Containment." Upon completion of ECA-1.2, the operator will transition to E-1, Loss of Reactor or Secondary Coolant.

The scenario will terminate at Step 12e of E-1, after the crew decides to transition to ES-1.1, "SI Termination."

Scenario Event Description

NRC Scenario 4

Critical Tasks:

E-0 I

Establish flow from at least two SI pumps before transition out of E-0.

E-1 C

Trip all RCPs within 5 minutes of reaching the trip criteria.

ECA-1.2 A

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

Scenario Event Description

NRC Scenario 4

Simulator Set Up

IC-174C

Place Hold Tags on:

- A MDAFW Pump Control Switch
- Close and Tag MOV 4007 Control Switch

Place Protected Equipment Tags on:

- B MDAFW Pump Control Switch

Insert:

FDW11A – A MDAFW Trip, (Pull/Stop, Hold Tag, Close MOV-4007, Protective Covers on B MDAFW Pump)

IND-MIS36 PT-945 Failure

RPS07A A SI Pump fails to Auto Start

RPS07B B SI Pump fails to Auto Start

Events:

1	IND-SIS43 on Trigger #1 A-SIS06 (On) on Trigger #1 (Annunciator C-12 to On)
2	TUR16A (0 psig) on Trigger #2
3	FDW07A (0%) on Trigger #3
4	TUR05H (9 mils) on Trigger #4 (Bearing 8)
5	NA
6	ROD03 on Trigger #30 conditional on T:N41B.LE.85
7	EDS07C on Trigger #5
8	RPS07A/B at T=0
9	RCS19D (900 gpm) on Trigger #5

Scenario Event Description

NRC Scenario 4

Shift Turnover:

The Plant is at 100% power Steady-State (BOL), and been for the last 9 days following Refueling Outage.

The following equipment is Out-Of-Service: A MDAFW Pump (Expected back in 24 hours), Containment Pressure channel PT-945 (The channel has been defeated per ER-INST.1) and MCB Annunciator J-8 has alarmed spuriously several times over the last hour (I&C is investigating).

Scenario Event Description

NRC Scenario 4

A-52.4

Equipment	Date	Time	Reason	Required Actions	Required Completion Date/Time	Required Action not met
PT-945	_/_/07	0330	Failed Channel	<p>ITS 3.3.2 Condition A Enter Condition referenced on Table 3.3.2-1 (1c, 2c, 4c) immediately.</p> <p>Condition F (From 4c) – Place Channel in Trip within 6 hours.</p> <p>Condition J (From 1c, 2c) – Place Channel in Trip within 6 hours.</p>	TRACKING ONLY	<p>Condition G – Be in Mode 3 within 6 hours, and Mode 4 within 12 hours.</p> <p>Condition K – Be in Mode 3 within 6 hours, and Mode 5 within 36 hours.</p>
A MDAFW Pump	_/_/07	_____	Bearing replacement	ITS 3.7.5 Condition B Restore MDAFW train to operable status within 7 days.	_/_/07 _____	Condition G – Required action and associated completion time for Condition B not met, be in Mode 3 within 6 hours, and Mode 4 within 12 hours.

Op Test No.: 1 Scenario # 4 Event # 1 Page 7 of 41Event Description: **N2 Leak on B Accumulator**

Time	Position	Applicant's Actions or Behavior
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Shortly after taking the watch, a nitrogen leak will develop on the B Accumulator. The operator will respond in accordance with AR-C-12, "Accumulator 1B (Loop A) Press 720 Psi 760." The crew will investigate and determine a slow N2 leak has occurred, and seek to add Nitrogen in accordance with S-16.2, "Nitrogen Make-Up To The SI Accumulators." The operator will address Technical Specification 3.5.1, "Accumulators."

Booth Operator Instructions: Operate Trigger #1 (IND-SIS43, A-SIS06 (On))**Indications Available:**

		B Accumulator Pressure low		
		C-12, ACCUMULATOR 1B (LOOP A) PRESS 720 PSI 760		
AR-C-12, ACCUMULATOR 1B (LOOP A) PRESS 720 PSI 760.				
	RO	Add N2 (S-16.2) OR water (S-16.13) to accumulator until ~740 psig (± 15).		
	SRO	Refer to ITS LCO 3.5.1.		
	SRO	LCO 3.5.1		
		Two ECCS accumulators shall be OPERABLE.		
	SRO	APPLICABILITY:		
		MODES 1 and 2.		
		MODE 3 with pressurizer pressure > 1600 psig.		
	SRO	CONDITION	REQUIRED ACTION	COMPLETION TIME
		B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	24 hours
At the discretion of the Lead Examiner move to Event #2.				

Op Test No.: 1 Scenario # 4 Event # 2 Page 8 of 41Event Description: **1st Stage Pressure Transmitter Fails Low**

Time	Position	Applicant's Actions or Behavior
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After the Accumulator Technical Specification is addressed, the 1st Stage Pressure Transmitter PT-485 will fail low. The control rods will move inward if in Auto, and the operator will respond in accordance with AP-RCC.1, "Continuous Control Rod Withdrawal/Insertion." The operator will address ER-INST.1, "Reactor Protection Bistable Defeat After Instrumentation Loop Failure," to defeat the channel.

Booth Operator Instructions: Operate Trigger #2 (TUR16A (0 psig))

Indications Available:

		F-16, Tav _g - Tref Deviation +/- 5 Degree F
		Control Rods moving inward in AUTO.
		G-22, ADFCS System Trouble

AR-F-16, TAVG-TREF DEVIATION +/- 5 DEGREE F

	RO	Check Avg Tav _g and Tref indication.
	RO/BOP	Check for instrument failures on Tav _g channels and Turbine first stage pressure (PI-485)
	SRO	Go to the appropriate procedure:
		• AP-RCC.1 (If control rod failures)
		• ER-INST.1 (If for instrument failures)
		NOTE: Either procedure is acceptable based on crew diagnosis. If crew goes directly to ER-INST.1, proceed to page 10 of 41.

AP-RCC.1, CONTINUOUS CONTROL ROD WITHDRAWAL / INSERTION

	SRO	Evaluate Rod Control System Operability:
	BOP	Check turbine Load – STABLE
	RO	Place Rods to MANUAL.

Op Test No.: 1 Scenario # 4 Event # 2 Page 9 of 41Event Description: **1st Stage Pressure Transmitter Fails Low**

Time	Position	Applicant's Actions or Behavior
	RO	Verify control rod motion stops.
	RO	Monitor Tavg:
		• Tavg – GREATER THAN 545°F.
		• Tavg – LESS THAN 579°F.
	RO	Check Tavg – TRENDING TO Tref
	RO	Check RCS Tavg Channel Indications:
		• All 4 channels indicate approximately the same value
		• All 4 channels responding to the power change
	BOP	Check Turbine 1 st Stage Pressure Channel, PI-485 – APPROXIMATELY EQUAL TO PT-486.
	SRO	IF PI-485 malfunction is indicated, THEN refer to ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE.
		NOTE: SRO will perform remainder of procedure in parallel with ER-INST.1.
	RO	Check NIS PR Indication:
		• All PR total channel indicators – APPROXIMATELY EQUAL
		• All ΔI indicators – APPROXIMATELY EQUAL
	SRO	Establish Stable Plant conditions:
	RO	• Tavg – TRENDING TO TREF
	RO	• PRZR pressure – TRENDING TO 2235 PSIG IN AUTO
	RO	• PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL
	RO	• Rod insertion limit alarms – EXTINGUISHED

Op Test No.: 1 Scenario # 4 Event # 2 Page 10 of 41Event Description: **1st Stage Pressure Transmitter Fails Low**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> NIS PR ΔI – WITHIN DESIRED OPEATING BAND
	RO	Verify Control Rods Operable In Manual:
		<ul style="list-style-type: none"> Insert/withdraw control rods to MRPI transition
		<ul style="list-style-type: none"> Verify MRPI indicates control rod motion
		<ul style="list-style-type: none"> Restore control rods to desired position
	SRO	Establish Control Systems In Auto:
	RO	<ul style="list-style-type: none"> Verify rods in AUTO
	RO	<ul style="list-style-type: none"> Verify 431K in AUTO
	RO	<ul style="list-style-type: none"> Verify PRZR spray valves in AUTO
	RO	<ul style="list-style-type: none"> Verify PRZR heaters restored: <ul style="list-style-type: none"> PRZR proportional heaters breaker – CLOSED PRZR backup heaters breaker – RESET IN AUTO
	RO	Verify one charging pump in AUTO.
	CREW	Evaluate MCB Annunciator Status (Refer to AR Procedures).
	SRO	Refer to ITS section 3.1 for control rod operability requirements.
	SRO	Notify Higher Supervision.
	SRO	Return to Procedure or Guidance In Effect.
ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE		

Op Test No.: 1 Scenario # 4 Event # 2 Page 11 of 41Event Description: **1st Stage Pressure Transmitter Fails Low**

Time	Position	Applicant's Actions or Behavior
	RO	Identify the failed instrument channel by observation of the bistable status light board, MCB annunciators, and the MCB metering indication.
	SRO	WHEN a failed instrument loop and/or channel has been identified, THEN refer to the appropriate section of this procedure listed below:
		TURBINE FIRST STAGE PRESSURE CHANNEL FAILURE:
	SRO	IF turbine first stage pressure channel PT-485 fails, THEN the following actions should be considered:
	RO	<ul style="list-style-type: none"> The Rod Control Selector switch should be placed in MANUAL (485 inputs the PWR MISMATCH circuit and TREF).
	BOP	<ul style="list-style-type: none"> The Steam Dump Mode Selector Switch should be placed in MANUAL if necessary.
	BOP	<ul style="list-style-type: none"> S/G level should be monitored AND controlled MANUALLY IF necessary.
	SRO	<ul style="list-style-type: none"> Refer to Attachment FIRST STAGE PRESSURE PI-485, WHITE, to defeat channel AND to restore AUTOMATIC control.
WHITE CHANNEL ATTACHMENT FIRST STAGE PRESSURE PI-485		
	RO/BOP	In the (WHITE) W1 PROTECTION CHANNEL 2 rack, PLACE the following bistable proving switch to DEFEAT (UP) AND verify the proving light status is correct:
		485 CHANNEL 2
		TURBINE PWR TRIP Light OFF If PI-485 \geq 51.6 PSIG (approximately 8% RTP).

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>2</u>	Page	<u>12</u>	of	<u>41</u>
Event Description: 1st Stage Pressure Transmitter Fails Low									
Time	Position	Applicant's Actions or Behavior							

		IF any proving light status is NOT correct, THEN submit a Condition Report on the discrepancy and continue with the channel defeat steps.
	RO/BOP	Verify the AMSAC TRIPPED status light (MCB) is extinguished.
	SRO/AO	Verify the TL 400 bistable indicating light (FOX 3-RELAY ROOM) is extinguished.
	SRO/AO	IF $\geq 35\%$ power, THEN verify AMSAC feedwater Flow bistables are reset by observing the following: (FOX 3-RELAY ROOM)
		• TL/466 TRIP STATUS LIGHT EXTINGUISHED
		• TL/467 TRIP STATUS LIGHT EXTINGUISHED
		• TL/476 TRIP STATUS LIGHT EXTINGUISHED
		• TL/477 TRIP STATUS LIGHT EXTINGUISHED
	SRO/AO	PLACE switch TPS/485 (FOX 3-RELAY ROOM) to the TRIP position AND verify TL/485 TRIP STATUS light is lit.
Booth Instructor Note: Use LOA TUR22 (Trip)		
	RO/BOP	IF $\geq 40\%$ power, THEN verify the AMSAC AUTO BLOCK status light (MCB) is extinguished.
	RO/BOP	Delete the computer point from the PPCS by performing the following:
		• On the "Sub/Delete/Restore" display
		• Select Point ID P0485
		• Turn "OFF" scan processing
		• Select "Change"

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>2</u>	Page	<u>13</u>	of	<u>41</u>
Event Description: 1st Stage Pressure Transmitter Fails Low									
Time	Position	Applicant's Actions or Behavior							

	SRO	GO TO step 4.15.
	SRO	FOLLOW UP ACTIONS:
	RO	IF necessary, verify an operable channel is selected for the affected recorder.
	SRO	Verify the following systems in AUTO if desired:
	RO	<ul style="list-style-type: none"> • Rod control
	BOP	<ul style="list-style-type: none"> • Turbine EH control
	RO	<ul style="list-style-type: none"> • PRZR Pressure control
		<ul style="list-style-type: none"> • HC 431K
		<ul style="list-style-type: none"> • PRZR spray valves
		<ul style="list-style-type: none"> • PRZR heaters
	RO	<ul style="list-style-type: none"> • PRZR level control
	BOP	<ul style="list-style-type: none"> • Steam Dump (unless 1st stage pressure failed)
	BOP	<ul style="list-style-type: none"> • MFW control
	BOP	<ul style="list-style-type: none"> • S/G Atmos Relief Vlv Control
	SRO	Notifications to the following people will be made by the Shift Manager:
		<ul style="list-style-type: none"> • Operations Supervision
		<ul style="list-style-type: none"> • STA
	SRO	During normal working hours, Maintenance personnel shall be notified immediately of the problem.
At the discretion of the Lead Examiner move on to Event 3.		

Op Test No.: 1 Scenario # 4 Event # 3 Page 14 of 41Event Description: **"A" FRV Controller fails causing valve to Close**

Time	Position	Applicant's Actions or Behavior
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Shortly after this, the "A" FRV controller will fail such that the FRV will start to close. The operator will need to recognize the failure, and take manual control of the controller, re-open the FRV, and stabilize the plant. The operator will enter AP-FW.1, "Abnormal Main Feedwater Flow." The Condensate Booster Pumps will trip if the "A" FRV closes. If this occurs the operator will be directed to reduce power to < 80% in accordance with AP-TURB. 5, "Rapid Load Reduction."

Booth Operator Instructions: Operate Trigger #3 (FDW07A (0%))**Indications Available:**

		Feed flow in A SG decreases.
		G-3, SG A Level Deviation $\pm 7\%$
AR-G-3, SG A LEVEL DEVIATION $\pm 7\%$		
	BOP	Perform a channel check of LI-461, LI-462, and LI-463.
	BOP	If necessary perform the following:
		• Place SG A MFW REG VLV HCV-466 in MANUAL.
		• Place FW Flow Loop A Bypass VLV HCV-480 in MANUAL.
		• Control SG Level manually.
	SRO	For a valid feed control problem, go to AP-FW.1
AP-FW.1, ABNORMAL MAIN FEEDWATER FLOW		
	SRO	Check MFW Requirements:
	RO	• Power – GREATER THAN 50%.
	BOP	• Both MFW pumps – RUNNING.
	SRO	Go to Step 3.
	BOP	Verify At Least One MFW Pump – RUNNING

Op Test No.: 1 Scenario # 4 Event # 3 Page 15 of 41Event Description: **"A" FRV Controller fails causing valve to Close**

Time	Position	Applicant's Actions or Behavior
	BOP	Check S/G Status
		<ul style="list-style-type: none"> • MFW flows – GREATER THAN STEAM FLOWS • S/G levels stabilizing or returning to program
	BOP	IF MFW regulating valves NOT controlling in AUTO, THEN place affected S/G(s) MFW regulating valve and bypass valve in MANUAL and restore S/G level to 52%.
	BOP	Verify At Least 2 Condensate Pumps - RUNNING.
	BOP	Verify Both HDT Pumps – RUNNING.
	BOP	Check Condensate Booster Pumps – 2 RUNNING
		NOTE: If FRV goes closed, Condensate Booster Pumps will trip and procedure will require the use of AP-TURB.5 to reduce power to 80%. This may or may not occur. If so, follow script for AP-TURB.5 in parallel with AP-FW.1. If not, Rapid Downpower will occur in next event (High Turbine Vibration).
	BOP	IF no condensate booster pump is running, THEN perform the following:
		<ul style="list-style-type: none"> • Ensure power less than 80°F. (Refer to AP-TURB.5, RAPID LOAD REDUCTION.) • Continue with Step 7.
		NOTE: If necessary, start load reduction to 80% in accordance with AP-TURB.5, and continue with this procedure in parallel.
	BOP	Check Hotwell Level:
		<ul style="list-style-type: none"> • Hotwell Level controller in AUTO. • Controller demand less than 70%. • Hotwell level at setpoint.

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>3</u>	Page	<u>16</u>	of	<u>41</u>
Event Description: "A" FRV Controller fails causing valve to Close									
Time	Position	Applicant's Actions or Behavior							

	BOP	Check MFW Pump Suction Pressure.
		<ul style="list-style-type: none"> Both MFW pump suction pressures GREATER THAN 200 PSIG
		<ul style="list-style-type: none"> Annunciator H-17, FEED PUMP NET POSITIVE SUCTION HEAD – EXTINGUISHED.
	BOP	Perform the following:
		<ul style="list-style-type: none"> Verify condensate bypass valve open.
		<ul style="list-style-type: none"> Place trim valve controller to manual and close trim valves.
		<ul style="list-style-type: none"> Verify annunciator H-17, FEED PUMP NET POSITIVE SUCTION HEAD, extinguished.
		IF NOT, THEN reduce power to restore NPSH.
	BOP	Verify Adequate MFW Flow:
		<ul style="list-style-type: none"> A MFW flow – GREATER THAN OR EQUAL TO A STEAM FLOW
		<ul style="list-style-type: none"> B MFW FLOW – GREATER THAN OR EQUAL TO B STEAM FLOW
	SRO	Check Status of MFW System:
	BOP	<ul style="list-style-type: none"> Both MFW pumps – RUNNING
	BOP	<ul style="list-style-type: none"> Verify condensate pump recirc valve AOV-4238 – CLOSED (PPCS V4238)
	BOP	<ul style="list-style-type: none"> Check MFW pump suction pressure:
		<ul style="list-style-type: none"> Pressure – GREATER THAN 200 PSIG
		<ul style="list-style-type: none"> Pressure - STABLE
	SRO	Establish Stable Plant conditions:
	RO	<ul style="list-style-type: none"> Tavg – AT OR TRENDING TO TREF
	RO	<ul style="list-style-type: none"> PRZR pressure – AT OR TRENDING TO 2235 PSIG IN AUTO

Op Test No.:	1	Scenario #	4	Event #	3	Page	17	of	41
Event Description: "A" FRV Controller fails causing valve to Close									
Time	Position	Applicant's Actions or Behavior							

	RO	<ul style="list-style-type: none"> PRZR level – AT OR TRENDING TO PROGRAM IN AUTO CONTROL
	RO	<ul style="list-style-type: none"> MFW regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO
	RO	<ul style="list-style-type: none"> Rod insertion limit alarms - EXTINGUISHED
	SRO	Check Status of Condensate System:
	BOP	<ul style="list-style-type: none"> Check hotwell level controller, HCV-107
		<ul style="list-style-type: none"> Hotwell Level controller in AUTO
		<ul style="list-style-type: none"> Controller demand less than 70%
		<ul style="list-style-type: none"> Hotwell level at setpoint
	BOP	<ul style="list-style-type: none"> Check condensate bypass valve CLSOED, IN AUTO.
	BOP	<ul style="list-style-type: none"> Check condensate pump – LESS THAN 3 PUMPS RUNNING
	BOP	<ul style="list-style-type: none"> Verify trim valves in AUTO at 375 psig
	SRO	Verify Control System in AUTO
	RO	<ul style="list-style-type: none"> Verify 431K in AUTO
	RO	<ul style="list-style-type: none"> Verify PRZR spray valves in AUTO
	RO	<ul style="list-style-type: none"> Verify PRZR Heaters restored:
		<ul style="list-style-type: none"> PRZR proportional heater breaker – CLOSED
		<ul style="list-style-type: none"> PRZR backup heater breaker – RESET/IN AUTO
	RO	<ul style="list-style-type: none"> Verify one charging pump in AUTO
	BOP	<ul style="list-style-type: none"> Verify MFW regulating valves in AUTO
	BOP	<ul style="list-style-type: none"> Verify EH controls in OP PAN, IMP OUT
	BOP	<ul style="list-style-type: none"> Verify steam dump controller, HC-484, in AUTO at 1005 psig
	BOP	<ul style="list-style-type: none"> Verify annunciator G-15, STEAM DUMP ARMED – EXTINGUISHED
	RO	<ul style="list-style-type: none"> Verify Rods in AUTO

Op Test No.: 1 Scenario # 4 Event # 3 Page 18 of 41Event Description: **"A" FRV Controller fails causing valve to Close**

Time	Position	Applicant's Actions or Behavior
	SRO	Restore AFW System to Auto Standby:
	BOP	<ul style="list-style-type: none"> Check AFW pumps – ANY RUNNING
	SRO	Go to /Step 16.
	CREW	Evaluate MCB Annunciator Status (Refer to AR procedures)
	SRO	Check if PRZR Boron Should Be Mixed
	RO	<ul style="list-style-type: none"> Boration performed for load reduction
	RO	<ul style="list-style-type: none"> Place PRZR backup heaters switch to ON
	SRO	Notify Higher Supervision
	SRO	Return To Procedure Or Guidance In Effect.
AP-TURB.5, RAPID LOAD REDUCTION		
		NOTE: If FRV goes closed, Condensate Booster Pumps will trip and procedure will require the use of AP-TURB.5 to reduce power to 80%. This may or may not occur. If so, follow script for AP-TURB.5 in parallel with AP-FW.1. If not, Rapid Downpower will occur in next event (High Turbine Vibration).
	SRO	Initiate Load Reduction
	RO	<ul style="list-style-type: none"> Verify rods in AUTO
	BOP	<ul style="list-style-type: none"> Reduce turbine load in AUTO at follows:
		<ul style="list-style-type: none"> Place Turbine EH control in OPER PAN. IMP PRESS OUT. If desired.
		<ul style="list-style-type: none"> Select desired rate on thumbwheel
		<ul style="list-style-type: none"> Reduce the setter to the desired load.
		<ul style="list-style-type: none"> Depress the GO button.
	RO	<ul style="list-style-type: none"> Initiate boration at ~2 gal/% load reduction.

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>3</u>	Page	<u>19</u>	of	<u>41</u>
Event Description: "A" FRV Controller fails causing valve to Close									
Time	Position	Applicant's Actions or Behavior							

	RO	<ul style="list-style-type: none"> Place PRZR backup heaters switch to ON.
	RO	Monitor RCS Tavg
		<ul style="list-style-type: none"> Tavg – GREATER THAN 545°F
		<ul style="list-style-type: none"> Tavg – LESS THAN 579°F
	RO	Adjust Boric Acid Addition Rate As Necessary To (Refer to OPG-REACTIVITY-CALC):
		<ul style="list-style-type: none"> Maintain rods above the insertion limit.
		<ul style="list-style-type: none"> Match Tavg and Tref
		<ul style="list-style-type: none"> Compensate for Xenon
	RO	Monitor PRZR Pressure – TRENDING TO 2235 PSIG IN AUTO
	BOP	Monitor MFW Regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO
	RO	Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL
	RO	Check IA Available To CNMT
		<ul style="list-style-type: none"> IA pressure – GREATER THAN 60 PSIG
		<ul style="list-style-type: none"> Instr Air to CNMT Isol Valve AOV-5392 - OPEN
	BOP	Check Steam Dump Status:
		<ul style="list-style-type: none"> Annunciator G-15, STEAM DUMP ARMED - LIT
		<ul style="list-style-type: none"> Steam dump operating properly in AUTO
	BOP	Check Hotwell Level:
		<ul style="list-style-type: none"> Hotwell level controller in AUTO

Op Test No.: <u> 1 </u> Scenario # <u> 4 </u> Event # <u> 3 </u> Page <u> 20 </u> of <u> 41 </u>		
Event Description: "A" FRV Controller fails causing valve to Close		
Time	Position	Applicant's Actions or Behavior

		<ul style="list-style-type: none"> Controller demand LESS THAN 60%
		<ul style="list-style-type: none"> Hotwell level at setpoint
At the discretion of the Lead Examiner move to Events 4 & 5.		

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>4 & 5</u>	Page	<u>21</u>	of	<u>41</u>
Event Description: High Vibrations on Main Turbine/Rapid Downpower									
Time	Position	Applicant's Actions or Behavior							

After completion of AP-FW.1, the main turbine will experience high vibrations. The operator will respond in accordance with AR-I-27, "Rotor Eccentricity Or Vibration," which will require that AP-TURB.3, "Turbine Vibration," be addressed. This will require a load decrease in accordance with AP-TURB.5, "Rapid Load Reduction."

Booth Operator Instructions: Operate Trigger #4 (TUR05H (9 mils))

Indications Available:

		I-27, ROTOR ECCENTRICITY OR VIBRATION
AR-I-27, ROTOR ECCENTRICITY OR VIBRATION		
	SRO	GO TO AP-TURB.3
AP-TURB.3, TURBINE VIBRATION		
	SRO	Verify turbine vibration – ALL BEARINGS LESS THAN 14 MILS
	BOP	Check turbine bearings No. 1 through No. 8 Vibration – LESS THAN 7 MILS
	SRO	Attempt to stabilize vibration as follows:
		<ul style="list-style-type: none"> IF generator on line, THEN begin reducing load to stabilize vibrations. (Refer to AP-TURB.5, RAPID LOAD REDUCTION).
	BOP	Check Bearing No. 9 Vibration – LESS THAN 10 MILS
	SRO	Evaluate Plant Conditions:
	BOP	<ul style="list-style-type: none"> Check turbine vibrations – STABLE OR LOWERING
	SRO	Reduce turbine load until turbine vibrations stabilize and go to Step 5.

Op Test No.: 1 Scenario # 4 Event # 4 & 5 Page 22 of 41Event Description: **High Vibrations on Main Turbine/Rapid Downpower**

Time	Position	Applicant's Actions or Behavior
		IF vibrations can NOT be stabilized with the plant at power, THEN take unit off line (refer to AP-TURB.5, RAPID LOAD REDUCTION)
		NOTE: it is not intended to have Turbine Vibrations degrade or be reduced through the remainder of the scenario.
		NOTE: AP-TURB.5 may already be in progress from event #3. If so move forward at the discretion of Lead Examiner, if not, Rapid Load Reduction will occur now in accordance with AP-TURB.5.
AP-TURB.5, RAPID LOAD REDUCTION		
	SRO	Initiate Load Reduction
	RO	<ul style="list-style-type: none"> Verify rods in AUTO
	BOP	<ul style="list-style-type: none"> Reduce turbine load in AUTO at follows:
		<ul style="list-style-type: none"> Place Turbine EH control in OPER PAN. IMP PRESS OUT. If desired.
		<ul style="list-style-type: none"> Select desired rate on thumbwheel
		<ul style="list-style-type: none"> Reduce the setter to the desired load.
		<ul style="list-style-type: none"> Depress the GO button.
	RO	<ul style="list-style-type: none"> Initiate boration at ~2 gal/% load reduction.
	RO	<ul style="list-style-type: none"> Place PRZR backup heaters switch to ON.
	RO	Monitor RCS Tavg
		<ul style="list-style-type: none"> Tavg – GREATER THAN 545°F
		<ul style="list-style-type: none"> Tavg – LESS THAN 579°F
	RO	Adjust Boric Acid Addition Rate As Necessary To (Refer to OPG-REACTIVITY-CALC):
		<ul style="list-style-type: none"> Maintain rods above the insertion limit.
		<ul style="list-style-type: none"> Match Tavg and Tref
		<ul style="list-style-type: none"> Compensate for Xenon

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>4 & 5</u>	Page	<u>23</u>	of	<u>41</u>
Event Description: High Vibrations on Main Turbine/Rapid Downpower									
Time	Position	Applicant's Actions or Behavior							

	RO	Monitor PRZR Pressure – TRENDING TO 2235 PSIG IN AUTO
	BOP	Monitor MFW Regulating valves – RESTORING S/G LEVEL TO 52% IN AUTO
	RO	Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL
	RO	Check IA Available To CNMT
		<ul style="list-style-type: none"> IA pressure – GREATER THAN 60 PSIG Instr Air to CNMT Isol Valve AOV-5392 - OPEN
	BOP	Check Steam Dump Status:
		<ul style="list-style-type: none"> Annunciator G-15, STEAM DUMP ARMED - LIT Steam dump operating properly in AUTO
	BOP	Check Hotwell Level:
		<ul style="list-style-type: none"> Hotwell level controller in AUTO Controller demand LESS THAN 60% Hotwell level at setpoint
	SRO	Check to see if Condensate Booster Pumps should be secured.
At the discretion of the Lead Examiner move to Event #6		

Op Test No.: 1 Scenario # 4 Event # 6 Page 24 of 41Event Description: **Misaligned Rod**

Time	Position	Applicant's Actions or Behavior
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During the load decrease a rod lift coil for a D Bank rod fails (Blown fuse) causing a misaligned rod. The operator will respond in accordance with AP-RCC.2, "RCC/RPI Malfunction," and address Technical Specification 3.1.4, "Rod Group Alignment Limits."

Booth Operator Instructions: Operate Trigger #30 (ROD03) Conditional on Power < 85%

Indications Available:

		Control Rod C-7 MRPI shows rod not moving with the rest of the bank.
		C-5, PPCS Rod Sequence or Rod Deviation
AR-C-5, PPCS ROD SEQUENCE OR ROD DEVIATION		
	SRO	If Rod position deviation, go to AP-RCC.2.
AP-RCC.2, RCC/RPI MALFUNCTION		
	RO	Place Rods to Manual
	RO	Check Dropped Rod Indication:
		<ul style="list-style-type: none"> Annunciator E-28, POWER RANGE ROD DROP ROD STOP 5%/5 SECONDS – EXTINGUISHED
		<ul style="list-style-type: none"> Annunciator C-14, ROD BOTTOM ROD STOP – EXTINGUISHED
	RO	Check Tavg – STABLE AT PROGRAM
	BOP	Perform the following:
		<ul style="list-style-type: none"> Place EH control in MANUAL.
		<ul style="list-style-type: none"> Manually adjust turbine load to match Tavg and Tref.
	BOP	Verify Annunciator G-15, STEAM DUMP ARMED – EXTINGUISHED

Op Test No.: 1 Scenario # 4 Event # 6 Page 25 of 41Event Description: **Misaligned Rod**

Time	Position	Applicant's Actions or Behavior
	BOP	Check Main Generator Load – GREATER THAN 15 MW
	SRO	Establish Stable Plant Conditions:
	RO	<ul style="list-style-type: none"> Tavg – TRENDING TO TREF
	RO	<ul style="list-style-type: none"> PRZR pressure – TRENDING TO 2235 PSIG IN AUTO
	RO	<ul style="list-style-type: none"> PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL
	BOP	<ul style="list-style-type: none"> MFV Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO
		NOTE: A FRV is still in manual control.
	RO	Check Control Rod Alignment:
		<ul style="list-style-type: none"> Verify all rods in affected group – WITHIN ± 12 STEPS OF ASSOCIATED GROUP STEP COUNTER
	SRO	Refer to ITS Section 3.1.4.
	RO	Check QPTR – LESS THAN 1.02
		Refer to ITS Section 3.2.4.
	RO	Verify ALL Individual Rod Position Indication Per Bank Operable:
		<ul style="list-style-type: none"> MRPI system – NO MRPI SYSTEM ALARMS
		<ul style="list-style-type: none"> MRPI system – NO KNOWN PROBLEMS WITH MRPI SYSTEM THAT COULD RENDER ROD POSITION INDICATION INOPERABLE
	SRO	Evaluate Control Rod Operability:
	RO	<ul style="list-style-type: none"> Verify less than two misaligned rods

Op Test No.: 1 Scenario # 4 Event # 6 Page 26 of 41Event Description: **Misaligned Rod**

Time	Position	Applicant's Actions or Behavior
		IF two or more rods are misaligned, THEN initiate plant shutdown. (Refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN)
	SRO	<ul style="list-style-type: none"> Direct I&C to locally investigate rod failure
	SRO	<ul style="list-style-type: none"> Refer to ER-RCC.2, RESTORING A MISALIGNED RCC
	SRO	<ul style="list-style-type: none"> Rod failure identified
		Perform the following:
		<ul style="list-style-type: none"> Consult Reactor Engineer and ITS section 3.1.4 for operational concerns.
		<ul style="list-style-type: none"> Return to step 2.
	SRO	LCO 3.1.4
		All shutdown and control rods shall be OPERABLE, with all individual indicated rod positions within 12 steps of their group step counter demand position.
	SRO	APPLICABILITY:
		MODE 1
		MODE 2 with $K_{eff} \geq 1.0$.

Op Test No.: 1 Scenario # 4 Event # 6 Page 27 of 41Event Description: **Misaligned Rod**

Time	Position	Applicant's Actions or Behavior
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		CONDITION	REQUIRED ACTION	COMPLETION TIME
			B.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
			OR	
			B.1.2 Initiate boration to restore SDM to within limit.	1 hour
			AND	
			B.2 Reduce THERMAL POWER to $\leq 75\%$ RTP.	2 hours
			AND	
			B.3 Verify SDM is within the limits specified in the COLR.	Once per 12 hours
			AND	
			B.4 Perform SR 3.2.1.1.	72 hours
			AND	
			B.5 Perform SR 3.2.2.1.	72 hours
			AND	
			B.6 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days

At the discretion of the Lead Examiner move to Events 7 & 8.

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>7 & 8</u>	Page	<u>28</u>	of	<u>41</u>
Event Description:		Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start							
Time	Position	Applicant's Actions or Behavior							

Following this, an electrical fault will occur on the C Instrument Bus resulting in a loss of the bus, and a Safety Injection actuation. The operator will enter E-0, "Reactor Trip or Safety Injection." On the Safety Injection actuation, both the A and B SI Pumps will fail to auto start and require manual starting.

Booth Operator Instructions: **Operate Trigger #5 (EDS07C, RCS19D (900 gpm))**

Indications Available:

		Reactor Trip occurs
		Safety Injection occurs
E-0, "REACTOR TRIP OR SAFETY INJECTION."		
	RO	Verify Reactor Trip:
		<ul style="list-style-type: none"> At least one train of reactor trip breakers – OPEN
		<ul style="list-style-type: none"> Neutron flux – LOWERING
		<ul style="list-style-type: none"> MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM
	BOP	Verify Turbine Stop Valves – CLOSED
	BOP	Verify Both Trains of AC Emergency Busses Energized To At Least 420 VOLTS:
		<ul style="list-style-type: none"> Bus 14 and Bus 18
		<ul style="list-style-type: none"> Bus 16 and Bus 17
	BOP/RO	Check if SI is Actuated:
		<ul style="list-style-type: none"> Any SI Annunciator - LIT
		<ul style="list-style-type: none"> SI sequencing – BOTH TRAINS STARTED
	RO	Verify CNMT Spray Not Required:
		<ul style="list-style-type: none"> Annunciator A-27, CNMT SPRAY – EXTINGUISHED

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 29 of 41Event Description: **Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • CNMT pressure – LESS THAN 28 PSIG
	RO	Verify CNMT spray initiated.
	RO	Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION
		NOTE: The CRS will assign one board operator to perform Attachment 27.0, while the other board operator works with the CRS to continue on in E-0.
ATT-27.0, "ATTACHMENT AUTOMATIC ACTION VERIFICATION."		
	RO	Verify SI and RHR Pumps Running:
		<ul style="list-style-type: none"> • All SI pumps – RUNNING
		<ul style="list-style-type: none"> • Both RHR Pumps – RUNNING
		NOTE: Both the A and B SI Pumps have failed to Auto Start on SI.
Critical Task: E-0 I Establish flow from at least two SI pumps before transition out of E-0.		
	RO	Verify CNMT RECIRC Fans Running:
		<ul style="list-style-type: none"> • All fans – RUNNING
		<ul style="list-style-type: none"> • Charcoal filter dampers green status lights - EXTINGUISHED
	RO	Check If Main Steamlines Should Be Isolated:
		<ul style="list-style-type: none"> • Any MSIV – OPEN
		<ul style="list-style-type: none"> • Check CNMT pressure – LESS THAN 18 PSIG
	RO	Ensure BOTH MSIVs closed and go to Step 4.
	RO	Verify MFW Isolation:
		<ul style="list-style-type: none"> • MFW pumps - TRIPPED

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 30 of 41Event Description: **Loss of Instrument Bus C (causing SI/ A&B SI Pumps fail to Auto Start**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> • MFW Isolation valves - CLOSED
		<ul style="list-style-type: none"> • S/G blowdown and sample valves – CLOSED
	RO	Verify At Least Two SW Pumps - RUNNING
	RO	Verify CI and CVI
		<ul style="list-style-type: none"> • CI and CVI annunciators - LIT
	RO	CNMT RECIRC fan coolers SW outlet valve status lights – BRIGHT
	RO	Letdown orifice valves – CLOSED
	RO	Check CCW System Status:
		<ul style="list-style-type: none"> • Verify CCW pump – AT LEAST ONE RUNNING
		<ul style="list-style-type: none"> • Place switch for excess letdown AOV-310 to CLOSE
		<ul style="list-style-type: none"> • Place switch for CCW from excess letdown, AOV-745 to CLOSE
	RO	Verify SI and RHR Pump Flow:
		<ul style="list-style-type: none"> • SI flow indicators – CHECK FOR FLOW
		<ul style="list-style-type: none"> • RHR flow indicator – CHECK FOR FLOW
	RO	Verify SI Pump And RHR Pump Emergency Alignment:
		<ul style="list-style-type: none"> • RHR pump discharge to Rx vessel deluge – OPEN
		<ul style="list-style-type: none"> • Verify SI pump C – RUNNING
		<ul style="list-style-type: none"> • Verify SI pump A - RUNNING
		<ul style="list-style-type: none"> • Verify SI pump B – RUNNING
		<ul style="list-style-type: none"> • Verify SI pump C discharge valves – OPEN

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 31 of 41Event Description: **Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start**

Time	Position	Applicant's Actions or Behavior
	RO	Verify CREATS Actuation:
		<ul style="list-style-type: none"> At least one damper in each flowpath – CLOSED
		<ul style="list-style-type: none"> CREATS fans – BOTH RUNNING
E-0, "REACTOR TRIP OR SAFETY INJECTION."		
	BOP	Verify AFW Valve Alignment:
		<ul style="list-style-type: none"> AFW flow – INDICATED TO BOTH S/G(s)
		<ul style="list-style-type: none"> AFW flow from each MDAFW pump – LESS THAN 230 GPM
	BOP	Monitor Heat Sink:
		<ul style="list-style-type: none"> Check S/G narrow range level – GREATER THAN 7% (25% adverse CNMT) in any S/G
		<ul style="list-style-type: none"> Check S/G narrow range level – BOTH S/G LESS THAN 50%.
		<ul style="list-style-type: none"> Control feed flow to maintain S/G narrow range level between 7% (25% adverse CNMT) and 50%.
	BOP	Check if TDAFW Pump Can Be Stopped:
		<ul style="list-style-type: none"> Both MDAFW pumps – RUNNING
		<ul style="list-style-type: none"> PULL STOP TDAFW pump steam supply valves
		<ul style="list-style-type: none"> MOV-3504A
		<ul style="list-style-type: none"> MOV-3505A
	BOP	Check CCW Flow to RCP Thermal Barriers:
		<ul style="list-style-type: none"> Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LO FLOW – EXTINGUISHED
		<ul style="list-style-type: none"> Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LOW FLOW EXTINGUISHED

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 32 of 41Event Description: **Loss of Instrument Bus C (causing SI/ A&B SI Pumps fail to Auto Start)**

Time	Position	Applicant's Actions or Behavior
	BOP	Monitor RCS Tavg – STABLE AT OR TRENDING TO 547°F
	BOP	IF temperature less than 547°F and lowering, THEN perform the following:
		<ul style="list-style-type: none"> • Stop dumping steam.
		<ul style="list-style-type: none"> • Ensure reheater steam supply valves are closed.
		<ul style="list-style-type: none"> • IF cooldown continues, THEN control total feed flow between 200 gpm to 230 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.
		<ul style="list-style-type: none"> • WHEN S/G level greater than 7% [25% adverse CNMT] in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G.
		<ul style="list-style-type: none"> • IF cooldown continues, THEN close both MSIVs.
	BOP	Check PRZR PORVs and Spray Valves:
		<ul style="list-style-type: none"> • PORVs – CLOSED
		<ul style="list-style-type: none"> • Auxiliary spray valve (AOV-296) – CLOSED
		<ul style="list-style-type: none"> • Check PRZR pressure – LESS THAN 2260 PSIG
		<ul style="list-style-type: none"> • Normal PRZR spray valves - CLOSED
		<ul style="list-style-type: none"> • PCV-431A
		<ul style="list-style-type: none"> • PCV-431B
	RO/BOP	Monitor RCP Trip Criteria:
		<ul style="list-style-type: none"> • RCP status – ANY RCP RUNNING
		<ul style="list-style-type: none"> • SI pumps – AT LEAST TWO RUNNING
		<ul style="list-style-type: none"> • RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]
		<ul style="list-style-type: none"> • Stop both RCPs.

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 33 of 41Event Description: **Loss of Instrument Bus C (causing SI/ A&B SI Pumps fail to Auto Start**

Time	Position	Applicant's Actions or Behavior
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Critical Task: E-1 C Trip all RCPS within 5 minutes of reaching the trip criteria.

E-0 Foldout Page Trip Criteria:

If both:

- SI pumps – at least two running.
- RCS pressure minus maximum S/G pressure - < 210 psi.

	RO/BOP	Check if S/G Secondary Side is Intact:
		<ul style="list-style-type: none"> • Pressure in both S/Gs – STABLE OR RISING • Pressure in both S/Gs – GREATER THAN 110 PSIG
	RO/BOP	Check if S/G Tubes are Intact:
		<ul style="list-style-type: none"> • Air ejector radiation monitors (R-15 or R-15A) – NORMAL • S/G blowdown radiation monitor (R-19) – NORMAL • Steamline radiation monitors (R-31 and R-32) - NORMAL
	RO/BOP	Check If RCS is Intact:
		<ul style="list-style-type: none"> • CNMT area radiation monitors - NORMAL
		<ul style="list-style-type: none"> • R-2
		<ul style="list-style-type: none"> • R-7
		<ul style="list-style-type: none"> • R-29
		<ul style="list-style-type: none"> • R-30
		<ul style="list-style-type: none"> • CNMT pressure – LESS THAN 0.5 PSIG
		<ul style="list-style-type: none"> • CNMT sump B level – LESS THAN 8 INCHES
		<ul style="list-style-type: none"> • CNMT sump A level
		<ul style="list-style-type: none"> • Level – STABLE
		<ul style="list-style-type: none"> • Annunciator C-19, CONTAINMENT SUMP A HIGH LEVEL - EXTINGUISHED

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>7 & 8</u>	Page	<u>34</u>	of	<u>41</u>
Event Description:		Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start							
Time	Position	Applicant's Actions or Behavior							

		NOTE: The RCS is not intact due to an intersystem LOCA, however, this step will not diagnose the LOCA. SRO should continue in E-0.
	SRO	Check If SI Should Be Terminated:
		<ul style="list-style-type: none"> RCS pressure:
		<ul style="list-style-type: none"> Pressure – GREATER THAN 1625 PSIG
		<ul style="list-style-type: none"> Pressure – STABLE OR RISING
	SRO	Do NOT stop SI pumps, Go to Step 19.
	SRO	Initiate Monitoring of Critical Safety Function Status Trees.
	BOP	Monitor S/G Levels:
		<ul style="list-style-type: none"> Narrow range level – GRETER THAN 7%
		<ul style="list-style-type: none"> Control feed flow to maintain narrow range level between 17% and 50%
	SRO/RO	Check Secondary Radiation Levels - NORMAL
		<ul style="list-style-type: none"> Steamline radiation monitor (R-31 and R-32)
		<ul style="list-style-type: none"> Dispatch AO to locally check steamline radiation
		<ul style="list-style-type: none"> Request RP sample S/Gs for activity
	RO	Reset SI
	RO	Reset CI:
		<ul style="list-style-type: none"> Depress CI reset pushbutton
		<ul style="list-style-type: none"> Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED
	BOP	Verify Adequate SW Flow:

Op Test No.: 1 Scenario # 4 Event # 7 & 8 Page 35 of 41Event Description: **Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> At least three SW pumps – RUNNING
		<ul style="list-style-type: none"> Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)
	BOP/RO	Establish IA to CNMT:
		<ul style="list-style-type: none"> Verify non-safeguards busses energized from offsite power
		<ul style="list-style-type: none"> Bus 13 normal feed – CLOSED
		OR
		<ul style="list-style-type: none"> Bus 15 normal feed - CLOSED
		<ul style="list-style-type: none"> Verify SW isolation valves to turbine building - OPEN
		<ul style="list-style-type: none"> MOV-4613 and MOV-4670
		<ul style="list-style-type: none"> MOV-4664
	RO	<ul style="list-style-type: none"> Verify adequate air compressor(s) - RUNNING
	RO	<ul style="list-style-type: none"> Check IA supply:
		<ul style="list-style-type: none"> Pressure – GREATER THAN 60 PSIG
		<ul style="list-style-type: none"> Pressure – STABLE OR RISING
	RO	<ul style="list-style-type: none"> Reset both trains of XY relays for IA to CNMT AOV-5392
		<ul style="list-style-type: none"> Verify IA to CNMT AOV-5392 - OPEN
	RO	Check Auxiliary Building Radiation - NORMAL
		<ul style="list-style-type: none"> Plant vent iodine (R-10B)
		<ul style="list-style-type: none"> Plant vent particulate (R-13)
		<ul style="list-style-type: none"> Plant vent gas (R-14)
		<ul style="list-style-type: none"> CCW monitor (R-17)
		<ul style="list-style-type: none"> Letdown line monitor (R-9)
		<ul style="list-style-type: none"> Charging pump room (R-4)
		NOTE: Aux Building radiation will not be normal due to an intersystem LOCA.
	SRO	Evaluate cause of abnormal conditions.

Op Test No.:	<u>1</u>	Scenario #	<u>4</u>	Event #	<u>7 & 8</u>	Page	<u>36</u>	of	<u>41</u>
Event Description:		Loss of Instrument Bus C (causing SI)/ A&B SI Pumps fail to Auto Start							
Time	Position	Applicant's Actions or Behavior							

		IF the cause is a loss of RCS inventory outside CNMT, THEN go to ECA-1.2, LOCA OUTSIDE CONTAINMENT, Step 1.
Move to Event #9		

Op Test No.: 1 Scenario # 4 Event # 9 Page 37 of 41Event Description: **Check Valve CV-853B fails causing intersystem LOCA**

Time	Position	Applicant's Actions or Behavior
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When MOV-852B opens (RHR to Rx Vessel) on the SI actuation, CV-853B fails causing an inter-system LOCA (to RHR). The RHR common header fails from overpressure resulting in a LOCA outside Containment. The operator will transition to ECA-1.2, "LOCA Outside Containment." Upon completion of ECA-1.2, the operator will transition to E-1, Loss of Reactor or Secondary Coolant. The scenario will terminate at Step 12e of E-1, after the crew decides to transition to ES-1.1, "SI Termination."

Booth Operator Instructions: NA**Indications Available: Event in progress, continue with EOP implementation****ECA-1.2, LOCA OUTSIDE CONTAINMENT**

	RO	Verify proper RHR Normal Cooling Valve Alignment:
		<ul style="list-style-type: none"> MOV-700 and MOV-701, RHR suction valves from A hot leg – CLOSED
		<ul style="list-style-type: none"> MOV-721, RHR discharge valves to B cold leg - CLOSED
	RO	Check CVCS Valve Alignment:
		<ul style="list-style-type: none"> Verify the following valves - CLOSED
		<ul style="list-style-type: none"> AOV-310, Excess letdown isolation valve
		<ul style="list-style-type: none"> AOV-296, Auxiliary spray valve
		<ul style="list-style-type: none"> AOV-392A, Charging line isolation valve to loop B hot leg
		<ul style="list-style-type: none"> Verify the following CI valves - CLOSED
		<ul style="list-style-type: none"> MOV-313, seal return isolation valve
		<ul style="list-style-type: none"> AOV-371, letdown isolation valve
	RO	Check Safeguards Valves For Backflow:
		<ul style="list-style-type: none"> Ensure SI reset
		<ul style="list-style-type: none"> Close RHR pump discharge to Rx vessel deluge MOV-852A (turn on DC power keyswitch)
		<ul style="list-style-type: none"> Check for RCS pressure rise

Op Test No.: 1 Scenario # 4 Event # 9 Page 38 of 41Event Description: **Check Valve CV-853B fails causing intersystem LOCA**

Time	Position	Applicant's Actions or Behavior
	SRO	Perform the following:
	RO	<ul style="list-style-type: none"> Place MOV-852A DC power keyswitch to OFF.
	RO	<ul style="list-style-type: none"> Open MOV-852A.
	RO	<ul style="list-style-type: none"> Close RHR pump discharge to Rx vessel deluge MOV-852B (turn on DC power keyswitch).
	RO	<ul style="list-style-type: none"> Check for RCS pressure rise.
		NOTE: This step will isolate the intersystem LOCA, and RCS pressure should be increasing.
	SRO	Go to Step 7.
	SRO	Check If Break Is Isolated.
	RO	<ul style="list-style-type: none"> RCS pressure – RISING
	SRO	Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
Critical Task: (ECA-1.2 A) Isolate the LOCA outside Containment before transitioning out of ECA-1.2.		
NOTE: If the crew does not isolate the LOCA, and transitions to ECA-1.1, instead of E-1, there is a failure of the Critical Task.		
E-1, "LOSS OF REACTOR OR SECONDARY COOLANT."		
	RO	Monitor RCP Trip Criteria:
		<ul style="list-style-type: none"> RCP status – ANY RCP RUNNING
	SRO	Go to Step 2.
	RO/BOP	Check If S/G Secondary side is Intact:
		<ul style="list-style-type: none"> Pressure in both S/Gs – STABLE OR RISING

Op Test No.: 1 Scenario # 4 Event # 9 Page 39 of 41Event Description: **Check Valve CV-853B fails causing intersystem LOCA**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> Pressure in both S/Gs – GREATER THAN 110 PSIG
	RO/BOP	Monitor Intact S/G Levels:
		<ul style="list-style-type: none"> Narrow range level – GREATER THAN 7% [25% adverse CNMT]
		<ul style="list-style-type: none"> Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%.
	RO	Monitor PRZR PORV Status:
		<ul style="list-style-type: none"> Power to PORV block valve – AVAILABLE
		<ul style="list-style-type: none"> PORVs – CLOSED
		<ul style="list-style-type: none"> Block valves – AT LEAST ONE OPEN
	RO	Reset SI
	RO	Reset CI:
		<ul style="list-style-type: none"> Depress CI reset pushbutton
		<ul style="list-style-type: none"> Verify annunciator A-26, CNMT ISOLATION – EXTINGUISHED
	BOP	Verify Adequate SW Flow:
		<ul style="list-style-type: none"> Check at least two SW pumps – RUNNING
		<ul style="list-style-type: none"> Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)
	RO	Establish IA to CNMT:
		<ul style="list-style-type: none"> Verify non-safeguards busses energized from offsite power
		<ul style="list-style-type: none"> Bus 13 normal feed – CLOSED
		OR
		<ul style="list-style-type: none"> Bus 15 normal feed - CLOSED

Op Test No.: 1 Scenario # 4 Event # 9 Page 40 of 41Event Description: **Check Valve CV-853B fails causing intersystem LOCA**

Time	Position	Applicant's Actions or Behavior
		<ul style="list-style-type: none"> Verify turbine building SW isolation valves - OPEN
		<ul style="list-style-type: none"> MOV-4613 and MOV-4670
		<ul style="list-style-type: none"> MOV-4614 and MOV-4664
		<ul style="list-style-type: none"> Verify adequate air compressors – RUNNING
		<ul style="list-style-type: none"> CHECK IA supply:
		<ul style="list-style-type: none"> Pressure – GREATER THAN 60 PSIG
		<ul style="list-style-type: none"> Pressure – STABLE OR RISING
		<ul style="list-style-type: none"> Reset both trains of XY relays for IA to CNMT AOV-5392
		<ul style="list-style-type: none"> Verify IA to CNMT AOV-5392 - OPEN
	RO	Check Normal Power Available To charging Pumps:
		<ul style="list-style-type: none"> Bus 14 normal feed breaker – CLOSED
		<ul style="list-style-type: none"> Bus 16 normal feed breaker - CLOSED
	RO	Check If Charging Flow Has Been Established:
		<ul style="list-style-type: none"> Charging pumps – ANY RUNNING
		<ul style="list-style-type: none"> Charging pump suction aligned to RWST:
		<ul style="list-style-type: none"> LCV-112B OPEN
		<ul style="list-style-type: none"> LCV-112C - CLOSED
		<ul style="list-style-type: none"> Start charging pumps and adjust charging flow as necessary to restore PRZR level.
	SRO	Check if SI should be Terminated:
	RO	<ul style="list-style-type: none"> RCS Pressure > 1625 psig.
		<ul style="list-style-type: none"> RCS Pressure Stable or Rising.
		<ul style="list-style-type: none"> RCS Subcooling based on Core Exit thermocouples > 0°F using Figure 1.0, Figure Minimum Subcooling.
	BOP	<ul style="list-style-type: none"> Secondary Heat Sink:
		<ul style="list-style-type: none"> o Total feed flow to intact SG > 200 gpm.
		OR

Op Test No.: 1 Scenario # 4 Event # 9 Page 41 of 41Event Description: **Check Valve CV-853B fails causing intersystem LOCA**

Time	Position	Applicant's Actions or Behavior
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		o NR Level in at least one SG > 7%.
	RO	• Przr Level > 10%
	SRO	Go to ES-1.1, SI Termination.

Booth Instructor: Freeze the Simulator.**EAL (ALERT) 3.1.2 Primary System Leakage > 46 gpm.****(SAE) 4.1.3 if intersystem LOCA is not isolated from MCB.**