

Facility: Fermi 2 Scenario No. 1 Op-Test No: 2003-301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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**Initial Conditions:** IC-14, MOL 65% Reactor Power.

**NOTE:** The Pre-job Briefing for 24.206.01 is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario). RHR will be placed in Torus Cooling by the previous shift in preparation for the RCIC run.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO) N (SRO)	Withdraw Control Rods to the target rod pattern.
2	VO 1300	I(RO)	APRM Channel 1 Failure (130%)
3	MF 142	C(RO)	Control Rod 06-31 Uncoupled
4	N/A	N(BOP)	Perform 24.206.01 section 5.1
#5	MF 0016	C(BOP)	Main Steam SRV Failure B21-F013A (100%)
6	MF 14	M	Main Steam Line C Rupture in the Drywell (3%)
6	VO 177 VO 178	C	Div 1 (2) RHR DW Spray Otbd Iso Vlv, Fail as is at 0%

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

# The in-service pressure regulator will be failed downscale.

Facility: Fermi 2 Scenario No. 1a Op-Test No: 2003-301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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**Initial Conditions:** IC-14, MOL 65% Reactor Power.

**NOTE:** The Pre-job Briefing for 24.206.01 is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario). RHR will be placed in Torus Cooling by the previous shift in preparation for the RCIC run.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO) N (SRO)	Withdraw Control Rods to the target rod pattern.
2	VO 1300	I(RO)	APRM Channel 1 Failure (130%)
3	MF 142	C(RO)	Control Rod 06-31 Uncoupled
4	N/A	N(BOP)	<del>Perform 24.206.01 section 5.1</del>
#5	MF 0016	C(BOP)	Main Steam SRV Failure B21-F013A (100%)
6	MF 14	M	Main Steam Line C Rupture in the Drywell (3%)
6	VO 177 VO 178	C	Div 1 (2) RHR DW Spray Otbd Iso Vlv, Fail as is at 0%

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

# The inservice pressure regulator will be failed downscale.

Facility: Fermi 2 Scenario No. 1b Op-Test No: 2003-301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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**Initial Conditions:** IC-14, MOL 65% Reactor Power.

**NOTE:** The Pre-job Briefing for 24.206.01 is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario). RHR will be placed in Torus Cooling by the previous shift in preparation for the RCIC run.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO) N (SRO)	Withdraw Control Rods to the target rod pattern.
2	VO 1300	I(RO)	APRM Channel 1 Failure (130%)
3	MF 142	C(RO)	Control Rod 06-31 Uncoupled
4	N/A	N(BOP)	Perform 24.206.01 section 5.1
#5	MF 0016	C(BOP)	Main Steam SRV Failure B21-F013A (100%)
6	MF 14	M	Main Steam Line C Rupture in the Drywell (3%)
6	VO 177 VO 178	C	Div 1 (2) RHR DW Spray Otbd Iso Vlv, Fail as is at 0%

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

# The inservice pressure regulator will be failed downscale.

Facility: Fermi 2 Scenario No. 1c Op-Test No: 2003-301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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**Initial Conditions:** IC-14, MOL 65% Reactor Power.

**NOTE:** The Pre-job Briefing for 24.206.01 is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario). RHR will be placed in Torus Cooling by the previous shift in preparation for the RCIC run.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO) N (SRO)	Withdraw Control Rods to the target rod pattern.
2	VO 1300	I(RO)	APRM Channel 1 Failure (130%)
3	MF 142	C(RO)	Control Rod 06-31 Uncoupled
4	N/A	<del>N(BOP)</del>	<del>Perform 24.206.01 section 5.1</del>
4a	N/A	N(BOP)	Shutdown the East Circ Water Reservoir Makeup Pump
#5	MF 0016	C(BOP)	Main Steam SRV Failure B21-F013A (100%)
6	MF 14	M	Main Steam Line C Rupture in the Drywell (3%)
6	VO 177 VO 178	C	Div 1 (2) RHR DW Spray Otbd Iso Vlv, Fail as is at 0%

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

# The inservice pressure regulator will be failed downscale.

Op-Test No.: <u>2003-301</u> Scenario No.: <u>1</u> Event No.: <u>1</u> Page <u>1</u> of <u>2</u>		
Event Description: Change Reactor Power using control rods.		
Time	Position	Applicant's Actions or Behavior
0 min	SRO	Conduct a (Short) Briefing on pulling rods to increase reactor power in accordance with 23.623.
+5 min	RO	<p><b>NOTE: The Post LPSP pull sheet for Group 10-1 being withdrawn from 20-48 will be provided to the crew prior to rod withdrawal.</b></p> <p>Begin to withdrawal control rods to increase reactor power in accordance with 23.623:</p> <ul style="list-style-type: none"> <li>• Place rod select power in ON</li> <li>• Select control rod to be withdrawn</li> <li>• Position rod IAW the rod pull sheets (perform rod coupling check on rods withdrawn to position 48)</li> <li>• When rod movement is complete for the selected control rod, select another rod for movement or turn rod select power to OFF.</li> </ul> <p>Conducts coupling check for rods withdrawn to position 48 in accordance with 23.623 Attachment 2.</p> <p><b>NOTE: During rod motion at this power level, a RBM Upscale alarm may occur. If it occurs, use the following CUE:</b></p> <p><b>CUE:</b> <i>When requested, wait a couple of minutes and then respond as the STA/SNE. State that you have run a fast case Thermal Limits verification and they are satisfactory to allow renulling RBM.</i></p> <p>Respond to Annunciator 3D109 RBM Upscale/Inop</p> <ul style="list-style-type: none"> <li>• Notify Station Nuclear Engineer</li> <li>• Verify Reactor Core Thermal Limits within limits.</li> <li>• Verify Control Rods are in accordance with the Rod Pull Sheet.</li> <li>• Check the LPRMs of selected control rod for local power change.</li> <li>• If Thermal Limits are satisfactory, Renuall RBM by deselecting the selected control rod, and either select a different control rod or the original rod.</li> </ul>

Event Description:

Change Reactor Power using control rods.

	SRO/	When Reactor power reaches 65% direct placing Recirc A & B Flow Limiter 2/3 Defeat Switch to NORMAL in accordance with 23.138.01, section 6.1.
	RO	When Reactor power reaches 65% place the Recirc A & B Flow Limiter 2/3 Defeat Switch to NORMAL in accordance with 23.138.01, section 6.1.

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Event Description:                   APRM Channel 1 Upscale (Insert during the third rod movement)		
Time	Position	Applicant's Actions or Behavior
+10 min	SRO	<p>Responds to "APRM # 1 Upscale"</p> <p>Annunciator 3D97, 3D113, 3D101, &amp; 3D102</p> <ul style="list-style-type: none"> <li>• Refers to TS 3.3.1.1 "RPS Instrumentation"</li> <li>• Refers to TRM 3.3.2.1 "Control Rod Block Instrumentation"</li> </ul> <p>Directs RO to bypass APRM #1 in accordance with 23.605.</p> <p>Directs Crew to resume power increase.</p>
	RO	<p>Respond to annunciator 3D97 "APRM Neutron Flux Upscale Trip", 3D101"APRM Simulated Thermal Power Upscale Trip", 3D102 "APRM Simulated Thermal Power Upscale" &amp; 3D113 "Control Rod Withdrawal Block"</p> <ul style="list-style-type: none"> <li>• Stop control rods movement, investigate cause.</li> <li>• Identifies APRM # 1 Upscale.</li> <li>• Bypass APRM # 1 in accordance with 23.605, when directed.</li> </ul> <p>Resume power increase when directed.</p>
	BOP	<p>Respond to annunciator 3D97 "APRM Neutron Flux Upscale Trip"</p> <p>Notify extra licensed operator to go to the Relay Room and check the condition of the APRM.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>BOOTH OPERATOR ACTION:</b> Four minutes after requested, respond as the extra licensed operator that APRM #1 mode switch is in the OPERATE position and is pegged upscale.</p> <p>After APRM # 1 is bypassed report that the blue BYPASSED LED is on for APRM # 1.</p> </div>

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Event Description: 06-31Uncoupled Control Rod (This is the fourth rod selected)		
Time	Position	Applicant's Actions or Behavior
15 min	RO	During performance of the rod coupling check in accordance with 23.623, Attachment 2, respond to 3D76, CONTROL ROD OVERTRAVEL, and 3D80 CONTROL ROD DRIFT alarm.
+15 min	SRO	After verifying an actual control rod over travel has occurred, enter 20.106.02 "Uncoupled/Dropped Control Rod (From Reactor Core)."  Direct actions for Subsequent Actions Condition C "Control Rod uncoupled."  C.1 Direct SNE to evaluate effect on Control Rod Pattern.  C.2 Direct RO to Attempt to re-couple rod:
	RO	a. Insert Control Rod in notch mode until nuclear instrumentation indicates Control Rod is inserting.  b. Obtain permission from SM and SNE to withdraw Control Rod.  c. Fully withdraw Control Rod in notch mode while observing nuclear instrumentation response.  d. Perform a coupling check (23.106).  e. Position Control Rod as directed by SNE.  f. Reset the CONTROL ROD DRIFT alarm.
	BOP	<b>Booth Operator Action:</b> The booth operator will delete the uncoupled control rod malfunction after the over travel rod has been notched in to position 46.
		The AOP is exited after the control rod is repositioned to position 48 and the coupling check is satisfactory
	SRO	Verify compliance with T.S. 3.1.3



Op-Test No.: <u>2003- 301</u> Scenario No.: <u>1</u> Event No.: <u>4</u> Page <u>1</u> of <u>2</u>		
Event Description: Perform RCIC full flow surveillance test per 24.206.01		
Time	Position	Applicant's Actions or Behavior
20 min	SRO	The CRS gives permission for the BOP to perform RCIC full flow test per 24.206.01.
		<b>NOTE:</b> The Pre-job Briefing for 24.206.01 was to have been conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario)
20 min	BOP	A short review of the surveillance precautions and limitations and overview of the upcoming actions may be made by the Panel Operator. The following actions are performed by the BOP operator:
		<ol style="list-style-type: none"> <li>1. Verify T4100-B021, Div 1 CS Pumps Room Cooler, in RUN</li> <li>2. Perform the following at COP H11-P805: <ol style="list-style-type: none"> <li>a. Verify P1100-F606, CST Common Rtrn Iso Valve, OPEN.</li> <li>b. Verify P1100-F610, CRT Common Rtrn Iso Valve, CLOSED.</li> </ol> </li> <li>3. Verify or place E41-F011, Pressure Controller in AUTO.</li> <li>4. Place E41-F011 Selector switch in OPER</li> <li>5. Verify E41-F011 CLOSED.</li> <li>6. Open E5150-F022.</li> <li>7. Start Barometric Condenser Vacuum Pump.</li> <li>8. Record an initial set of Suppression Chamber water temperature readings from T23-R800, Torus Water Temperature Rec, on Attachment 1.</li> <li>9. Record reactor pressure &amp; RCIC turbine inlet steam pressure and verify pressure parameters meet acceptable limits.</li> </ol>
		<b>BOOTH OPERATOR ACTION:</b> The booth operator will follow along in a copy of 24.206.01 and provide the communications from the field expected from the Nuclear Operator at the RCIC Pump.
		<ol style="list-style-type: none"> <li>10. Select E41-F011 Valve Position and Pressure Permissive. <ol style="list-style-type: none"> <li>a. At H11-P602, adjust E41-K820, E41-F011 Ctrlr, to set valve position opening setpoint to about 20% open (s display).</li> <li>b. At H11-P602, adjust E41-K820, E41-F011 Ctrlr, to set discharge pressure setpoint to 250 psi (Y-display).</li> </ol> </li> <li>11. During RCIC Turbine operation, at five minute record average Suppression Chamber water temperature and verify it is less than or equal to 105°F.</li> <li>12. Make an announcement that the RCIC System will be operated and that personnel in the Torus room should stay clear of the northeast Torus area where the rupture disks are located.</li> </ol>

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Event Description: Perform RCIC full flow surveillance test per 24.206.01

Time	Position	Applicant's Actions or Behavior
	RO	The RO will monitor reactor power, pressure, level and Turbine load during the performance of the RCIC test.
	BOP	13. Open E5150-F046 and measure stroke time 14. Verify E5150-F046, goes full open. 15. Manually start RCIC System as follows: a. Open E5150-F095 b. 15 seconds after opening E5150-F095, open E5150-F045 and measure its stroke time. 16. Verify RCIC Turbine starts and speed increases. 17. Verify E41-F011 strokes open to approximately 20% after pump discharge pressure exceeds 250 psig 18. Verify the following: 19. E5150-F019, RCIC Min Flow Vlv, auto opens, and auto closes when required 20. If necessary after RCIC Turbine Speed is steady: a. Adjust E41-F011 Ctrlr, (S-display) to establish a discharge pressure between Rx Pressure plus 100 psi and Rx Pressure plus 150 psi as . b. Record E41-F011 valve position 21. Record RCIC discharge pressure and flow
		<b>BOOTH OPERATOR ACTION:</b> The booth operator will step the scenario at the discretion of the Lead Examiner some point after RCIC has been started

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Event Description: Shutdown the East Circ Water Reservoir Makeup Pump		
Time	Position	Applicant's Actions or Behavior
20 min	SRO	The CRS acknowledges Circulating Water Reservoir Level Alarm in.  Gives permission for the BOP to shutdown the East Circ Water Reservoir Makeup Pump IAW SOP 23.131
20 min	BOP	Recorder N61-R804, Point 14, "Circulating Water Reservoir Level" alarm in.  Operator identifies that a high level condition exists.  Operator reviews Annunciator Response Procedure.
		In accordance with 23.131, "General Service Water System" Procedure, Section 12, stops the CW Reservoir Makeup Pumps.

Op-Test No.: <u>2003- 301</u> Scenario No.: <u>1</u> Event No.: <u>5 (rev. 1)</u> Page <u>1</u> of <u>1</u>		
Event Description: Respond to a Failed Safety Relief Valve in accordance with 20.000.25		
Time	Position	Applicant's Actions or Behavior
40 min	BOP	The operator reports SRV "A" failed open. Performs Immediate Operator Actions for Condition IA: <ul style="list-style-type: none"> <li>IA.1 Depress OPEN pushbutton.</li> <li>IA.2 Depress CLOSE pushbutton.</li> </ul>
42 min	SRO	Enter AOP 20.000.25 for SRV "A" Fails Open.  Verifies Immediate Operator Actions performed.  Directs Subsequent Actions for Condition A: <ul style="list-style-type: none"> <li>Commence Rapid Power Reduction.</li> <li>Monitor Torus Temperature</li> <li>Place all available RHR in Torus Cooling</li> <li>Attempt SRV Closure by pulling appropriate fuses (Enclosure A)</li> </ul>
44 min	RO	Commence Rapid Power Reduction per 23.623, as directed.  <b>NOTE:</b> Based on the initial power level a power reduction may not be required, only a verification of power and flow conditions.
44 min	BOP	<ul style="list-style-type: none"> <li>Continue with attempts to close the Failed open SRV.</li> <li>Monitor Torus Water Temperature.</li> <li>Direct an operator to go to the Relay Room to pull fuses, as directed by 20.000.25 Enclosure A.</li> </ul>
48 min		<b>Booth Operator role play:</b> Acting as the individual sent to the relay room to pull fuses, wait about 4 minutes and report that the fuses are pulled. <b>Use RF or Batch file to simulate pulling fuses and delete malfunction allowing SRV "A" to close.</b>
48	RO	Monitor Steam Flow and Generator MWe to aid the BOP in determining the SRV has closed.
50 min	SRO/BOP/ RO	When the SRV has been verified closed, AOP 20.000.25 will be exited.



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Event Description: Respond to a small steam leak in the Drywell.		
Time	Position	Applicant's Actions or Behavior
60 min	RO  BOP	<ul style="list-style-type: none"> <li>• Start RHR Loop in Torus Cooling in accordance with 23.205.</li> <li>Places RHR in Torus Spray in accordance with 23.205</li> </ul> <p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low"</p> <p>Executes Scram Report.</p> <p>Performs the following actions of EOP sheet 1, RPV Control, &amp; 2, Primary Containment Control, as directed.</p> <ul style="list-style-type: none"> <li>• Restore and keep RPV Level 173" to 214".</li> <li>• Maintain Reactor Pressure less than 1093 using bypass valves and SRVs</li> <li>• Perform verification of initiation of EECW.</li> <li>• Perform verification of isolation of EECW to Drywell.</li> <li>• Restore Cooling to CRD.</li> <li>• Verify ECCS Actuations and Isolations using 29.ESP.01</li> <li>• Place RHR in Torus Cooling Mode, performing the following:               <ol style="list-style-type: none"> <li>a. Unlock and open E1150-F028A (B), Div 1 (2) RHR Torus Iso Vlv.</li> <li>b. Start one RHR Pump.</li> <li>c. Throttle E1150-F024A (B), Div 1 (2) RHR Torus Clg Iso, to desired flow.</li> <li>d. When flow is &gt; 3000 gpm, verify E1150-F007A (B), Div 1 (2) RHR Pmps Min Flow Vlv, closes.</li> <li>e. Start RHR Service Water System.</li> <li>f. To increase cooldown rate, throttle closed E1150-F048A (B), Div 1 (2) RHR Hx Bypass Vlv.</li> </ol> </li> <li>• Places RHR in Torus Spray perform the following:               <ol style="list-style-type: none"> <li>a. Verify RHR is in LPCI or Torus Cooling Mode. (RHRSW Flow may be delayed until after Torus Spray is established.)</li> <li>b. Verify open or unlock and open E1150-F028A (B), Div 1 (2) RHR Torus Iso Vlv.</li> <li>c. Open E1150-F027A (B), Div 1 (2) RHR Torus Spray Iso.</li> <li>d. Verify RHR flow increases by approximately 500 gpm.</li> </ol> </li> </ul>

Op-Test No.: <u>2003-301</u> Scenario No.: <u>1</u> Event No.: <u>6 (rev. 1)</u> Page <u>3</u> of <u>3</u>		
Event Description: Respond to a small steam leak in the Drywell.		
Time	Position	Applicant's Actions or Behavior
	SRO	Directs placing RHR in DW Spray in accordance with 23.205.
	BOP	Informs SRO that Div 1 (2) RHR DW Spray Otbd Iso Vlv, (E1150-F016A (B)), will not operate.
		<b>Booth operator:</b> After the first division of RHR DW Spray isolation valve fails to open, delete the VO for the other DW Spray Isolation Valve so that Drywell sprays can be initiated on the other division of RHR.
	SRO *  CT	Responds to communication that DW Spray Valve E1150-F016A(B) will not operate.  <ul style="list-style-type: none"> <li>Directs placing other Loop of RHR in DW Spray in accordance with 23.205.</li> </ul>
CT	BOP *  CT	*Places other loop of RHR in Drywell Spray, performing the following: a. Open E1150-F021A (B), Div 1 (2) RHR DW Spray Inbd Iso Vlv. b. Start or verify started RHR Pump A or C (B or D). c. Unlock and throttle open E1150-F016A (B), Div 1 (2) RHR DW Spray Otbd Iso Vlv, and ensure that RHR flow does not exceed 14,000 gpm per RHR Pump.  * Before primary containment pressure reaches 0 psig, secures torus and drywell sprays.

## Termination:

- Torus Sprays initiated
- Drywell Sprays initiated (if necessary)
- RPV water level and pressure stable

Facility: FERMI 2 Scenario No. 2 (rev.1) Op-Test No: 2003-301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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**Initial Conditions:** IC-11, BOL 25%, Reactor Power Division 2 RPS supplied by Alternate Transformer and B CRD pump in service. B steam tunnel cooler in service. RWM Group 40 rods have been withdrawn. RWM Group 41 rods are to be withdrawn prior to transferring feedwater from SULC to Single element control.

**NOTE:** The Pre-job Briefing for 23.107 Section 5.6 is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario)

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(RO) N(SRO)	Raise power with Control Rod withdrawal
2	N/A	N(BOP)	Transfer feedwater from the SULC valve to single element control
3	MF 2469	All	Seismic Event alarm
4	MF 1442	I(BOP)	RCIC spurious initiation
4	PO ??	I(BOP)	RCIC failure to manually trip from the H11-P601
5	RF 1433	C(All)	Spurious Trip of Breaker 65 E E6 Local Operation
6	MF 0068 MF 2469	M(All)	Recirc "B" Loop Rupture (5% break) Seismic Event alarm
6	MF 1432	C(All)	HPCI Turbine Exhaust Check Valve Failure E41-F049
6	MF 3595 RF 2315 RF2316 RF 2317 RF 2318	I(RO)	Total Scram Failure Division 1 ARI Level 2 Isolation Defeat Division 2 ARI Level 2 Isolation Defeat Division 1 ARI Pressure Isolation Defeat Division 2 ARI Pressure Isolation Defeat
6	VO 211	C	SULC Valve fail as-is (0%)

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor



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Event Description: Increase power with control rods.

Time	Position	Applicant's Actions or Behavior
15 min	SRO	Conduct a (Short) Briefing on pulling rods to increase reactor power in accordance with 23.623.
		<b>Booth operator:</b> Provide FULL OUT/COUPLING VERIFICATION sheets (23.623. Att 2 P1/2 filled out to reflect this control rod configuration.) Rod pull sheet beginning with RWM group 41.
15 min	RO	<p>Begin to withdrawal control rods to increase reactor power in accordance with 23.623:</p> <ul style="list-style-type: none"> <li>• Place rod select power in ON</li> <li>• Select control rod to be withdrawn</li> <li>• Position rod IAW the rod pull sheets (perform rod coupling check on rods withdrawn to position 48)</li> <li>• When rod movement is complete for the selected control rod, select another rod for movement or turn rod select power to OFF.</li> </ul> <p>Conducts coupling check for rods withdrawn to position 48 in accordance with 23.623 Attachment 2.</p>
	BOP	Monitor the plant during the power increase. Maintain the Turbine Flow Limiter 5% above Reactor power during power increase.
		<b>Booth operator:</b> Following the withdrawal of the second or third control rod or when directed by the lead examiner step the scenario to cause the seismic event and the spurious initiation of RCIC.

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Event Description: Transfer Feedwater Control from the SULC valve to single element control

Time	Position	Applicant's Actions or Behavior
0 min	SRO	Direct the Transfer of Feedwater Control from the SULC valve to single element control in accordance with 23.107 Section 5.6.
	RO	Monitor Reactor Water level during the feedwater evolution.
	BOP	<p>Provide a short crew briefing on the evolution.</p> <p>Transfer feedwater as follows:</p> <ol style="list-style-type: none"> <li>1. Place or verify, Level Control Mode switch in 1 ELEM.</li> <li>2. Monitor RPV water level and Feedwater flow while performing the following steps:               <ol style="list-style-type: none"> <li>a. Place C32-R616A (B), N (S) Reactor Feed Pump Controller, in AUTO for the desired Reactor Feed Pump.</li> <li>b. Adjust or verify, C32-R616A (B), N (S) Reactor Feed Pump Controller, bias is 0%.</li> <li>c. Place C32-R618, Master Feedwater Level Controller, in AUTO.</li> <li>d. Place C32-R620, N21-F403 RPV Startup LCV Controller, in MANUAL.</li> <li>e. Adjust the RPV water level setpoint, if required.</li> <li>f. Adjust output of C32-R620, N21-F403 RPV Startup LCV Controller, until N21-F403, RPV Startup LCV, is 100% open. Allow time for Reactor Feed Pump Turbine North (South) speed to lower after each adjustment.</li> </ol> </li> <li>3. Lower RPV water level setpoint approximately 2 inches and allow RPV water level to stabilize before proceeding to the following step.</li> <li>4. Open N2100-F607, N RFP Disch Line Iso Valve (COP H11-P805).</li> <li>5. Open N2100-F608, S RFP Disch Line Iso Valve (COP H11-P805).</li> <li>6. <b>WHEN</b> RPV water level stabilizes, slowly return RPV water level setpoint to desired RPV water level (Level 4 to Level 7).</li> <li>7. Place RPV Startup LCV Mode Switch in RUN.</li> <li>8. Verify C32-R620, N21-F403 RPV Startup LCV Controller, is in MANUAL.</li> <li>9. Verify the N21-F403, RPV Startup LCV, is closed (COP H11-P805).</li> <li>10. Verify selected drain valves remain open.</li> </ol>

		11. Close P95-F407, and other drain valves listed in step 11 of the SOP if N RFPT is on-coming.

Appendix D

Operator Actions

Form ES-D-2 (R8, S1)

Op-Test No.: <u>2003- 301</u> Scenario No.: <u>2</u> Event No.: <u>3</u> Page <u>1</u> of <u>1</u>		
Event Description: Respond to a seismic event		
Time	Position	Applicant's Actions or Behavior
20 min	SRO	<p>Respond to annunciator 6D69 "Seismic Event/Trouble"</p> <ul style="list-style-type: none"> <li>• Verify plant parameters are stable.</li> </ul> <ol style="list-style-type: none"> <li>1. Direct an operator to D30-K800, Active Seismic Central Recorder, to perform 23.612, "Seismic Monitoring" (RR H11-P831).</li> <li>2. <b>IF</b> D30-K800, Active Seismic Central Recorder, indicates an Actual Seismic Event, <b>ENTER</b> 20.000.01, "Acts of Nature."</li> <li>3. Comply with TRM Section TR 3.3.7.2, Seismic Monitoring Instrumentation.</li> </ol>
	RO	Verify Reactor Power Pressure and Level are stable by monitoring plant parameters for abnormal values using multiple indications when available
	BOP	<ul style="list-style-type: none"> <li>• Monitor plant parameters for abnormal values using multiple indications when available</li> </ul> <p>Sends operator to check D30-K800, Active Seismic Central Recorder and to perform 23.612, Seismic Monitoring.</p>
22 min		<p><b>Booth Operator:</b> . Step the scenario again to clear 6D69 and respond as operator sent to check the active seismic recorder and report a reading of +.02 vertical and +.03 horizontal. Also report that the Seismic Event trigger light is ON and the Error/Warning light is OFF. Following these reports again step the scenario causing the RCIC spurious initiation.</p>

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Event Description: Respond to spurious RCIC Initiation, with a failure to manually trip from the H11-P601.

Time	Position	Applicant's Actions or Behavior
23 min	SRO	<p>Upon receipt of and1D24 "RCIC SYSTEM ACTUATED", directs BOP to:</p> <ul style="list-style-type: none"> <li>• Verify Turbine Started</li> <li>• Verify spurious initiation by checking Rx Water Level. Since automatic initiation was <b>not</b> valid:</li> <li>• Shutdown RCIC System in accordance with Section 8.1, RCIC Shutdown.</li> </ul> <p>Refers to Tech Spec. 3.5.3 and declares RCIC inoperable. Contact maintenance to investigate spurious initiation.</p>
23	RO	Verify RPV Water Level is normal and stable.
23 min	BOP	<ul style="list-style-type: none"> <li>• Verify Turbine Started</li> <li>• Verify spurious initiation by checking Rx Water Level. Since automatic initiation was <b>not</b> valid:</li> <li>• Shutdown RCIC System in accordance with 23.206, Section 8.1, RCIC Shutdown.</li> <li>• Determine that RCIC <b>did not</b> trip when the trip collar and pushbutton were operated.</li> <li>• Report failure of RCIC to Trip.</li> </ul>
25 min	SRO	<p>Direct the operator to prevent RCIC from injecting by either:</p> <ul style="list-style-type: none"> <li>• Isolate RCIC</li> <li>• Lower the RCIC flow controller to stop injection allowing RCIC to continue to operate on min flow.</li> <li>• Drive the Trip Throttle (E5150-F059) valve manually closed.</li> </ul>
28 min	BOP	<p>Terminate RCIC injection as directed by the SRO:</p> <ul style="list-style-type: none"> <li>• Isolate RCIC</li> <li>• Lower the RCIC flow controller to stop injection allowing RCIC to continue to operate on min flow.</li> <li>• Drive the Trip Throttle (E5150-F059) valve manually closed.</li> </ul>
		<p><b>Booth operator:</b> After RCIC has been shutdown step the scenario again to cause the trip of 4160 V ESS Bus 65 E</p>

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Op-Test No.: <u>2003- 301</u> Scenario No.: <u> 2 </u> Event No.: <u> 5 </u> Page <u> 1 </u> of <u> 2 </u>		
Event Description: Respond to trip of bus 65E.		
Time	Position	Applicant's Actions or Behavior
28 min	SRO	<p>Enter AOP 20.300.65E</p> <p>Read override to the crew:</p> <p>IF Reactor Building Steam Tunnel Temperature at 195°F.</p> <p>THEN Place Reactor Mode switch in SHUTDOWN.</p> <p>Direct BOP to enter the AOP and perform actions for the conditions that apply.</p> <p>Based on Condition G of 20.300.65E (West CRD Pump was in service), direct the RO to perform 20.106.01 CRD Hydraulic System Failure.</p>
	BOP	<p>Enter the AOP and take actions for applicable conditions:</p> <p>A. EDG 13 starts. Verify EDG 13 output breaker closes.</p> <p>Verify the following closed:</p> <p style="padding-left: 40px;">Bus 72E Pos 2A.</p> <p style="padding-left: 40px;">Bus 72E Pos 5B.</p> <p style="padding-left: 80px;">Bus 72EC Pos 2C.</p> <p>D. RR MG Set North Cooling Fan was in service.</p> <p>Verify RR MG Set Center Cooling Fan starts and dampers re-align.</p>
	RO	<p>After entering 20.106.01:</p> <p>Take Actions for Condition A. CRD Pump failure.</p> <ol style="list-style-type: none"> <li>1 Place CRD Flow Controller in MANUAL.</li> <li>2 Close CRD Flow Control Valve.</li> <li>3 Close CRD Pressure Control Valve.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p><b>NOTE:</b> The RO will need to have the BOP operator close breaker 72E-3A to allow operation of the CRD pressure control valve.</p> </div> <ol style="list-style-type: none"> <li>4 Start Standby CRD Pump.</li> <li>5 Adjust CRD flow and pressure by adjusting:</li> </ol>

		<ul style="list-style-type: none"> <li>• CRD Flow Control Valve to establish normal system flow (37-63 gpm).</li> </ul> <p>6. Pressure Control Valve to establish normal drive water differential pressure (255-265 psid) and Cooling Water Differential Pressure (6-30 psid). Null CRD Flow Controller and place in AUTO at desired flow (37-63 gpm).</p>
Appendix D	Operator Actions	Form ES-D-2 (R8, S1)

Op-Test No.: <u>2003- 301</u> Scenario No.: <u>2</u> Event No.: <u>5</u> Page <u>2</u> of <u>2</u>		
Event Description: Respond to trip of bus 65E.		
Time	Position	Applicant's Actions or Behavior
		<b>Booth Operator:</b> If requested reset the CRD hydraulic high temperature alarm using RF 1713
	SRO	Exit 20.106.01
	BOP	<p>Continuing in 20.300.65E, for the following conditions perform actions:</p> <p>Condition J. If N RR MG Set Lube Oil Pump A2 was in service. Verify N RR MG Set Lube Oil Pump A1 starts.</p> <p>Condition K. If S RR MG Set Lube Oil Pump B1 was in service. Verify S RR MG Set Lube Oil Pump B2 starts.</p> <p>Condition L Place Div 2 130VDC Batt Charger 2B-1 in OFF/RESET, then in ON.</p> <p>Condition M Place Div 2 24VDC Batt Charger 2IB-1 in OFF/RESET, then in ON.</p> <p>Conditions N Components de-energized.Perform Attachment 1 of 20.300.65E.</p> <p>Condition O EDG 13 has capacity available. Review Attachment 2 of 20.300.65E. and restore loads as applicable.</p>
		<b>Booth Operator:</b> After the battery chargers have been restored and while Attachments 1 or 2 are being performed step the scenario to initiate the final transient

Op-Test No.: <u>2003-301</u> Scenario No.: <u>2</u> Event No.: <u>6 (rev. 1)</u> Page <u>1</u> of <u>3</u>		
Event Description: Respond to a seismic event and a small break LOCA with a failure to automatically scram.		
Time	Position	Applicant's Actions or Behavior
50 min	SRO	<p>Upon receipt of Annunciator 6D69 "Seismic System Event/Trouble", direct RO/BOP to verify plant parameters are stable.</p> <p><b><i>The Seismic Event will come in slightly before or concurrent with the small break LOCA.</i></b></p> <p>Responds to annunciator 3D81 "Primary Containment Pressure High/Low" and 3D85 "Primary Containment High Pressure Channel Trip"</p> <ul style="list-style-type: none"> <li>• Direct RO/BOP to verify Primary Containment pressure.</li> <li>• Direct RO to place the Mode Switch to Shutdown.</li> <li>• Direct scram reports.</li> <li>• <b>Enter EOP Sheet 1, RPV Control</b>, due to High DW pressure</li> <li>• Direct Reactor Scram – (RO will recognize that RPS did not actuate and report this to the SRO)</li> <li>• <b>Enter EOP Sheet 1A, RPV Control-ATWS</b>, Direct ADS defeat to the BOP.</li> <li>• Direct performance of FSQ 1-8 to the RO.</li> </ul>
	BOP CT	<ul style="list-style-type: none"> <li>• Execute Scram Report</li> <li>• ADS Defeated</li> </ul>
	RO  CT	<ul style="list-style-type: none"> <li>• Execute Scram Report</li> <li>• Places Reactor Mode Switch in Shutdown</li> <li>• Recognizes the failure to scram</li> <li>• Runs RR Pumps to minimum speed</li> <li>• Trips RR pumps</li> <li>• * Manually Initiates ARI</li> <li>• Recognizes control Rods inserted 15 seconds to 1 minutes after initiating ARI.</li> </ul>
	SRO	<p><b>Enter EOP Sheet 2, Primary Containment Control</b>, due to high drywell pressure. Direct the following:</p> <ul style="list-style-type: none"> <li>• Confirm initiation of EECW and isolation from the drywell</li> </ul>

		<ul style="list-style-type: none"> <li>• Restore cooling to CRD pumps</li> <li>• Trip RR Pumps (already tripped from FSQ steps)</li> </ul>
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Op-Test No.: 2003-301 Scenario No.: 2 Event No.: 6 (rev.1) Page 2 of 3

Event Description: Respond to a seismic event and a small break LOCA with a failure to automatically scram.

Time	Position	Applicant's Actions or Behavior
	<p>SRO</p> <p>CT</p> <p>CT</p>	<ul style="list-style-type: none"> <li>• Place RHR in Torus Spray mode in accordance with 23.205, RHR Operating procedure before torus pressure reaches 9 psig.</li> <li>• When torus pressure is &gt; 9 psig:</li> <li>• Verify drywell temperature and pressure are within the Drywell Spray Initiation Limit (DWSIL)</li> <li>• S/D drywell fans</li> <li>• Initiate Drywell Sprays</li> <li>• Direct terminating drywell and/or torus sprays before drywell and/or torus pressure reaches 0 psig.</li> </ul> <p><b>Exits Sheet 1A and returns to Sheet 1 when all rods are reported inserted.</b> Directs the following:</p> <ul style="list-style-type: none"> <li>• Verifying ECCS Actuations and isolations using 29.ESP.01</li> <li>• Restore and keep RPV Level 173" to 214" using all available systems: <ul style="list-style-type: none"> <li>• Feedwater</li> <li>• Standby Feedwater</li> <li>• RCIC</li> <li>• CRD</li> <li>• HPCI</li> </ul> </li> <li>• Directs lowering RPV pressure to &lt; 960 psig and stabilizing it &lt;1093 psig.</li> </ul>
	RO	Recognize that Feedwater has not realigned through the SULC Valve because Post Scram feedwater logic was not activated on the RPS failure.
		<b>HFP and RFP's will trip following control rod insertion because of HFP low suction pressure and failure of the feedwater system to realign through the SULC valve.</b>
	BOP	Recognize that HPCI has not started on high drywell pressure.



	SRO	Recognize that RPV level can not be maintained above 173" Direct Emergency Depressurization when RPV level can not be restored and maintained >-28".
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