

Facility: Fermi 2 Scenario No. 1 Op-Test No: 2004-401

Examiners: _____ Operators: _____

Initial Conditions: IC-17, MOL, 100% Rx. Power.

Turnover: The plant has been operating for 364 days. Reactor Power is currently 100% of rated thermal power. CRD Pump "B" is out of service due to high vibration on the motor bearings. It will be returned to service in two days. This shift will place D2 RHR in Torus Cooling in preparation of the next shift conducting a surveillance for RCIC Testing.

NOTE: The Pre-job Briefing for placing RHR in Torus Cooling 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	N (BOP) N (SRO)	Place RHR in Torus Cooling
2	MF 1423	C (BOP) C (SRO)	RHRSW Pump "B" Trip
3	VO1402	I (BOP) I (SRO)	Hotwell Level Controller Primary Instrument Fails high
4	MF 3571	C (BOP) C (SRO)	Small Leak in Torus = 3%
5	MF 3652	C (BOP) C (SRO)	Trip of "South" Reactor Feedpump
6	RF 2331 RF 2333	I (RO) I (SRO)	Recirc Flow Limiter "A" Logic Failure
7	N/A	R (RO) N (SRO)	Insert CRAM Array
8	MF 3571	M (All)	Large Leak in Torus (Ramp up the malfunction that is already in) (Value = 100%, ramped over 600 sec.)
9	MF 3595	C (RO)	RPS Fails to Cause a Scram
10	MF 3385 MF 3387		"E" Bypass Valve Fails Closed "W" Bypass Valve Fails Closed
11	MF 0020 MF 0023	C (BOP)	SRV "E" Fails to open SRV "H" Fails to open

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

Facility: Fermi 2 Scenario No. 2 Op-Test No: 2004-401

Examiners: _____ Operators: _____

Initial Conditions: IC-07, BOL, Rx. Press. 370-375 Psig

Turnover: The plant is in the process of a startup in accordance with 22.000.02. IRM Range on range 6, Rod sequence A002, RWM Step 20, Rod 18-43 at position 04-06, page 24 of 53 of the Rod Pull Sheets. The crew is to continue the startup and synchronize the generator to the grid. EDG 11 is Out of Service for a relay repair that was discovered after startup commenced. Repairs and testing will be complete prior to entering Mode 1. IRM B was declared inoperable last shift and is currently in bypass. I&C has completed repairs and Post Maintenance Testing. The paperwork is on its way to the Tagging Center for placing IRM B back in service.

NOTE: The Pre-job Briefing for placing Power Increase and Generator Synchronization is to be conducted by the crew prior to entering the simulator. (suggested time 30 minutes prior to beginning the scenario).

Note to booth operator: You must run this batch file to prevent RBHVAC from tripping: Batp:004,temp. Place EDG 11 in MPO position to remove from service.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R (RO) R (SRO)	Increase reactor power using control rods
2		N (BOP)	Reactor Feed Pump Turbine Startup
3	MF 1200	I (RO) I (SRO)	IRM "D" Failure Upscale (value = 130)
4	MF 0069	I (RO) I (SRO)	CRD FCV F002A fails closed
5	VO 0099	I (BOP, SRO)	Fuel Pool Radiation Monitor Fails Upscale (Value = 110 mr/hr)
6	RF 1424 RF 1425 RF1376 MF 3550	C (All)	Loss of Offsite Power with EDG 12 Trips after starting
7	MF 0005	M (All)	Steam Leak in Drywell (HPCI Stm line) (Value: 5%, ramped over 120 sec., 5 Min. T.D. after LOOP)
8	VO 0177 OR VO 0178	C (RO) or BOP	RHR cont spray outbd isol vlv E11-F016A or F016B Fails AS IS

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

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Event Description: Place RHR in Torus Cooling		
Time	Position	Applicant's Actions or Behavior
0 min	SRO	(Short)Brief shift on placing RHR Loop in torus cooling per SOP 23.205, Sec 5.4. Direct BOP to place a loop of RHR in torus cooling using SOP 23.205, Sec 5.4.
	RO	NONE
	BOP	Starts RHRSW using 23.208 <ul style="list-style-type: none"> • Throttle open, for 5 seconds, E1150-F068B • Start Div 2 RHRSW Pump B(D) • Throttle open E1150-F068B to obtain 5400 to 6300 gpm • If available, start Div 2 RHRSW Pump D(B) • Fully open E1150-F068B Places RHR in Torus Cooling per 23.205 <ul style="list-style-type: none"> • Place E1150-F028A(B) keylock switch in OPERATE • Open E1150-F028A(B) Start one of the following RHR Pumps: <ul style="list-style-type: none"> • RHR Pump B or D • Throttle E1150-F024A(B) to desired flow • Verify E1150-F007A(B) closes when flow is greater 3000 gpm

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Event Description: RHR SW Pump "B" Trip		
Time	Position	Applicant's Actions or Behavior
+7 min	SRO	<div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR ACTION: <i>Do not insert RHR SW pump trip until RHR is running in Torus Cooling</i></p> </div> <p>Respond to Annunciator 2D47 "Div.II RHR Serv/H2O Pump B/D Mtr. Tripped"</p> <p>Refer to TS 3.7.1 "RHR SW System". Declares RHR SW Pump B inoperable</p> <p>Enters action A, which is to Restore RHR SW pump to OPERABLE status within 30 Days.</p> <p>Refers to TS 3.6.2.3, "RHR Suppression Pool Cooling." Declares subsystem inoperable, enters Action A to restore within 7 days.</p> <p>NOTE: SRO may elect to shutdown RHR</p> <div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR ACTION: <i>Insert V01402, Hotwell Level Controller Primary Instrument Fails high. This malfunction takes approximately 10 minutes to build in.</i></p> </div>
	RO	NONE
	BOP	<p>Respond to Annunciator 2D47 "Div.II RHR Serv/H2O Pump B/D Mtr. Tripped"</p> <ul style="list-style-type: none"> • Place CMC Switch to OFF • Send NO to D2 RHR EDG 13 Swgr. Room to check Bkr. <div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR ACTION: <i>When requested to check RHR SW Bkr., wait 3 minutes and report that the Breaker for RHR SW Pump "B" is tripped (13EC-EC2). (51 relay – Overcurrent)</i></p> </div>

Op-Test No.: <u>2004-401</u> Scenario No.: <u>1</u> Event No.: <u>3</u> Page <u>1</u> of <u>1</u>		
Event Description: Hotwell Level Controller Failure		
Time	Position	Applicant's Actions or Behavior
+17 min	SRO	Upon receipt of annunciator 5D131 "South Hotwell Level High/Low", direct the BOP to investigate and transfer Hotwell level control system in accordance with SOP 23.107.
	RO	Upon receipt of annunciator 5D131 "South Hotwell Level High/Low", monitor plant parameters.
	BOP	<p>Respond to annunciator 5D131 "South Hotwell Level High/Low"</p> <ul style="list-style-type: none"> • Determine the Primary Hotwell level control instrument has failed high by comparing with other hotwell level indications. • Observe Normal and Emergency Hotwell reliefs are open even though hotwell level is actually low. <p>Selects course of action to transfer Hotwell level control system in accordance with 23.107, sec. 6.11 when directed by SRO.</p> <ul style="list-style-type: none"> • Establishes communications with the TB Rounds operator and shifts the South Hotwell Level controller to Backup • Verifies that level control returns to normal at ~60 inches and the Normal and Emergency Relief Valves shut. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Booth Operator: <i>Reports: Setpoint at ~60" and normal air pressure to controller. (N61) RF1705 switches to B/U hotwell level instrument. (ON / ACCEPT / START)</i></p> </div>

Op-Test No.: <u>2004-401</u> Scenario No.: <u>1</u> Event No.: <u>4</u> Page <u>1</u> of <u>1</u>		
Event Description: Small Torus Leak		
Time	Position	Applicant's Actions or Behavior
+30 min	SRO	Upon receipt of Annunciator 2D82 "RB Torus Sump Level Hi-Hi/ Low-Low", Enters EOP Sheet 5 on High Sump Level, Respond to Annunciator 7D71 "Torus Water Level Trouble"
		Refer to TS 3.6.2.2 "Suppression Pool Water Level". And: Enters action A, which is to Restore suppression pool water level to within limits within 2 hours Note: it will take ~25 minutes to reach -2" in the torus. The crew may decide to shutdown Division 2 RHR and isolate its suction. A follow up question could be asked to determine what tech spec is applicable in that situation, vice waiting for -2" in the torus.
		Enters 29.100.01, Sheet 2, Primary Containment Control when Torus Water level reaches -2 inches (The actions per the ARP are the same as the initial actions per the EOPs.)
	RO	NONE
	BOP	Responds to 2D82 "RB Torus Sump Level Hi-Hi/ Low-Low" and shuts down Div 2 RHR, if directed. Verifies high sump level. Respond to Annunciator 7D71 "Torus Water Level Trouble" (This action may not be taken due to continuing with the scenario) Verifies Level is low and adds water per 23.144: <ul style="list-style-type: none"> • Open either G5100-F604, TWMS Rtrn to RHR Inbd Iso Vlv OR G5100-F606, TWMS Rtrn to CS Inbd Iso Vlv • Slowly open G5100-F611, TWMS Cond to Torus Makeup Vlv until desire influent flow is achieved.

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Event Description: Trip of "South" Reactor Feedpump/ Recirc Flow Limiter "A" Logic Failure/ Insert CRAM Array		
Time	Position	Applicant's Actions or Behavior
+30 min	SRO	<p>Enters AOP 20.107.01 "LOSS OF FEEDWATER",</p> <ul style="list-style-type: none"> • directs RO to ensure RR Runback • directs RO to insert CRAM Array • directs BOP to start Standby Feedwater and inject at 1200 gpm. <p>When reported that A RR MG failed to runback, direct manually running MG back to 40% IAW 20.107.01, "LOSS OF FEEDWATER OR FEEDWATER CONTROL".</p> <p>When a loss of feedwater heating is detected, Direct BOP and RO to Reduce Recirculation Flow and Insert Control Rods using the CRAM Array, in accordance with AOP 20.107.02 "LOSS OF FEEDWATER HEATING".</p> <p>Determines that FW Temperature decrease is normal for loss of FW heating.</p> <p>Notify Chemistry that power changed greater than 15% in a one-hour period.</p> <p>After inserting the CRAM array, verify power <65%</p> <p>Direct shutdown of standby feedwater</p>
	RO	<p>Ensure RR Runback and Insert CRAM Array to < 65%RTP when RFP Trips at SRO direction in accordance with AOP 20.107.01.</p> <p>When noticed that A RR MG did not runback, manually run back to 40% by shifting the controller to manual and pressing the lower pushbuttons.</p> <p>Inserting the cram array:</p> <ul style="list-style-type: none"> • Turn Rod Select power to on • Select a Red Cram Rod and fully insert. Continue until ALL Red Cram Rods are inserted. • If power is not <65%, continue inserting Cram rods using the Cram array book until desired power level is reached. <p>After inserting the CRAM array, verify power <65%.</p>

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Event Description: Trip of "South" Reactor Feedpump/ Recirc Flow Limiter "A" Logic Failure/ Insert CRAM Array		
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Start Standby Feedwater and inject at 1200 gpm per 23.107.01:</p> <ul style="list-style-type: none"> • Start N2103-C003A (B), West (East) Pump A (B) Aux Lube Oil Pump, if available. • dispatch an operator to verify lube oil pressure and flow • Start N2103-C001 (2), West (East) Standby Feedwater Pump A (B). • At high RPV pressure, throttle N2103-F002, SBFW 6" Disch Flow Ctrl Vlv to achieve 1200 gpm <p>If needed to increase flow:</p> <ul style="list-style-type: none"> • Start N2103-C003B (A), East (West) Pump B (A) Aux Lube Oil Pump, if available • Start N2103-C002 (1), East (West) Standby Feedwater Pump B (A). <p>When directed shutdown standby feedwater</p> <ul style="list-style-type: none"> • Shut the N2103-F002 • Stop operating SBFW pumps <p>Determines that FW Temperature decrease is normal for loss of FW heating.</p> <p>.</p>

Op-Test No.: <u>2004-401</u> Scenario No.: <u>1</u> Event No.: <u>8/9/10/11</u> Page <u>1</u> of <u>3</u>		
Event Description: Large Leak in Torus/ RPS Fails to Cause a Scram/ Bypass Valves Fail Closed/ SRVs "E" and "H" Fail to open		
Time	Position	Applicant's Actions or Behavior
+40 min	SRO	<p>*As Torus level continues to lower towards -38", enters EOP Sheet 1 for Reactor Scram and Emergency Depressurization (Event 8).</p> <p>Enters EOP Sheet 1, RPV Control and order the Mode Switch placed in SHUTDOWN (Event 8)</p> <p>Upon communication of ATWS, enter EOP Sheet 1A, RPV Control – ATWS (Event 9)</p> <p>Directs the RO to perform FSQ 1-8 (actions will result in rods inserting with ARI) (Event 9)</p> <p>Inhibit ADS (Event 9)</p> <p>Defeat MSIV isolations and bypass drywell pneumatics.(Event 9)</p> <p>Trip recirc pumps (Event 9)</p> <p>Confirm ARI (Event 9)</p> <p>Verifies Reactor shutdown and Enters EOP Sheet 1, RPV Control Order using MT Bypass valves in anticipation of Emergency Depressurization (Event 10)</p> <p>*Directs BOP to open 5 ADS SRVs and Emergency Depressurize the Reactor in accordance with EOP sheet 3, Emergency Depressurization, at or before Torus Level of –38 inches.(Event 8)</p> <p>Upon receiving report from BOP of "E & H" SRVs not opening, directs BOP to open two additional SRVs.(Event 11)</p> <p>Directs maintaining water level 173"-214".</p> <p>May direct placing torus cooling in service based on high torus temperature.</p> <p>Orders 29.ESP.21</p> <p>Directs RO to perform Subsequent Actions of SCRAM AOP after ARI is successful.</p>

Op-Test No.: <u>2004-401</u> Scenario No.: <u>1</u> Event No.: <u>8/9/10/11</u> Page <u>2</u> of <u>3</u>		
Event Description: Large Leak in Torus/ RPS Fails to Cause a Scram/ Bypass Valves Fails Closed/ SRVs "E" and "H" Fail to open		
Time	Position	Applicant's Actions or Behavior
	RO	<p>*At or before a Torus Water Level of -38", Scrams the reactor as directed (Event 8)</p> <p>Informs SRO that Mode Switch did not cause a Scram and immediately depresses the manual scram pushbuttons (Event 9)</p> <p>Upon direction, performs actions of EOP SH. 1A, RPV Control – ATWS, and (Event 9)</p> <p>Confirms RR Pumps runback (Event 9)</p> <p>Trips the Recirc Pumps (Event 9)</p> <p>*Initiates ARI (Event 9)</p> <p>Reports all rods full in when ARI scrams the rods. (Event 9)</p> <p>Identifies that the MT Bypass Valves do not open and reports to the CRS (Event 10) (note – the RO or BOP may do this)</p> <p>Performs Subsequent actions of SCRAM AOP.</p>
	BOP	<p>Upon direction performs the actions of EOP SH.1, RPV Control:</p> <p>Inhibits ADS (Event 9)</p> <p>Confirms isolations occur (29.ESP.01) (Event 9)</p> <p>Bypasses pneumatic interlocks and restores PC Pneumatics (Event 9)</p> <p>Orders bypassing MSIV L1 logic and high rad interlocks. (Event 9)</p> <p>Note: ARI will be successful inserting rods, therefore bypassing MSIV L1 interlocks may not be necessary,</p> <p>Identifies that the MT Bypass Valves do not open and reports to the CRS (Event 10) (note – the RO or BOP may do this)</p> <p>Orders 29.ESP.21</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>BOOTH OPERATOR: 29.ESP.21 Defeats are performed by EOP Remote Functions RF 0742/0743</p> </div>

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Event Description: Large Leak in Torus/ RPS Fails to Cause a Scram/ Bypass Valves Fails Closed/ SRVs "E" and "H" Fail to open		
Time	Position	Applicant's Actions or Behavior
		<p>*Opens 5 ADS SRVs and Emergency Depressurize the Reactor When directed. (Event 8)</p> <p>Reports that 2 SRVs will not open "E & H" (Event 11)</p> <p>*Opens 2 additional SRVs to complete Emergency Depressurization. (Event 11)</p> <p>Maintains RPV level as directed.</p> <p>Places torus cooling in service in accordance with SOP 23.205 as directed</p> <p>Note: Secure scenario at discretion of Chief Examiner.</p>

Op-Test No.: <u>2004-401</u> Scenario No.: <u>2</u> Event No.: <u>1</u> Page <u>1</u> of <u>1</u>		
Event Description: Increase Reactor Power using Control Rods		
Time	Position	Applicant's Actions or Behavior
0 min	SRO	(Short)Brief shift on (Review SOP 23.623 Sec 7.0), in preparation for Control Rod Withdrawal. NOTE: SURROGATE STA will fill out heatup data sheets.
	RO	Review SOP 23.623 Sec 7.0, in preparation for Control Rod Withdrawal. Begin to withdraw control rods to increase power in accordance with SOP 23.623. <ul style="list-style-type: none"> • Rod select power to on. • Select appropriate rod in accordance with Rod Pull sheets. • Withdraw control rod to correct step.
	BOP	Monitor plant parameters during power increase.

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Event Description: Reactor Feed Pump Turbine Startup		
Time	Position	Applicant's Actions or Behavior
0 min	SRO	Directs BOP to perform section 5.3 of 23.107, Reactor Feed Pump Turbine Startup.
	RO	None
	BOP	<p>Starts Reactor Feed Pump Turbine per Section 5.3 of 23.107:</p> <ul style="list-style-type: none"> • Open P9500-F407, RFPT Main Stm Sply Line Drain Vlv • Opens drain valves per step 5.3.2.2 or 5.3.2.3 for preparing the North or South Turbine • Opens N1100-F605, MS to RFPTs SJAЕ Iso Vlv <p>(Note: The scenario will be stopped here, therefore the evolution will not be taken through to completion)</p> <p>Note: Due to simulator setup the above valves were already opened which then required the BOP to only verify the valve positions. With only verify action could not give adequate credit to the BOP for the normal evolution. The examiners allowed the crew, in particular the BOP to continue with the Reactor Feed Pump Turbine warm up. Scenario malfunctions were continued once the BOP had initiated steam and initial roll of the feed pump turbine.</p>

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Event Description: IRM "D" Failure Upscale		
Time	Position	Applicant's Actions or Behavior
+10 min	SRO	<p>Upon receipt of Annunciator 3D60 "IRM CH B/F/D/H Upscale Trip/Inop" & 3D63 "IRM UPSCALE", direct the RO to Stop Rod Movement.</p> <p>Refer to Tech Spec 3.3.1.1, Reactor Protection System Instrumentation and TRM 3.3.2.1, Control Rod Block Instrumentation.</p> <p>Enters Action A, which requires the crew to place channel D in trip within 12 hours.</p> <div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR ACTION</p> <p><i>Report as Tagging Center, AFTER the T.S. determination, that the paperwork for IRM B has been processed and IRM B is ready to be returned to service</i></p> </div> <p>Directs the RO to take IRM B out of Bypass and to place IRM D in bypass in accordance with 23.603 "Intermediate Range Monitoring System</p> <p>Upon receipt of Annunciator 3D74 "Trip Actuators B1/B2 Tripped", direct the RO to reset the half scram in accordance with 23.610 "Reactor Protection System (RPS), after bypassing IRM "D".</p> <p>Continue Startup upon reset of half scram.</p>
	RO	<p>Upon receipt of Annunciator 3D63 "IRM UPSCALE", Stop Rod Movement and investigate the cause.</p> <div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR ACTION</p> <p><i>When requested, wait approximately 3 minutes and report IRM D is upscale in relay room and no other IRMs indicate a problem</i></p> </div> <p>When IRM B has been restored and it is desired to bypass IRM D, bypass the IRM in accordance with 23.603 "Intermediate Range Monitoring System":</p> <p>Move the IRM bypass joystick from IRM B to the center position and verify the White Bypass light goes OFF.</p>

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Event Description: IRM "D" Failure Upscale		
	RO	Move the IRM bypass joystick from the center position to IRM D position and verify the White Bypass light goes ON.
		Upon receipt of Annunciator 3D74 "Trip Actuators B1/B2 Tripped", reset the half scram in accordance with 23.610 "Reactor Protection System (RPS), after bypassing IRM "D": Cycle the Scram Reset switch to both positions and verify the BLUE pilot scram solenoid valve lights come on. Then verify alarms are RESET for RPS A(B) Continue startup upon direction from SRO.
	BOP	Assist in determining cause of IRM "D" upscale.

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Event Description: CRD Flow Control Valve Failure (Closed)		
Time	Position	Applicant's Actions or Behavior
+20 min	SRO	<p>BOOTH OPERATOR ACTION:</p> <p>Do not fail the FCV until the RO resumes Startup.</p> <p>Upon notification of CRD FCV A Failure, enters AOP 20.106.03 "CRD FCV Failure", directs RO to perform actions associated with the procedure.</p>
	RO	<p>RO Notices no rod movement when withdrawing control rods and verifies CRD System Indicators on H11-P603 are below their normal ranges.</p> <p>Notifies SRO of conditions</p> <p>Performs the actions of AOP 20.106.03</p> <ol style="list-style-type: none"> 1. Places FCV to manual and tries to restore system flow. 2. Adjusts flow to normal parameters in MANUAL.
	BOP	Monitors plant parameters.

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Event Description: Description: Fuel Pool Rad Monitor Failure (Upscale)		
Time	Position	Applicant's Actions or Behavior
+30 min	SRO	<p>Upon receipt of annunciators 3D31 "DIV I/II FP Vent Exh. Radn Monitor Upscale" & 3D35 "DIV I/II FP Vent Exh. Radn Monitor Upscale Trip", direct RO and BOP to perform associated actions</p> <p>Directs BOP operator to shutdown RBHVAC when reported that it failed to trip.</p> <p>Refer to TS 3.3.6.2 Isolation Instrumentation</p> <p>Enters Action A to place channel in trip condition within 24 hours</p> <p>3.3.7.1 Control Room Emergency System</p> <p>Enters Action B to place channel in trip condition within 24 hours</p> <p>TRM 3.3.6.2 Isolation Instrumentation</p> <p>TRM3.3.7.1 Control Room Emergency Filtration System</p> <p><i>NOTE: SRO may enter EOP sheet 5 "Secondary Containment" prior to discovering the failed instrument caused the transient.</i></p>
	RO	<p>Responds to 3D31 "DIV I/II FP Vent Exh. Radn Monitor Upscale" & 3D35 "DIV I/II FP Vent Exh. Radn Monitor Upscale Trip".</p>
	BOP	<p>Checks (D11-K609 A) Fuel Pool East Radiation monitor and discovers it is pegged high.</p> <p>Monitors Plant Parameters</p> <ol style="list-style-type: none"> 1. Verifies CCHVAC shifts to RECIRC. Mode 2. RB HVAC Trips and isolates. The BOP should notice that RBHVAC failed to respond as required and reports to CRS. <ol style="list-style-type: none"> a) Shuts down the RBHVAC exhaust fans b) Verifies the ganged supply fans trip and dampers close c) Places supply fan CMC switches in OFF RESET <p>OR Depresses Manual Trip Pushbutton.</p> 3. SGTS initiates

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Event Description: Loss of Offsite Power with Trip of EDG 12 during startup; Steam leak in Drywell; Failure RHR Containment Mode Spray Valve to Open.

Time	Position	Applicant's Actions or Behavior
+40 min	SRO	<p>Enters AOP 20.300.offsite "Loss of Off-Site Power", and directs implementation/actions. (Event 6)</p> <ol style="list-style-type: none"> 1. Orders the RO to place the Mode Switch in Shutdown 2. Directs the BOP to start CTG 11-1 (Black Start Generator) 3. Enters 20.300.72C for EDG 12 failing to start <ol style="list-style-type: none"> a) Orders BOP to verify 72CF transferred to alternate b) Orders BOP to verify Div 2 CCHVAC running in RECIRC mode <p>Enters EOP sheet 1 directs actions for level and pressure of RPV. (Event 6)</p> <ol style="list-style-type: none"> 1. Direct BOP to Restore and keep RPV Level 173" to 214" 2. Directs maintaining Reactor Pressure less than 1093 using bypass valves and SRVs. 3. Direct RO to Confirm Reactor Scram <p>Enter EOP sheet 2 due to high drywell pressure when discovered. (Event 7)</p> <ol style="list-style-type: none"> 1. Direct BOP to verify ECCS Actuations and isolations using 29.ESP.01 2. Direct RO to place RHR in Torus Cooling in accordance with 23.205. 3. Direct RO to Trip RR Pumps 4. Direct RO to place RHR in Torus Spray prior to Torus pressure reaching 9 psig in accordance with 23.205. 5. *Direct RO to spray the Drywell prior to exceeding the DWSIL.

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Event Description: Loss of Offsite Power with Trip of EDG 12 during startup; Steam leak in Drywell; Failure RHR Containment Mode Spray Valve to Open.

Time	Position	Applicant's Actions or Behavior
	BOP	<p>Performs actions of AOP 20.300.offsite "Loss of Off-Site Power" (Event 6)</p> <ol style="list-style-type: none"> 1. Assess status of EDG's (12 not running) 2. Starts CTG 11-1 3. Restore AC Buses as directed by SRO or using 20.300.offsite and 20.300.72C. <p>Reports EDG 12 has tripped, (Annunciator 9D60) Dispatches an operator to investigate EDG fail to start at RHR complex.</p> <p>Identify High Drywell Pressure. (Event 7)</p> <p>May assist in stabilizing level and pressure or addressing containment parameters.</p> <p>Note: The SRO may direct the RO or BOP to place RHR in Torus Cooling/Torus Spray and then to Spray the Drywell.</p> <ol style="list-style-type: none"> 4. Start RHR Loop in Torus Cooling in accordance with 23.205, enclosure A (Event 7) <ol style="list-style-type: none"> a) Place Containment Mode switch in MANUAL b) Unlock and open E1150-F028B(A) c) Start one RHR Pump (should be running due to LOCA) d) Throttle E1150-F024B(A) to desired flow e) Starts RHRSW (may delay until Torus Spray established) <ol style="list-style-type: none"> i) Place keylock switch in MANUAL OVERRD ii) Depress open on E1150-F068B(A) for 5 seconds iii) Start an RHRSW Pump iv) Throttle open E1150-F068B(A) to a flow of 5600-6500 gpm v) Start a second RHRSW Pump vi) Fully open E1150-F068B(A)

Op-Test No.: <u>2004-401</u> Scenario No.: <u>2</u> Event No.: <u>6/7/8</u> Page <u>3</u> of <u>4</u>		
Event Description: Loss of Offsite Power with Trip of EDG 12 during startup; Steam leak in Drywell; Failure RHR Containment Mode Spray Valve to Open.		
Time	Position	Applicant's Actions or Behavior
		<ol style="list-style-type: none"> 5. *Spray the Torus <ol style="list-style-type: none"> a) Open E1150-F027B(A) 6. Verify flow increases by 500 gpm 7. *Spray Drywell (Event 7) <ol style="list-style-type: none"> a) Opens E1150-F021B(A) b) Verify an RHR Pump is running c) Unlock and throttle open E1150-F016B(A)
<p>BOOTH OPERATOR <i>You must manually insert the malfunction for E1150-F016A (VO 0177) or 16B (VO 0178), depending on which division of RHR they decide to spray the Drywell with.</i></p>		
		<ol style="list-style-type: none"> d) Notices the E1150-F016B does not open and sprays the DW through E1150-F016A (Div 1 power must be restored)
	RO	<p>Enters EOP 20.000.21 "Reactor SCRAM"/EOP Sh.1 RPV Control</p> <ul style="list-style-type: none"> • Places the mode switch to shutdown, and reports all rods full in. • Verifies reactor power decreasing • Verifies RR Pumps Runback to minimum. • Verify Post Scram Feedwater logic has occurred. • Maintains RPV level L3 – L8 with SBFW, RCIC, HPCI, Cond./FW. • Stabilize reactor pressure, if possible. • Insert SRM/IRM Detectors (If power available) • Verify Isolations have occurred.

Op-Test No.: <u>2004-401</u> Scenario No.: <u>2</u> Event No.: <u>6/7/8</u> Page <u>4</u> of <u>4</u>		
Event Description: Loss of Offsite Power with Trip of EDG 12 during startup; Steam leak in Drywell; Failure RHR Containment Mode Spray Valve to Open.		
	RO	<p>Performs actions of EOP Sh.2 "Primary Containment Control" as directed.</p> <ol style="list-style-type: none"> 1. Perform verification of initiation of EECW. 2. Perform verification of isolation of EECW to Drywell. 3. Restore Cooling to CRD in accordance with 23.127. <ol style="list-style-type: none"> a) Places Div 2 EECW iso override switch in OVERRIDE b) Depresses Div 2 EECW iso RESET pushbutton c) Opens P4400-F604, EECW to CRD supply iso vlv 8. Verify ECCS Actuations and Isolations using 29ESP.01 9. Start RHR Loop in Torus Cooling in accordance with 23.205, enclosure A <ol style="list-style-type: none"> a) Place Containment Mode switch in MANUAL b) Unlock and open E1150-F028B(A) c) Start one RHR Pump (should be running due to LOCA) d) Throttle E1150-F024B(A) to desired flow e) Starts RHRSW (may delay until Torus Spray established) <ol style="list-style-type: none"> i) Place keylock switch in MANUAL OVERRD ii) Depress open on E1150-F068B(A) for 5 seconds iii) Start an RHRSW Pump iv) Throttle open E1150-F068B(A) to a flow of 5600-6500 gpm v) Start a second RHRSW Pump vi) Fully open E1150-F068B(A) 10. *Spray the Torus <ol style="list-style-type: none"> a) Open E1150-F027B(A) b) Verify flow increases by 500 gpm 11. *Spray Drywell <ol style="list-style-type: none"> a) Opens E1150-F021B(A) b) Verify an RHR Pump is running c) Unlock and throttle open E150-F016B(A)
<p>BOOTH OPERATOR <i>You must manually insert the malfunction for E1150-F016A (VO 177) or 16B (VO 0178), depending on which division of RHR they decide to spray the Drywell with.</i></p>		
		<ol style="list-style-type: none"> d) Notices the E1150-F016B does not open and sprays the DW through E1150-F016A (Div 1 power must be restored) <p>Note: Secure scenario at discretion of Chief Examiner.</p>