

# Scenario Outline

ES-D-1

<b>Simulation Facility</b>	Oyster Creek	<b>Scenario No.</b>	NRC #4	<b>Op Test No.</b>	ILT2004
<b>Examiners</b>	_____	<b>Operators</b>	_____	CRS	
	_____		_____	PRO	
	_____		_____	URO	
<b>Scenario Summary</b>	<p>The scenario begins with the reactor startup in progress at 3 - 5% power with mode switch in RUN. Control rods will be moved to raise power. The RBHVAC ventilation radiation monitor will fail upscale, causing RBHVAC to trip, but the SGTS will fail to start. The crew will start the SGTS manually. Running CRD pump trips, start standby pump. Reactor Level Instrument RE02A Fails Downscale causing the Core Spray to start but EDG #2 does not start and idle. Core Spray will be manually secured. APRM 4 will then fail upscale requiring the crew to evaluate Tech Specs, bypass the APRM, and reset the half scram. The running RBCCW pump trips requiring the standby pump to be started. An RPV steam leak will result in increase in Drywell temperature and pressure. Drywell pressure will increase requiring Drywell Sprays using the Containment Spray system. The drywell spray valve fails to automatically realign and must be operated manually to permit sprays to function.</p>				
<b>Initial Condition</b>	3 - 5% power				
<b>Turnover:</b>	See Attached "Shift Turnover" Sheet				
<b>Event No.</b>	<b>Malfunction No.</b>	<b>Event Type*</b>	<b>Event Description</b>		
1		R SRO RO	Pull rods to raise power		
2	MAL-RMS005M MAL-SCN005	I SRO BOP	RBHVAC Rad Ventilation monitor Fails Upscale, RBHVAC trips, SGTS fails to start. (Tech Spec)		
3	BKR-CRD001	I SRO RO	Running CRD pump trips (Tech Specs)		
4	MAL-NSS007H MAL-DGN003A	I SRO BOP	Reactor Level Instrument Fails Downscale, Core Spray starts but EDG does not idle		
5	MAL- NIS020D	I SRO RO	APRM 4 Fails Upscale (Tech Spec)		
6	MAL-RBC001A	C SRO BOP	Running RBCCW pump trips		
7	MAL-NSS017A .1%, 300s 2%, 1800s	M SRO RO BOP	Steam leak develops in the Drywell leads to spraying DW		
8	VLV CNS008, opt 6	C SRO BOP	Containment Spray Valve fails to realign automatically when sprays are required		

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

## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit At 3 – 5% Power

### **INOPERABLE EQUIPMENT/LCOs:**

- 

### **SCHEDULED EVOLUTIONS:**

- Pull rods to complete rod pull sequence. When rod pulls are complete, wait for further Reactor Engineering direction.

### **SURVEILLANCES DUE THIS SHIFT:**

- None

### **ACTIVE CLEARANCES:**

- 

### **GENERAL INFORMATION:**

Pull rods to complete rod pull sequence.

Finished Group 7-2, Step 20, Pull 3

Next action, complete Group 7-2, Step 20, Pull 4 and then complete Group 7-3 Step 21 (all 4 rods from 8 to 12)

When rod pulls are complete, then wait for further Reactor Engineering direction.

Procedure 201, step 6.47

Procedure 315.1, step 3.3.29

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #4**Event No.:** 1**Page** 1 of 9**Event Description:** Pull rods to raise power**Cause:** Complete power ascension**Automatic Actions:** None**Effects:** None**Time****Position****Applicant's Actions Or Behavior**

SRO

Review rod withdrawal sequence from turnover  
Finished Group 7-2, Pull 20, Step 3  
Next action, complete Group 7-2, Step 20, Pull 4 and then complete Group 7-3  
Step 21 (all 4 rods from 8 to 12), then wait for further Rx Engineering direction.  
Direct resumption of power ascension IAW 201, step 6.47; 315.1, step 3.3.29

RO

- Verify rod selected is correct
- Begins to pull rods in sequence IAW Rod Withdrawal Sequence

For each rod selected:

- verifies rod from rod sequence sheet
- selects rod on rod matrix at 4F
- notch withdraws rod to position 10 then to position 12
- verifies correct notch position achieved
- initials completed action

BOP

- Assist in verifying correct rod
- Second check on rod movements

# Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #4

Event No.: 2

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**Event Description:** RBHVAC Rad Ventilation monitor Fails Upscale, RBHVAC trips, SGTS fails to start (Tech Spec)

**Cause:** Instrument failure causes upscale response

**Automatic Actions:** RBHVAC trips

**Effects:** Operator action required to manually initiate SGTS

## Time

## Position

## Applicant's Actions Or Behavior

BOP	<p>Recognize condition by observing indications or reporting alarms;</p> <ul style="list-style-type: none"> <li>• 10F-1-f: VENT HI</li> <li>• Verify high radiation level on redundant indicators on Panel 2R</li> <li>• L-6-c: RB ΔP LO</li> </ul> <p>IAW RAPs, confirm Reactor Building isolation and trip of RBHVAC and initiation of Standby Gas Treatment System [SGTS].</p> <p>Verify that an actual ventilation high radiation condition does <b>NOT</b> exist</p>
SRO BOP RO	<p>Recognize and report that the expected start of SGTS did <b>NOT</b> occur.</p> <p>Recognize Rx Bldg ΔP LO due to ventilation line-up</p>
SRO	<p>Direct SGTS be placed in service manually IAW procedure 330</p> <ul style="list-style-type: none"> <li>• Evaluate compliance with TS 3.5</li> <li>• Can remain in operation for 7 days if remaining system is operable.</li> </ul> <p>Notify Work Management to troubleshoot and repair the instrument.</p>
BOP	<p>IAW procedure 330, take the following actions when directed</p> <p><u>System 1 startup:</u></p> <ul style="list-style-type: none"> <li>• Confirm Standby Gas Select switch to SYS 1 on panel 11R</li> <li>• Place Exhaust Fan EF-1-8 to HAND on 11R</li> <li>• Verify EF-1-8 starts, and valves V-28-23, 24 &amp; 26 open</li> <li>• After flow is established, verify V-28-24 closes and V-28-28 opens</li> <li>• Place V-28-48 control switch to CLOSE and verify GREEN close light LIT</li> <li>• Verify RBHVAC secured if directed by supervisor</li> </ul> <p><u>System 2 startup:</u></p> <ul style="list-style-type: none"> <li>• Confirm Standby Gas Select switch to SYS 2 on panel 11R</li> <li>• Place Exhaust Fan EF-1-9 to HAND on 11R</li> <li>• Verify EF-1-9 starts, and valves V-28-27, 28 &amp; 30 open</li> <li>• After flow is established, verify V-28-28 closes and V-28-24 opens</li> <li>• Place V-28-48 control switch to CLOSE and verify GREEN close light LIT</li> <li>• Verify RBHVAC secured if directed by supervisor</li> </ul>

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #4**Event No.:** 3**Page** 3 of 9**Event Description:** Running CRD pump trips (Tech Specs)**Cause:** Breaker problem causes pump trip**Automatic Actions:** none**Effects:** Operator action required to start standby pump**Time****Position****Applicant's Actions Or Behavior**

RO

Recognize condition by reporting alarms;

- H-7-c: CHARG WTR PRESS LO

IAW RAP H-7-c confirms:

- the running CRD pump has tripped
- availability of standby CRD pump

SRO

- May direct a re-start of "B" CRD pump
- Direct start of standby CRD pump
- Notify Work Management to troubleshoot and repair the pump
- Evaluate TS sections 3.4.D, Emergency Cooling and determines that the CRD pump may be inoperable and the plant may remain in operation for 7 days
- May direct reference to 3024.08, Control Rod Hydraulics – Diagnostic and Restoration Actions to determine cause of pump trip

RO

- May attempt re-start of "B" CRD pump
- Starts standby CRD pump.
- Monitor CRD parameters and valve positions
- May refer to 3024.08, Control Rod Hydraulics – Diagnostic and Restoration Actions to determine cause of equipment problem

Op Test No.: ILT2004

Scenario No.: NRC #4

Event No.: 4

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**Event Description:** Reactor Level Instrument RE02 Fails Downscale, Core Spray starts but EDG does not idle (Tech Spec)

**Cause:** Instrument failure

**Automatic Actions:** Core Spray starts but EDG does not idle

**Effects:** Requires operator action to secure Core Spray system and determine Tech Spec

**Time****Position****Applicant's Actions Or Behavior**

BOP

Recognize condition by reporting alarms;

- B-1-e: SYSTEM 1 AUTOSTART
- B-1-f: SYSTEM 2 AUTOSTART

IAW RAP B-1-e &amp; 1-f confirms:

- Both Core Spray system's pumps are running
- Verifies #2 EDG has idle started and that #1 EDG failed to start and idle.
- Using multiple indications verifies that a valid lo-lo signal does not exist. At 18R - Front, determines RE02A [LI-622-1635] is downscale, all other Rx level indication is normal.

Based on alarms and indications, reports that both Core Spray systems started due to RE02 failure, but that #1 EDG did not idle.

SRO

- Confirms that a valid lo-lo signal does not exist [RE02A is downscale at 18R]
- Requests Work Management assistance and/or may direct the I&C technician to investigate the problem
- Evaluate TS 3.7.C.2, Auxiliary Electrical Power, and enters a 7 day LCO
- Directs URO/BOP to secure core spray in accordance with Procedure 308

BOP

Secures Core Spray IAW 308 section 5.0:

- Depresses OVERRIDE push buttons and then depresses ACTUATED push buttons to reset Core Spray Logic
- Confirm the parallel isolation valves are closed
- Secures running booster pumps and then main pumps in each system
- Verify system is in standby readiness

**Event Description:** APRM 4 Fails Upscale (Tech Spec)

**Cause:** Instrument failure causes upscale response

**Automatic Actions:** none

**Effects:** Requires operator action to bypass APRM and reset the half scram

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO	<p>Recognize condition by reporting alarms;</p> <ul style="list-style-type: none"><li>• G-1-c: SCRAM CONTACTOR OPEN</li><li>• G-1-f: APRM HI-HI/INOP</li><li>• G-3-f: APRM HI</li><li>• G-1-d: CHANNEL I</li><li>• H-7-a: ROD BLOCK</li></ul> <p>IAW Response to Alarm Procedures (RAPs); confirm automatic action and indications including RPS system 1 scram lights out on 4F and APRM 4 indications on 4F [ orange HI light lit and red HI-HI light lit ] and 3R indications [ orange Alarm light lit and red Scram light lit ].</p> <p><b>Examiner:</b> When verifying failed APRM indications IAW RAPs or procedure 403; <b>Cue applicant that FCTR card LED is "Green" and that Curve Select display on FCTR card is "0" and active LED is "Green" <u>Use paper handout</u></b></p> <p>Based on alarms and indications, reports RPS system 1 half scram due to APRM 4 failing upscale.</p>
	SRO	<ul style="list-style-type: none"><li>• Refers to Procedure 403, LPRM-APRM System Operations</li><li>• Requests Work Management assistance and/or may direct the I&amp;C technician to investigate the problem</li><li>• Evaluate TS 3.1, Protective Instrumentation, to ensure that it permits the APRM to be bypassed</li><li>• Directs APRM 4 to be bypassed and the half scram to be reset</li></ul>
	RO	<ul style="list-style-type: none"><li>• Check Section 5.4 and Tech Spec Section 3.1 to determine if channel may be bypassed</li><li>• Bypass APRM input IAW 403 section 5.3.3: Bypasses APRM 4 by placing the joystick in bypass</li></ul>
	BOP	<ul style="list-style-type: none"><li>• Verify on 3R/5R that selected APRM indicates it is bypassed</li><li>• Update Attachment 403-2 as determined by US</li><li>• Reset the half scram</li></ul>

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #4

Event No.: 6

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**Event Description:** Running RBCCW pump trips

**Cause:** Breaker electrical problem causes pump trip

**Automatic Actions:** none

**Effects:** Operator action required to start standby pump to prevent reactor scram

### Time

### Position

### Applicant's Actions Or Behavior

BOP

Recognize condition by reporting alarms;

- C-3-c: PUMP 1-1 TRIP
- 

IAW RAP C-3-c confirms:

- pump status and system pressure on 13R
- the running RBCCW pump has tripped
- availability of standby RBCCW pump

CT

SRO

- Direct start of standby RBCCW pump
- Direct reference to ABN-19, RBCCW Failure Response

Notify Work Management to troubleshoot and repair the pump

BOP

- Starts standby RBCCW pump.
- Monitor RBCCW and Service Water parameters
- Refers to ABN-19, RBCCW Failure Response and 2000-OPS-3024.21, RBCCW System Diagnostic and Restoration procedure to determine follow-up actions



# Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #4

Event No.: 7

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**Event Description:** Steam leak develops in the Drywell

**Cause:** Main Steam line breaks

**Automatic Actions:** none

**Effects:** Operator action required to vent drywell and scram reactor prior to 3 psig

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO BOP	Recognize condition by reporting; <ul style="list-style-type: none"> <li>Unidentified leak-rate change on 3F recorder</li> <li>Containment pressure and temperature change (4F and PCS)</li> <li>C-3-f; DW PRESS HI/LO</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Reference RAP C-3-f, DW PRESS HI/LO</li> <li>Direct venting of Containment IAW procedure 312.11, Section 4.3, Nitrogen System and Containment Atmosphere Control.</li> <li>Direct monitoring of Containment and investigate potential in-leakage paths using 2000-OPS-3024.09, Drywell Cooling System Diagnostic procedure</li> </ul>
	BOP	Vent Containment IAW procedure 312.11 <ul style="list-style-type: none"> <li>Vent the drywell via the Torus by opening Torus vent valves V-28-47 and V-28-18 on panel 11F.</li> </ul> OR <ul style="list-style-type: none"> <li>Vent the drywell via the drywell by opening drywell vent valves V-23-21 and V-23-22 on panel 12XR.</li> </ul>
CT	SRO	<b>Before drywell pressure reaches 3.0 psig, directs scram IAW ABN-1 Enters 2000-EMG-3200.01A, RPV Control – No ATWS and 2000-EMG-3200.02, Primary Containment Control.</b>
	RO	<b>IAW ABN-1;</b> <ul style="list-style-type: none"> <li><b>Depress both manual scram pushbuttons on 4F before Drywell pressure reaches 3 psig</b></li> <li><b>Place Reactor mode switch to SHUTDOWN</b></li> <li><b>Report that all control have inserted on the scram</b></li> <li><b>Verifies power decrease</b></li> <li><b>Inserts SRMs and IRMs</b></li> </ul>
	SRO	Direct the following: <ul style="list-style-type: none"> <li>Direct start of available DW cooling per SP-27, Maximizing Drywell Cooling</li> <li>Direct execution of SP-1, Confirmation of Auto Initiations and Isolations</li> <li>Direct securing Core Spray per SP-10, Stopping Injection from Core Spray</li> <li>May direct trip of Main Turbine and use ABN-10</li> </ul>
	RO BOP	<ul style="list-style-type: none"> <li>Per SP-27, at 2R EOP bypass panel, remove plug from BP1, place in BP2.</li> </ul> Confirm open RBCCW valves, V-5-147, 166, 167, & 148. Start DW recirc fan 1-3. <ul style="list-style-type: none"> <li>Per SP-1, confirms all init/isol for 3 psig in DW</li> <li>Per SP-10, at Core Spray Control Logic panel on 1F/2F, depress all DW press OVERRIDE switches that are lit and then depress all ACTUATE push buttons. Verify parallel isolation valves are closed, secure all running booster pumps, then secure all running main pumps. Verify B-3-d NOT lit.</li> </ul>

**Operator Actions**

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #4

Event No.: 8

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**Event Description:** Containment Spray Valve fails to realign automatically when sprays are required**Cause:** Breaker malfunction prevents valve movement**Automatic Actions:** none**Effects:** System configuration does not automatically realign. Operator action required to manually open valve

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
CT	SRO	Enter and execute EOP 3200.02, Primary Containment Control and EOP 3200.01A, RPV Control – No ATWS, when Drywell Pressure exceeds 3 psig. <ul style="list-style-type: none"><li>• Direct lineup of Containment Spray in Drywell Spray Mode per SP-29, Initiation of the Containment Spray System for Drywell Sprays</li></ul>
	BOP	IAW SP-29; <ul style="list-style-type: none"><li>• Place Containment Spray sys 1 mode select switch to Drywell Spray (sys 2 mode switch will not change to DW spray)</li><li>• Observe valve realignment, report failure of V-21-11, DW Spray Discharge Valve, to open. (V-21-17 will close)</li><li>• Direct Equipment operator to manually open V-21-11</li><li>• Spray Drywell when V-21-11 is open and conditions for spraying Drywell are met:<ul style="list-style-type: none"><li>• Confirm Recirc pumps tripped</li><li>• Confirm DW recirc fans tripped</li><li>• Place System Pump Start Permissive Keylock to selected Containment Spray pump position (A or B) and the place pump control switch to START, release.</li><li>• Start associated ESW pump</li><li>• Confirm RBCCW valves closed: V-5-147, 148, 166 &amp; 167</li><li>• Repeat above process for additional pumps</li></ul></li></ul> <p><b><u>Must initiate containment spray before 281°F in DW is reached or after 12 psig in Torus is reached.</u></b></p>
	RO	Control Reactor Level and Pressure as Directed

**TERMINATION CRITERIA:** Once Drywell spray has been initiated and Drywell pressure is being controlled between 4 – 12 psig, or at the discretion of the lead evaluator, the scenario may be terminated

**POST SCENARIO EMERGENCY CLASSIFICATION:** Declares an ALERT due to torus pressure > 12 psig  
EAL: E-1 or DW temp >281°F EAL: D-1

**IF** timely manual operation of V-21-11 does not occur, US may direct ED. If DW temp cannot be maintained <281°F and Containment Spray is inop; SAE. EAL: D-1

<b>Title: Classify an Emergency or Abnormal Event</b>			
Task: Classify an Emergency or Abnormal Event.			2000502401
KA# 294001 GA1-16	RATING: RO - N/A		SRO - 4.7
Validation Time: 9 minutes	Alternate Path: <b>NO</b>	Time Critical	<b>YES</b>
	<b>Name</b>	<b>Social Security Number</b>	
<b>Operator</b>			
<b>Evaluator</b>			
<b><u>DIRECTIONS TO TRAINEE:</u></b>			
<p>Before you start, I will state the task conditions and initiating cues and fully answer any questions. To complete this task successfully, you must perform or simulate each critical element correctly and demonstrate proper procedural adherence.</p> <p><i>NOTE: Directions are only required once in a given JPM session.</i></p>			
<b>Performance</b>			
<b>Perform</b>	<b>X</b>	<b>Simulate</b>	
<b>Replica</b>	<b>X</b>	<b>In-Plant</b>	
<b>GRADE: Sat / Unsat</b>		<b>MODE: Evaluation / Training</b>	
<b>Comments</b>			
<b>Date:</b>			

**REFERENCE SECTION:**

**TASK CONDITIONS:**

- At the completion of 2004 ILT NRC scenario #4; determine E-Plan classification and complete notification form.

**GENERAL TOOLS AND EQUIPMENT:**

**GENERAL REFERENCES:**

Procedure EPIP-OC-.01, Rev. 14

**TASK STANDARD:**

Within 15 minutes of start time declares an ALERT based on EAL E-1 or D-1 and properly completes the Notification Form.

Declares an ALERT due to torus pressure > 12 psig. EAL: E-1 or DW temp >281°F. EAL: D-1

**CRITICAL ELEMENTS: (\*)**

**2, 3, 5, 6**

## PERFORMANCE SECTION:

## TASK CONDITIONS:

- At the completion of 2004 ILT NRC scenario #4; determine E-Plan classification and complete notification form.

## INITIATING CUES:

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.

START TIME \_\_\_\_\_

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
1. Obtain controlled copy of procedure	Obtains controlled copy of procedure EPIP-OC-.01	
*2. Determined Emergency Classification and associated EAL.	Declares "ALERT" - EAL E-1 or D-1 Torus pressure > 12 psig or DW temp >281°F Time Critical Portion of JPM complete Time Complete _____ (<15 minutes)	
*3. Completes <u>Emergency Classification</u> block.	Fill in the block with: An "ALERT" was declared at "current time" on "current date". The EAL is E-1 or D-1	
4. Completes <u>Event Description</u> block	Fill in the block with: Description similar to "Torus pressure > 12 psig" or "DW temp >281°F"	
*5. Completes <u>Radioactive Release Status</u> block.	Fill in the block with: Check the line that states that "There is <b>no</b> abnormal radiological release in progress"	
*6. Completes <u>Meteorological Condition</u> block	Fill in the block with: From the Weather screen record; Wind direction is from " " degrees and wind speed is " " miles per hour (use 380' elevation data)	
7. Completes <u>On-Site Protective Action</u> block	Fill in the block with: Checks the three lines for ALERT condition.	

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
8. Present to Shift Manager (SM)	Presents filled-in Notification form to evaluator for SM approval.	

COMPLETION TIME \_\_\_\_\_

**TASK CONDITIONS:**

- At the completion of 2004 ILT NRC scenario #4; determine E-Plan classification and complete notification form.

**INITIATING CUES:**

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.

# Scenario Outline

ES-D-1

<b>Simulation Facility</b>	Oyster Creek	<b>Scenario No.</b>	NRC #1	<b>Op Test No.</b>	ILT2004
<b>Examiners</b>	_____	<b>Operators</b>	_____	CRS	
	_____		_____	PRO	
	_____		_____	URO	
<b>Scenario Summary</b>	<p>The scenario begins with the reactor at 100% power with the 'A' CRD Pump out of service. The crew will begin by removing the EPR from service. The running steam seal exhaust blower trips. The crew will start the other exhaust blower. A reference leg leak will develop in a RPV Level instrument. The crew will take manual control of RPV level and transfer to the alternate signal. A loss of power to VMCC 1A2 will result in the crew restoring RPS and resetting the half scram. The 'C' Feedwater Pump trips requiring the crew to reduce power to maintain reactor level. The only available CRD pump trips, which will require the crew to scram the reactor. A RWCU leak will occur in the Reactor Building requiring entry into Secondary Containment Control EOP. A RWCU valve will fail preventing the isolation of the leak. Emergency Depressurization will be required to mitigate the primary leak into the Reactor Building.</p>				
<b>Initial Condition</b>	100% power				
<b>Turnover:</b>	See Attached "Shift Turnover" Sheet				
Event No.	Malfunction No.	Event Type*	Event Description		
1		N SRO BOP	Remove EPR from service for maintenance		
2	MAL MSS005A	C SRO BOP	Steam seal exhaust blower trips, start other blower		
3	MAL-NSS011C 2%, 300s	I SRO RO	Level instrument reference leg leak develops, take manual control of RPV level, swap instrument signals, return to auto control		
4	MAL-EDS004A	C SRO BOP	Loss of Power to VMCC 1A2, restore RPS (Tech Spec)		
5	MAL-CFW006C	R SRO BOP RO	'C' Feedwater Pump Trip leads to Power Reduction to Control Level		
6	BKR CRD001	C SRO RO	Only available CRD pump trips – Results in Plant Scram		
7	MAL RCU13 3% 600s	M SRO BOP	Reactor Water Clean-Up Leak into the Reactor Building [HELB]		
8	VLV RCU001, 6 VLV RCU004, 6 VLV RCU011, 5	C SRO BOP	Reactor Water Clean-Up Isolation Valve Failure, V-16-1, 14 & 61 fail to auto close. V-16-61 can be manually closed.		

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



## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit At 100% Power

### **INOPERABLE EQUIPMENT/LCOs:**

- 'A' CRD Pump tripped four hours ago

### **SCHEDULED EVOLUTIONS:**

- Remove EPR from service for maintenance. Perform when turnover complete.

### **SURVEILLANCES DUE THIS SHIFT:**

- None

### **ACTIVE CLEARANCES:**

- 'A' CRD pump

### **GENERAL INFORMATION:**

- Transfer from EPR to MPR IAW Operating Procedure 315.4, Transferring Pressure Regulators, Section 3.3 and place the EPR power switch to **OFF**.

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #1**Event No.:** 1**Page** 1 of 8**Event Description:** Remove EPR from service for maintenance**Cause:** Erratic EPR response**Automatic Actions:** None**Effects:** None**Time****Position****Applicant's Actions Or Behavior**

SRO

Direct transfer from EPR to MPR IAW Operating Procedure 315.4, Transferring Pressure Regulators

BOP

IAW 315.4, step 3.3;

- Slowly lower MPR setpoint by placing MPR Control Switch to lower (1%) position for approximately one-second periods until MPR relay position indicator moves toward the EPR setting. MPR is in control when its Red "Controlling" light is on.
- Adjust EPR control switch so that EPR pressure setpoint is 6-7 psig higher than the pressure at which it had been operating.
- Place the EPR power switch to OFF.

SRO

IAW 315.5, Turbine Normal Operation;

(Step 5.1.4) With only one regulator in service and &gt; 90% power the following restrictions apply:

- Within 30 days restore the out of service regulator to service.

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 2

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**Event Description:** Steam seal exhaust blower trips, start other blower

**Cause:** Motor overload causes trip

**Automatic Actions:** none

**Effects:** Operator action required to start other blower

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP	Recognize condition by reporting alarms; <ul style="list-style-type: none"><li>• Q-8-c: EXHAUSTER TRIP</li></ul> IAW RAP Q-8-c confirms: <ul style="list-style-type: none"><li>• loss of exhauster</li><li>• checks gland steam pressure on panel 7F, reads "0".</li></ul>
	SRO	Directs start of other gland steam exhauster
	BOP	Places other gland steam exhauster in service IAW Q-8-c, may refer to procedure 325 <ul style="list-style-type: none"><li>• Closes V-7-38</li><li>• Starts Exhauster Blower #2</li><li>• Opens V-7-39 to maintain Gland Steam Vacuum between 15 and 17.5 inches vacuum</li><li>• May dispatch operator to check tripped exhauster</li></ul>
	BOP	Monitors and reports gland steam pressure

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 3

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**Event Description:** Level instrument reference leg leak develops, take manual control of RPV level, swap instrument signals, return to auto control

**Cause:** Reference leg leak causes RPV level to decrease

**Automatic Actions:** None

**Effects:** Operator action required to control RPV level manually

### Time

### Position

### Applicant's Actions Or Behavior

- |           |  |
|-----------|--|
| RO        | <p>Recognize condition by any one of the following plant parameters that are changing:</p> <ul style="list-style-type: none"> <li>• Gemac "A and C" level increasing</li> <li>• Yarway level, and "B" Gemac decreasing</li> <li>• Feed flow decrease</li> <li>• Megawatts thermal decrease</li> <li>• Drywell pressure increasing</li> <li>• Change in unidentified leakrate on 3F recorder</li> </ul>   |
| RO<br>BOP | <p>Recognize condition by reporting alarms;</p> <ul style="list-style-type: none"> <li>• H-7-e: RX LVL HI/LO</li> <li>• J-8-c: FCS/RFCS TROUBLE</li> <li>• C-3-f, DW PRESS HI/LO</li> </ul> <p>Determines Rx level decrease, check for mismatch on level control inputs<br/>Determines level transmitter malfunction/reference leg leak. Refers to ABN-17 and procedure 317, section 11.7</p>  |
| SRO       | <ul style="list-style-type: none"> <li>• Directs manual feedwater control to regain reactor level</li> <li>• Directs swap to "B" GEMAC instrument for automatic level control</li> <li>• Directs feedwater control returned to AUTO</li> <li>• Direct venting of drywell</li> <li>• May reduce power via recirc flow to reduce to &lt; 1930 Mwth</li> </ul>  |
| RO        | <p>Attempts to regain RPV level by performing the following operator actions:</p> <ul style="list-style-type: none"> <li>• Places master feedwater controller in Manual and increases feedwater flow by increasing demand signal.</li> </ul> <p>Swaps to alternate Level Select signal by performing the following:</p> <ul style="list-style-type: none"> <li>• Place LEVEL TRANSMITTER SELECT to the "B" Gemac</li> <li>• Select the "S" display on Master feed controller</li> <li>• Match "S" display readout to the "P" display readout</li> <li>• When "S" equals "P", places Master feed controller to AUTO</li> <li>• Maintains(returns) level in(to) normal band or as directed</li> </ul> <ul style="list-style-type: none"> <li>• Reduces recirc flow as directed, by lowering recirc pump speed on 4F</li> </ul> |
| BOP       | <p>IAW 312.11, Nitrogen System and Containment Atmosphere Control, step 4.3.4.1, vent drywell by opening V-23-21 &amp; 22 on 12XR or vent the torus by opening V-28-47 &amp; 18 on 11R to reduce pressure to between 1.1 and 1.3 psig. Consideration may be given to start SGTS and vent through it</p>  |

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 4

Page 4 of 8

**Event Description:** Loss of Power to VMCC 1A2, restore RPS (Tech Specs)

**Cause:** Breaker malfunction causes trip

**Automatic Actions:** RPS System 1 half scram

**Effects:** Operator action required to transfer RPS power supply and reset the half scram

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP	<p>Recognize condition by reporting alarms;</p> <ul style="list-style-type: none"> <li>• 9XF-3-a: PROT SYS PNL 1 PWR LOST</li> <li>• 9XF-1-c: VLDP-1 PWO TRANSFER</li> </ul> <p>Diagnoses the loss of power to VMCC 1A2 based on the VLDP-1 transfer and/or other indications/alarms</p>
	SRO	Directs execution of ABN-50, Loss of VMCC 1A2
	BOP	<p>Executes ABN-50</p> <ul style="list-style-type: none"> <li>• Restores RPS IAW section 3.2, TRANS OUTPUT green OFF light <b>NOT</b> lit <ul style="list-style-type: none"> <li>• Confirm VMCC-1B2 breaker, C4L is closed</li> <li>• Confirm disconnect switch SW-733-169 (Lower Cable Spreading Room) is OFF <b>and</b> the Kirk Key removed</li> <li>• Confirm the Kirk Key inserted <b>and</b> disconnect switch, SW-733-170, is ON.</li> <li>• Confirm closed EPA breaker #5</li> <li>• Confirm closed EPA breaker #6</li> <li>• With TRANS OUTPUT green OFF light, place the POWER SELECT switch in the TRANS position. Red ON light comes on.</li> <li>• When power is restored to PSP-1, then RESET; Half scram, Main steam isolation, APRM lights on Panel 3R, APRM flow converters in Panels 3R and 5R, and associated annunciators</li> </ul> </li> </ul> <p><b>Examiner: Cue applicant that FCTR card LED is "Green" and that Curve Select display on FCTR card is "0" and active LED is "Green" <u>Use paper handout</u></b></p> <ul style="list-style-type: none"> <li>• Confirms VLDP transfer</li> <li>• Declares V-14-33, 35 INOP</li> <li>• Declares C Battery INOP – Monitors volts, see TS below</li> <li>• Reviews Attachment 50-3 for loads</li> </ul> <p>Follow-up Actions</p> <ul style="list-style-type: none"> <li>• Monitors 1-8 sump (312.9, 351.1,2)</li> <li>• Initiates troubleshooting (Notifies WWM)</li> <li>• Monitors C Battery Room temperature (328.1)</li> <li>• Evaluate TS sections 3.7, Auxiliary Electrical Power and determines that the plant must be in cold shut down in 30 hours due to loss of power (VMCC 1A2 and/or C battery)</li> <li>• Evaluate TS section 3.3.D.4,5 for Reactor Coolant System Leakage and recognizes that UILR monitoring capability must be determined. If inoperable, then return it to operable status in 7 days.</li> </ul>

IAW 408.12, Operation of RPS panel 1-1 and Transformer PS-1;  
Whenever panels RPS 1-1 and RPS 1-2 are powered from the same MCC, they must be realigned to separate power supplies within 96 hours or be in Cold Shutdown within the following 30 hours.  
With one H2O2 OOS, restore to operable within 30 days, or be S/D in next 24 hrs

Examiner: If requested DCC-Y has reset and is running as required

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 5

Page 5 of 8

**Event Description:** 'C' Feedwater Pump Trips leads to Power Reduction to Control Level

**Cause:** Motor malfunction causes overload trip

**Automatic Actions:** Pump trip alarms

**Effects:** Reactor power, steam flow and feed flow decrease. Operator action reduces required feedwater flow

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP	Recognize condition by reporting alarms; <ul style="list-style-type: none"><li>• J-1-f: FEED PUMP TRIP C</li><li>• J-2-f: FEED PUMP OL C</li><li>• J-4-f, MIN FLOW VLV OPEN</li></ul> IAW RAPs; confirm automatic actions and indications including Feed pump amps, discharge pressure, flow, etc.
CT	SRO	Direct a rapid power reduction IAW ABN-17. Reduce recirculation flow to approximately 8.5E4 gpm. ,
	RO	IAW ABN-17: <ul style="list-style-type: none"><li>• Reduce recirculation flow by dialing down on the Master Recirc Controller to reach approximately 8.5E4 gpm.</li><li>• Monitor Reactor parameters; Rx level, Recirc flow, power to flow map and steam flow feed flow mismatch.</li></ul>
	SRO	Direct securing from power reduction after recirc flow is @ 8.5E4 gpm and level is rising
	BOP	Monitor Feedwater pumps and flow
	BOP	Direct Equipment Operator to investigate feed pump and its breaker

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 6

Page 6 of 8

**Event Description:** 'B' CRD Pump trips – Results in Plant Scram

**Cause:** Breaker malfunction causes CRD pump trip

**Automatic Actions:** Pump trip alarms with subsequent low Charging Water pressure alarms

**Effects:** Requires operator action to scram reactor on Accumulator Level/Pressure Rod Block illuminated

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO BOP	<p>Recognize condition by reporting alarms;</p> <ul style="list-style-type: none"> <li>• H-7-c: CHARG WTR PRESS LO</li> <li>• H-5-c: CRD TEMP HI</li> <li>• H-8-c: ACCUMULATOR PRESS LO/LEVEL HI</li> </ul> <p>IAW RAP H-7--c confirms:</p> <ul style="list-style-type: none"> <li>• Check CRD system flow</li> <li>• Check position of CRD pump minimum flow valve</li> <li>• Recognizes loss of only available CRD pump</li> </ul> <p>Diagnoses the loss of CRD charging pressure at panel 4F</p>
CT	SRO	<ul style="list-style-type: none"> <li>• <u>Per RAP H-7-c, directs manual scram within 1 minute after Accumulator Level/Pressure Rod Block illuminates (indication of 2<sup>nd</sup> accumulator trouble alarm)</u></li> <li>• May enter ABN-01 and direct recirculation flow reduced to <math>8.5 \times 10^4</math> gpm</li> </ul>
	RO	<ul style="list-style-type: none"> <li>• Scrams the reactor when Accumulator Level/Pressure Rod Block illuminates and enters ABN-1</li> <li>• Depresses both manual scram push buttons</li> <li>• Places mode switch in SHUTDOWN</li> <li>• verifies reactor shutdown, rods fully inserted to 00, 02 or 04</li> <li>• verifies power decrease</li> <li>• inserts SRMs and IRMs</li> </ul>
	SRO	<p>Directs follow-up actions on scram. May enter EOP 3200.01A, RPV Control – No ATWS due to reactor water level on scram.</p>
	BOP	<ul style="list-style-type: none"> <li>• IAW ABN-1/EOP(SP-2), trips one Feed pump and control reactor level 138 – 175" TAF on selected LFRV</li> <li>• Control reactor pressure with MPR at desired band</li> <li>• May be directed to start a cooldown with BPVs</li> <li>• May Refer to Procedure 2000-OPS-3024.08, Control Rod Drive Hydraulics.</li> </ul>



**Operator Actions****ES-D-2****Op Test No.: ILT2004****Scenario No.: NRC #1****Event No.: 7****Page 7 of 8****Event Description:** Reactor Water Clean-Up (RWCU) Leak into the Reactor Building**Cause:** RWCU pipe leak**Automatic Actions:** RWCU auto isolation**Effects:** Operator action required**Time****Position****Applicant's Actions Or Behavior**RO  
BOP

Recognize condition by observing indications or reporting alarms:

- D-1-d/ D-2-d: RWCU HELB
- L-6-c: RB BLD  $\Delta$ P LOW
- Increase in unidentified leak rate
- Increase in Rx Bldg parameters (temperature,  $\Delta$ P)
- 

IAW RAPs; confirm automatic actions and indications including RWCU system status, area temperatures, area radiation levels

SRO

Enter and execute EOP 3200.11, Secondary Containment Control

- Direct the RWCU system isolation be verified
- Direct Rx Bldg evacuation

RO  
BOP

- Recognize that RWCU is not fully isolated.
- Attempt to isolate the RWCU system and report the failure of the isolation valves. See Event 8 for details.

**Operator Actions**

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #1

Event No.: 8

Page 8 of 8

**Event Description:** Reactor Water Clean-Up Isolation Valve Failure**Cause:** Breaker malfunction prevents auto valve closure**Automatic Actions:** none**Effects:** Incomplete RWCU system isolation. Operator action required mitigate unisolable leak

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO BOP	Identify failure of RWCU system to fully isolate. Attempts to close V-16-1, 14 & 61. Able to close V-16-61. Unable to close V-16-1 & 14.
	SRO	<ul style="list-style-type: none"><li>• Determine that a primary system is discharging into the secondary containment.</li><li>• Before exceeding Max Safe temperature in one area, enter/reenter EOP 3200.01A, RPV Control – No ATWS.</li></ul>
	BOP	Record and/or report area temperature and radiation indications
CT	SRO	<b>Directs Emergency Depressurization IAW EOP 3200.04A, Emergency Depressurization – No ATWS</b> <ul style="list-style-type: none"><li>• Direct bypassing Reactor Overfill Protection System (ROPS)</li><li>• Direct manually opening all EMRVs</li></ul> <b><u>When area temperatures exceed the Max Safe temperature in 2 or more areas from Table 11, the crew will open 5 EMRVs within 5 minutes of a second area reaching max safe</u></b>
	RO	<b>Bypass ROPS</b>
	BOP	<b>Opens all EMRVs</b>
	RO	Control reactor level during the depressurization

**TERMINATION CRITERIA:** Once ED is performed and reactor is depressurizing, or at the discretion of the lead evaluator, the scenario may be terminated**POST SCENARIO EMERGENCY CLASSIFICATION:** No direct classification from this event. Perform JPM 345\_04N, High wind speed and Low intake level. Intake level <-2.5 feet is ALERT. EAL: O-2

<b>Title: Classify an Emergency or Abnormal Event</b>			
Task: Classify an Emergency or Abnormal Event.			2000502401
KA# 294001 GA1-16	RATING: RO - N/A		SRO - 4.7
Validation Time: 9 minutes	Alternate Path: NO	Time Critical	YES
	<b>Name</b>	<b>Social Security Number</b>	
<b>Operator</b>			
<b>Evaluator</b>			
<b><u>DIRECTIONS TO TRAINEE:</u></b>			
<p>Before you start, I will state the task conditions and initiating cues and fully answer any questions. To complete this task successfully, you must perform or simulate each critical element correctly and demonstrate proper procedural adherence.</p> <p><i>NOTE: Directions are only required once in a given JPM session.</i></p>			
<b>Performance</b>			
<b>Perform</b>	<b>X</b>	<b>Simulate</b>	
<b>Replica</b>	<b>X</b>	<b>In-Plant</b>	
<b>GRADE: Sat / Unsat</b>		<b>MODE: Evaluation / Training</b>	
<b>Comments</b>			
<b>Date:</b>			

REFERENCE SECTION:

**TASK CONDITIONS:**

At the completion of 2004 ILT NRC scenario #1, the following events occur subsequent to the end of the scenario:

- Recirc piping leak causes reactor water level to drop and remain at 70" TAF
- No operator actions have been taken
- Reactor pressure maintained by turbine bypass valves

GENERAL TOOLS AND EQUIPMENT:

GENERAL REFERENCES:

Procedure EPIP-OC-.01, Rev. 14

**TASK STANDARD:**

Within 15 minutes of start time declares an ALERT based on EAL H-1c or H-1a and properly completes the Notification Form.

ALERT based on: primary containment isolation required and isolation valves malfunction causing unisolated release path or Rx isolation required but MSIV stay open. EAL: H-1c or H-1a

CRITICAL ELEMENTS: (\*)

**2, 3, 5, 6**

## PERFORMANCE SECTION:

## TASK CONDITIONS:

At the completion of 2004 ILT NRC scenario #1, the following events occur subsequent to the end of the scenario:

- Recirc piping leak causes reactor water level to drop and remain at 70" TAF
- No operator actions have been taken
- Reactor pressure maintained by turbine bypass valves

## INITIATING CUES:

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.

START TIME \_\_\_\_\_

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
1. Obtain controlled copy of procedure	Obtains controlled copy of procedure EPIP-OC-.01	
*2. Determined Emergency Classification and associated EAL.	Declares "ALERT" - EAL H-1c or H-1a primary containment isolation required and isolation valves malfunction causing unisolated release path <u>or</u> reactor isolation required but MSIVs stay open Time Critical Portion of JPM complete Time Complete _____ (<15 minutes)	
*3 Completes <u>Emergency Classification</u> block.	Fill in the block with: An "ALERT" was declared at "current time" on "current date". The EAL is H-1c or H-1a	
4. Completes <u>Event Description</u> block	Fill in the block with: Description similar to; "pri cont isolation required and isolation valves malfunction <u>or</u> reactor isolation required but MSIVs remain open"	
*5. Completes <u>Radioactive Release Status</u> block.	Fill in the block with: Check the line that states that "There is <b>no</b> abnormal radiological release in progress"	

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
*6. Completes <u>Meteorological Condition</u> block	Fill in the block with: From the Weather screen record; Wind direction is from " " degrees and wind speed is " " miles per hour (use 380' elevation data)	
7. Completes <u>On-Site Protective Action</u> block	Fill in the block with: Checks the three lines for ALERT condition.	
8. Present to Shift Manager (SM)	Presents filled-in Notification form to evaluator for SM approval.	

COMPLETION TIME \_\_\_\_\_

**TASK CONDITIONS:**

At the completion of 2004 ILT NRC scenario #1, the following events occur subsequent to the end of the scenario:

- Recirc piping leak causes reactor water level to drop and remain at 70" TAF
- No operator actions have been taken
- Reactor pressure maintained by turbine bypass valves

**INITIATING CUES:**

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.

SPARE

Scenario Outline

ES-D-1

Simulation Facility Oyster Creek      Scenario No.      NRC #2      Op Test No.      ILT2004

Examiners \_\_\_\_\_ Operators \_\_\_\_\_ CRS  
 \_\_\_\_\_ PRO  
 \_\_\_\_\_ URO

**Scenario Summary**      The scenario begins with the reactor at 99% power with the 'A' CRD pump out of service. The crew will begin by placing a Recirc pump into service. A Drywell recirculation fans trips and an alternate fan will be started. The 'B' EMRV Acoustic Monitor Instrumentation will fail giving a false open indication for the EMRV. Investigation will show that the 'B' EMRV did not open and a Tech Spec evaluation for the instrumentation failure will be required. A control rod drifts out and it will be restored to its programmed position. The running Service Water pump trips requiring the standby pump to be started. The rod drift will cause a small fuel failure. Power will be reduced to lower radiation levels. A leak in the Torus will require the Reactor to be scrammed and eventually this will lead to Emergency Depressurization. Five rods will fail to insert on the scram.

**Initial Condition**      99% power

**Turnover:**      See Attached "Shift Turnover" Sheet

Event No.	Malfunction No.	Event Type*	Event Description
1		N SRO BOP	Start 5 <sup>th</sup> Recirc Pump
2	MAL-PCN004D	C SRO BOP	Drywell recirc fan trips
3	MAL NSS026B	I SRO BOP	'B' EMRV Acoustic Monitor Failure (Tech Spec)
4	MAL-CRD005_2239	C SRO RO	Control Rod Drifts Out
5	MAL-SWS001B	C SRO BOP	Running Service Water pump trips
6	MAL-RXS001, .00075, 120s	R SRO RO <del>BOP</del>	Small Fuel Failure leads to Power Reduction to Lower Radiation Levels
7	MAL-CSS001A, 8000, 900s MAL CSS001B, 4000, 300s	M SRO RO BOP	Torus Water Leak
8	MAL-CRD022_1039, _4211, _2635, _1423, _3443	C SRO RO	Five Rods Fail to Insert on the Scram (power > 2%)

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



## **SHIFT TURNOVER**

### **PLANT CONDITIONS:**

- Unit At 99% Power

### **INOPERABLE EQUIPMENT/LCOs:**

- 'A' CRD pump

### **SCHEDULED EVOLUTIONS:**

- Place 5<sup>th</sup> Recirc pump in service

### **SURVEILLANCES DUE THIS SHIFT:**

- None

### **ACTIVE CLEARANCES:**

- 'A' CRD pump

### **GENERAL INFORMATION:**

Place 5<sup>th</sup> Recirc pump in service, 301.2

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #2

Event No.: 1

Page 1 of 8

**Event Description:** Start 5<sup>th</sup> Recirc Pump

**Cause:** Equipment returned to service

**Automatic Actions:** none

**Effects:** none

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	SRO	Direct that 5 <sup>th</sup> Recirc pump be returned to service. IAW Procedure 301.2
	BOP	<p>IAW 301.2, section 5.0; (starting at step 5.3.7)</p> <ul style="list-style-type: none"> <li>At the pump's individual recirc flow controller: <ul style="list-style-type: none"> <li>place the MG set in the MANUAL mode</li> <li>verify the STRT/NORM pushbutton is selected to NORM</li> <li>withdraw the scoop tube to the full speed (100%) position by rotating the manual adjustment knob in the clockwise direction until the "V" bar display indicates 100% position verify locally (Recirc MG Set Room) the scoop tube position at 100% (hand operating level in the full up position).</li> </ul> </li> <li>verify that the associated 4160V bus voltage for the MG set to be started is greater than 4100 volts</li> <li>start the MG set by momentarily placing the pump DRIVE MOTOR control switch in the START position</li> <li>confirm proper MG-Set fluid coupler temperature as follows; WARM light lit</li> <li>start the recirculation pump sequence by pressing the STRT/NORM pushbutton on the controller AND, as directed by the US, place and hold the DRIVE MOTOR Control switch in START</li> <li>verify that the field breaker closes and the pump start sequence is activated as the scoop tube passes through the 40% to 30% range release the DRIVE MOTOR Control switch after generator amps have stabilized</li> <li>When the scoop tube reaches the low speed position (<u>no</u> further movement observed as indicated on the "V" display), depress the STRT/NORM push button on the speed control unit to reactivate the manual adjustment knob</li> <li>adjust the speed of the pump which is being placed into service to match the differential pressure of the operating pumps in order to prevent reverse flow</li> <li>OPEN the pump discharge valve</li> <li>When the speed for the pump being placed into service is equal to the speed of the other operating pumps or is at the desired speed, <u>THEN</u> place the individual MG-Set Speed Controller in automatic operation as follows : increase the speed of the pump which is being placed into service to be <u>slightly</u> greater than the pump which is already in service, place the individual MG-Set Speed Controller in AUTOMATIC</li> <li>confirm all relay flags are reset on local panels using the Equipment Operator</li> </ul>

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #2**Event No.:** 2**Page** 2 of 8**Event Description:** Drywell recirc fan trips**Cause:** Motor malfunction**Automatic Actions:** None**Effects:** Operator action required to start alternate fan**Time****Position****Applicant's Actions Or Behavior**

	BOP	Recognize condition by reporting alarms; <ul style="list-style-type: none"><li>• L-4-a: RF 4 TRIP</li></ul> IAW RAP L-4-a confirms: <ul style="list-style-type: none"><li>• trip of RF-1-4</li><li>• availability of RF-1-3.</li></ul>
	SRO	Directs start of Recirc Fan 1-3
	BOP	Places drywell Recirc Fan 1-3 in service per RAP L-4-a
	RO	Monitors and reports drywell parameters including pressure and temperature
	SRO BOP	May refer to procedure 2000-OPS-3024.09 – Drywell Cooling System – Diagnostic and Restoration Actions to determine cause of equipment problem

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #2**Event No.:** 3**Page** 3 of 8**Event Description:** 'B' EMRV Acoustic Monitor Failure (Tech Spec)**Cause:** Electronics malfunction causes 'B' EMRV to appear to open**Automatic Actions:** none**Effects:** EMRV alarms. Operator action required to confirm EMRV not open

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP RO	Recognize condition by observing indications or reporting alarms; <ul style="list-style-type: none"><li>• B-4-g: SV/EMRV NOT CLOSED</li><li>• No change in operating parameters</li><li>• Report that the EMRV is not open even though the alarm has indicated that it is.</li></ul> <p>IAW SDRP or RAPs; confirm automatic action and indications including EMRV status, Acoustic monitor status, ADS actuation, confirm plant parameters.</p>
	SRO	<ul style="list-style-type: none"><li>• Contact Work management</li><li>• Evaluate compliance with TS 3.13A<ul style="list-style-type: none"><li>• Recognize the backup detector is available and no LCO actions are required.</li></ul></li><li>• Direct investigation into possible cause IAW RAPs</li><li>• May silence monitor IAW procedure 413<ul style="list-style-type: none"><li>• Place the HI-ALARM switch down to DEFEAT at 15R</li><li>• Place the LO-BIAS switch down to DEFEAT at 15R</li><li>• Press the Master alarm reset pushbutton at 15R</li></ul></li></ul>

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #2**Event No.:** 4**Page** 4 of 8**Event Description:** Control Rod 22-39 Drifts Out**Cause:** Relay malfunction causes rod motion**Automatic Actions:** Rod Drift annunciator alarms**Effects:** Requires operator action to reduce reactor power

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO	Recognize condition by observing indications or reporting alarms; <ul style="list-style-type: none"><li>• H-6-a: ROD DRIFT</li><li>• Confirm only one rod drifting out</li></ul> IAW RAPs; confirm automatic actions and indications including control rod identification and direction of movement
	SRO	Direct implementation of ABN-6, Abnormal Control Rod Motion <ul style="list-style-type: none"><li>• Direct the rod to be selected and returned to its programmed position</li><li>• Monitor for indications of fuel failure</li><li>• Notify the Reactor Engineers of abnormal Control Rod Motion</li></ul>
	RO	Select rod and drive to its programmed position.
	BOP	IAW ABN-6; <ul style="list-style-type: none"><li>• Notifies Reactor Engineering</li><li>• Request Reactor coolant sample from Chemistry</li><li>• Monitors Off-Gas and Main steam line radiation</li><li>• Reports observed indications to SRO</li></ul>

## Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #2

Event No.: 5

Page 5 of 8

**Event Description:** Running Service Water pump trips

**Cause:** Motor problem causes pump trip

**Automatic Actions:** none

**Effects:** Operator action required to start standby pump

### Time

### Position

### Applicant's Actions Or Behavior

BOP

Recognize condition by reporting alarms;

- K-1-f: SVC WATER PUMP TRIP

IAW RAP K-1-f confirms:

- the running Service Water pump has tripped
- availability of standby Service Water pump

SRO

- Direct start of standby Service Water pump
- Direct reference to ABN-18, Service Water Failure

Notify Work Management to troubleshoot and repair the pump

BOP

- Starts standby Service Water pump.
- Monitor RBCCW and Service Water parameters
- Refers to ABN-18, Service Water Failure

**Operator Actions****ES-D-2****Op Test No.:** ILT2004**Scenario No.:** NRC #2**Event No.:** 6**Page** 6 of 8**Event Description:** Small Fuel Failure leads to Power Reduction to Lower Radiation Levels**Cause:** Caused by abnormal control rod motion**Automatic Actions:** none**Effects:** Main steam and Off-Gas radiation levels increase. Operator action required to lower power to mitigate failed fuel affects. Reactor power, steam flow and feed flow decrease.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP	Recognize condition by reporting alarms; <ul style="list-style-type: none"><li>• 10F-1-k: AREA MON HI</li><li>• 10F-1-c: OFF GAS HI-HI</li><li>• 10F-2-c: OFF GAS HI</li><li>• 10F-1-d: STACK EFFLUENT HI-HI</li><li>• 10F-2-d: STACK EFFLUENT HI</li></ul> IAW RAP 10F-1-k confirms: <ul style="list-style-type: none"><li>• Verify radiation levels on panel 2R</li><li>• Check Main Steam and Off Gas radiation monitors</li></ul> IAW RAPs; confirm radiation levels and trends indicating failed fuel.
	SRO	Direct implementation of ABN-26, Increase in Main Steam Line/Off Gas activity
	BOP	<ul style="list-style-type: none"><li>• Monitors Off-Gas and Main steam line radiation</li><li>• Request Off-Gas sample from Chemistry</li><li>• Request guidance from Reactor Engineering</li></ul>
	NOTE	Reactor Engineering may prompt a power reduction in response to the crew's request for assistance.
	SRO	Direct reduction of radiation levels by lowering Reactor power, using recirculation flow IAW procedure 202.1, Power Operations Reduce Rx power to <1000 mr/hr, off-gas radiation
	RO	IAW procedure 202.1; <ul style="list-style-type: none"><li>• Reduce reactor power with recirculation flow as required</li></ul>
	BOP	Monitors Off-Gas and Main steam line radiation

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Scenario No.: NRC #2

Event No.: 7

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**Event Description:** Torus Water Leak**Cause:** Torus piping failure**Automatic Actions:** none**Effects:** Torus level decrease. Increasing Secondary Containment Water Levels. Operator action is required to mitigate the Torus level decrease.

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	BOP	<p>Recognize condition by observing indications or reporting alarms;</p> <ul style="list-style-type: none"> <li>• Torus Water level decrease</li> <li>• C-5-e: TORUS LEVEL HI/LO</li> </ul> <p>IAW SDRP or RAPs; confirm automatic action and indications including Torus water level at panel 11F and 16R, confirm Torus intact, direct inspection of Reactor building corner rooms.</p>
	SRO BOP RO	<ul style="list-style-type: none"> <li>• Announce Entry into EOP 3200.02, Primary Containment Control due to low Torus level</li> <li>• Announce Entry into EOP 3200.11, Secondary Containment Control due to water levels in the Secondary Containment</li> </ul>
CT	SRO	<p><b>Direct actions IAW EOP 3200.02, Primary Containment Control:</b></p> <ul style="list-style-type: none"> <li>• <b>Direct adding water to the Torus using Fire Water per Support Procedure 37</b></li> <li>• <b>When water level can not be maintained above 110 inches, then Enter EOP 3200.01A, RPV Control – No ATWS at 'A' and perform it concurrently</b></li> <li>• <b>Recognize that not all rods fully inserted on the scram</b></li> </ul>
	BOP	<p><b>Attempt to restore Torus level using the Core Spray System per Support Procedure 37 when directed.</b></p> <p><b>Confirm CS System #1(#2) Main &amp; Booster pumps are stopped (switches in PTL)</b></p> <p><b>Close CS system #1 (#2) suction valves V-20-3 &amp; 32 (V-20-4 &amp; 33)</b></p> <p><b>Confirm closed system #1(#2) parallel valves V-20-15 &amp; 40 (V-20-21 &amp; 41)</b></p> <p><b>Direct plant operator to place breakers for V-20-3 &amp; 32 (V-20-4 &amp; 33) to OFF</b></p> <p><b>Direct plant operator to OPEN CST supply valves V-20-1, 5 &amp; 34 (1, 2 &amp; 35)</b></p> <p><b>Direct plant operator to place breaker for V-20-27 to ON</b></p> <p><b>Direct plant operator to OPEN V-20-27</b></p> <p><b>Start CS system #1 (#2) main pump</b></p>
	RO	<p><b>IAW ABN-1:</b></p> <ul style="list-style-type: none"> <li>• <b>Depress both manual scram pushbuttons on 4F before 110 inches Torus Level</b></li> <li>• <b>Place Reactor mode switch to SHUTDOWN</b></li> <li>• <b>Report that not all control have inserted on the scram</b></li> </ul>



# Operator Actions

ES-D-2

Op Test No.: ILT2004

Scenario No.: NRC #2

Event No.: 8

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**Event Description:** Five Rods Fail to Insert on the Scram

**Cause:** CRD malfunction causes some rods not to insert

**Automatic Actions:** none

**Effects:** Operator action required to insert control rods

<u>Time</u>	<u>Position</u>	<u>Applicant's Actions Or Behavior</u>
	RO	<ul style="list-style-type: none"> <li>Report that not all rods fully inserted on the scram.</li> </ul>
	SRO	<p>Enter and Execute EOP for RPV Control – With ATWS</p> <p><u>Power Control</u></p> <ul style="list-style-type: none"> <li>Direct initiation of Alternate Rod Injection</li> <li>Direct Bypass of Reactor Overfill Protection System (ROPS)</li> <li>Direct Reducing Recirc to minimum and tripping all of the Recirc Pumps</li> <li>Direct the insertion of Control Rods by alternate methods [vent air header]</li> <li>Direct an EO to vent the scram air header</li> </ul> <p><u>Reactor pressure control</u> (should be controlled by MHC at this point)</p> <p><u>Level/Power control</u></p> <ul style="list-style-type: none"> <li>Direct bypassing the following Initiations and Isolations <ul style="list-style-type: none"> <li>ADS</li> <li>MSIV Low-Low Water Level Isolation IAW Support Procedure 16</li> <li>RBCCW Drywell Isolation IAW Support Procedure 18</li> </ul> </li> <li>Terminate and Prevent Injection IAW Support Procedure 17 to lower level to below 30 Inches</li> <li>When Torus Temperature exceeds the BIIT Curve, then lower level to a band of 0 inches to –30 inches.</li> </ul> <p>[May anticipate ED by opening turbine BPVs at 7F]</p>
CT	SRO	<p><b>Before water level reaches 110 inches, direct an Emergency Depressurization.</b></p>
	RO	<p>Perform the following actions for EOP for RPV Control – With ATWS when directed:</p> <p><u>Power Control</u></p> <ul style="list-style-type: none"> <li>Initiation of Alternate Rod Injection</li> <li>Bypass ROPS</li> <li>Manually drive control rods, Close V-15-52</li> </ul> <p><u>Level/Power control</u></p> <ul style="list-style-type: none"> <li>Bypass the following Initiations and Isolations <ul style="list-style-type: none"> <li>ADS with keylock switches on 1F/2F</li> <li>MSIV Low-Low Water Level Isolation with plugs between panels (SP-16)</li> <li>RBCCW Drywell Isolation with plugs between panels (SP-18)</li> </ul> </li> <li>Use Support Procedure – 17 to control level as directed</li> </ul>
	RO	Initiate ARI when directed
	BOP	<ul style="list-style-type: none"> <li>Terminate and Prevent Injection when directed</li> </ul>

- **Open all EMRVs when directed**

- |           |   |
|-----------|---|
| RO        | Insert control rods using SP-21: <ul style="list-style-type: none"> <li>• Confirm all available CRD pumps are running</li> <li>• Direct Equipment Operator to Close Charging Water Supply Valve V-15-52</li> <li>• Place Mode switch in REFUEL at 4F</li> <li>• Bypass the RWM at 4F</li> <li>• Close CRD Drive Water Pressure Control NC-18 at 4F</li> <li>• Select and drive unscrammed control rods to 00</li> </ul> |
|           | <ul style="list-style-type: none"> <li>• Reset and re-insert manual scram</li> </ul>  |
| RO<br>BOP | IAW EOPs & ABN 01; <ul style="list-style-type: none"> <li>• Control Reactor level</li> <li>• Control Reactor pressure</li> <li>• Perform remaining scram actions</li> </ul>   |

**TERMINATION CRITERIA:** When the Emergency Depressurization is in progress, or at the discretion of the lead evaluator, the scenario may be terminated

**POST SCENARIO EMERGENCY CLASSIFICATION:** ALERT: Scram signal received and Rx power remains >2% EAL: C-1 or Torus water level at or below 110" and cannot be restored in 4 hours. EAL: G-1

Title: **Classify an Emergency or Abnormal Event**

Task: Classify an Emergency or Abnormal Event.

2000502401

KA# 294001 GA1-16

RATING:

RO - N/A

SRO - 4.7

Validation Time: 9 minutes

Alternate Path: **NO**

Time Critical

**YES**

	Name	Social Security Number
Operator		
Evaluator		

**DIRECTIONS TO TRAINEE:**

Before you start, I will state the task conditions and initiating cues and fully answer any questions. To complete this task successfully, you must perform or simulate each critical element correctly and demonstrate proper procedural adherence.

*NOTE: Directions are only required once in a given JPM session.*

Performance			
Perform	X	Simulate	
Replica	X	In-Plant	
GRADE: Sat / Unsat		MODE: Evaluation / Training	
Comments			
Date:			

**REFERENCE SECTION:**

**TASK CONDITIONS:**

- At the completion of 2004 ILT NRC scenario #2; determine E-Plan classification and complete notification form.

**GENERAL TOOLS AND EQUIPMENT:**

**GENERAL REFERENCES:**

Procedure EPIP-OC-.01, Rev. 14

**TASK STANDARD:**

Within 15 minutes of start time declares an ALERT based on EAL C-1 or G-1 and properly completes the Notification Form.

ALERT: Scram signal received and Rx power remains >2% EAL: C-1 or Torus water level at or below 110" and cannot be restored in 4 hours. EAL: G-1

**CRITICAL ELEMENTS: (\*)**

**2, 3, 5, 6**

## PERFORMANCE SECTION:

## TASK CONDITIONS:

- At the completion of 2004 ILT NRC scenario #2; determine E-Plan classification and complete notification form.

## INITIATING CUES:

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.

START TIME \_\_\_\_\_

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
1. Obtain controlled copy of procedure	Obtains controlled copy of procedure EPIP-OC-.01	
*2. Determined Emergency Classification and associated EAL.	Declares "ALERT" - EAL C-1 or G-1 C-1: Scram signal received and Rx power remains >2%. G-1: Torus water level at or below 110" and cannot be restored in 4 hours. Time Critical Portion of JPM complete Time Complete _____ (<15 minutes)	
*3 Completes <u>Emergency Classification</u> block.	Fill in the block with: An "ALERT" was declared at "current time" on "current date". The EAL is C-1 or G-1	
4. Completes <u>Event Description</u> block	Fill in the block with: Description similar to; "Scram signal received and Rx power remains >2%" or "Torus water level at or below 110" and cannot be restored in 4 hours"	
*5. Completes <u>Radioactive Release Status</u> block.	Fill in the block with: Check the line that states that "There is <b>no</b> abnormal radiological release in progress"	
*6. Completes <u>Meteorological Condition</u> block	Fill in the block with: From the Weather screen record; Wind direction is from " " degrees and wind speed is " " miles per hour (use 380' elevation data)	

<u>PERFORMANCE CHECKLIST</u>	<u>STANDARD</u>	<u>INITIAL</u> SAT/UNSAT
7. Completes <u>On-Site Protective Action</u> block	Fill in the block with:  Checks the three lines for ALERT condition.	
8. Present to Shift Manager (SM)	Presents filled-in Notification form to evaluator for SM approval.	

COMPLETION TIME \_\_\_\_\_

**TASK CONDITIONS:**

- At the completion of 2004 ILT NRC scenario #2; determine E-Plan classification and complete notification form.

**INITIATING CUES:**

State the minimum classification for these conditions and complete the Emergency Report Form for Shift Manager approval.