

Facility: **Oconee**Scenario No.: **1**Op-Test No.: **1**

Examiners: _____

Operators: _____ **SRO**

_____ **OATC**

_____ **BOP**

Initial Conditions:

- Reactor power = 100%

Turnover:

- 1A RPS channel in Manual Bypass
- AMSAC/DSS bypassed for I&E

Event No.	Malfunction No.	Event Type*	Event Description
0a	MPI 300		Block all Rx Trips except Manual
0b	Override		Block Rx Manual Trip Pushbutton
0c	Override		AMSAC/DSS bypassed
1	Override	C: BOP, SRO (TS)	NI-8 fails low
2	MPS061	C, BOP, SRO	1A Letdown Cooler Leak
3	Override	C: OATC, BOP, SRO(TS)	Inadvertent ES Channel 2 actuation
4	MCS008	I: OATC, SRO	Selected Tcold Fails HIGH
5	MSS190 Override	C: OATC, SRO	Main Turbine trips resulting in an ATWS (Rule 1)
6	MPS010	M: All	1A Steam Generator Tube Rupture <ul style="list-style-type: none">• 1RC-1 fails closed
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **1** Page 1 of 2
Event Description: **NI-8 fails low**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant Response</p> <ul style="list-style-type: none"> • Statalarm 1SA-5/D5 (1D RPS Trouble) actuates. • 1NI-8 Dixon indicates "0" • Several OAC alarms related to NI-8 and 1D RPS channel alarm • Approximately 1 minute later 1SA-4/C1 ((Quadrant Power Tilt) actuates <p>Crew Response:</p> <p><u>1SA-05/D5</u></p> <p>3.1 IF Reactor trips, Go To EP/1/A/1800/001 (Emergency Operating Procedure). (N/A)</p> <p>Examiner Note: The applicable OAC alarms also refer the crew to OP/1/A/1105/014.</p> <p>3.2 Refer to OP/1/A/1105/014 (Control Room Instrumentation Operation and Information).</p> <p>3.3 Initiate Work Request for I&E to investigate cause.</p> <p>EXAMINER NOTE: The crew should diagnose the failure of 1NI-8 and the SRO will refer to Tech Specs. With the 1A RPS channel already in Manual Bypass, the 1D RPS channel is a "Required Channel" and the failure of NI-8 will require entry into TS 3.3.1 Condition A for the flux/flow - imbalance and the Nuclear Overpower functions. This requires placing the 1D RPS channel in trip within 4 hours.</p> <p>EXAMINER/BOOTH NOTE: Once the SRO makes the proper Tech Spec determination he should direct the BOP to palce the 1D RPS channel in Trip IAW 1105/014. It is acceptable per TS to delay this action for up to 4 hours. If the SRO is delaying the action, the booth will call the control room as the OSM and direct the SRO to place the 1D RPS channel in Trip. This will require the examiner providing the crew with the RPS Cabinet Key as well as the Manual Trip Key.</p> <p>EXAMINER NOTE: When the QPT Statalarm comes in, the crew should use the ARG to refer the SRO to TS 3.2.3. The SRO should determine that entry is not required because it is not a valid flux tilt , but caused by an instrument failure.</p>

This event is complete when the 1D RPS channel has been placed in Trip or as directed by the lead examiner

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **1** Page 2 of 2
Event Description: **NI-8 fails low**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p><u>OP/1/A/1105/014 Enclosure 4.7, Removal & Restoration of RPS Channels</u></p> <p>3.1 N/A because affected channel is required by TS</p> <p>3.2 IF affected RPS channel is required per TS 3.3.1, perform the following:</p> <p>3.2.1 Verify one of the following for the remaining unaffected RPS channels:</p> <p>A. Verify no RPS channels tripped AND no RPS functions are tripped.</p> <p>B. Perform the following:</p> <ul style="list-style-type: none"> IF any RPS channel is tripped, verify RPS channel is bypassed IF any RPS function is tripped, verify RPS functions are bypassed OR verify RPS channel is bypassed <p>3.2.2 Declare affected RPS Channel inoperable.</p> <p>NOTE: For determining appropriate TS condition a tripped channel is considered inoperable.</p> <p>3.2.3 Refer to TS 3.3.1 and enter appropriate TS Condition.</p> <p>Examiner Cue: The below step requires an SRO verification. Inform the candidate that an SRO is assumed to accompany him/her and will sign the SRO verification step.</p> <p>3.2.4 Trip affected RPS channel using MANUAL TRIP Key as follows:</p> <p>A. Obtain Key #312.</p> <p>Examiner note: The BOP will place the RPS Manual Trip Key (#312) in the Trip key slot and turn it clockwise 90 degrees. This will result in the following alarms: 1SA-5/E3 Turb/Rx Trip Alert 1SA-1/D1 through D9 (the 1D RPS channel trip and all of the individual function trip alarms for 1D RPS channel on 1SA-1)</p> <p>B. Place MANUAL TRIP Keyswitch in "TRIP". (Cab. 2, 4, 6, or 8)</p> <p>3.3 IF RPS Channel removed from service due to equipment failure, perform the following:</p> <ul style="list-style-type: none"> Initiate Work Request. IF required per OMP 1-14 (Notifications), perform appropriate notifications. <p>Examiner Note: 1NI-8 will not be returned to service during this scenario.</p>

This event is complete when the 1D RPS channel has been placed in Trip or as directed by the lead examiner

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 2

Page 1 of 5

Event Description: **1A Letdown Cooler Leak**

Time	Position	Applicant's Actions or Behavior																						
	SRO/ BOP	<p>Plant Response:</p> <p>Statalarms:</p> <ul style="list-style-type: none">• 1SA-08/B-9 (PROCESS MONITOR RADIATION HIGH)• 1RIA-50 High <p>Crew Response:</p> <p><u>1SA-08/B-9</u></p> <p>3.1 Determine radiation monitors in alarm.</p> <p>3.1.1 IF VIEW node OR either SCADA node is NOT in service, refer to OP/1/A/1103/026, (Loss of Sorrento Radiation Monitor).</p> <p>NOTE TO EXAMINER: Steps 3.2 through 3.10 are IF statements for which RIA is in alarm. In this case, the crew determines the radiation monitor alarming is 1RIA-50, so step 3.9 applies.</p> <p>3.9 IF any of the following RIAs have valid alarms, GO TO AP/18 (Abnormal Release of Radioactivity).</p> <table border="1"><thead><tr><th>✓</th><th>RIA</th></tr></thead><tbody><tr><td></td><td>RIA-31</td></tr><tr><td></td><td>1RIA-32</td></tr><tr><td></td><td>1RIA-35</td></tr><tr><td></td><td>1RIA-39</td></tr><tr><td></td><td>1RIA-41</td></tr><tr><td></td><td>1RIA-42</td></tr><tr><td></td><td>1RIA-45, 46</td></tr><tr><td></td><td>1RIA-47, 48, 49, 49A</td></tr><tr><td></td><td>1RIA-50</td></tr><tr><td></td><td>1RIA-54</td></tr></tbody></table> <p><u>AP/18</u> (Can be performed by Unit 2 if AP/2 has been entered)</p> <p>4.1 Perform the following:</p> <p>At the discretion of the CR SRO, make a PA announcement of the event including any necessary precautions to be observed.</p> <p>Notify OSM to reference the following:</p> <ul style="list-style-type: none">▪ <input type="checkbox"/> RP/0/B/1000/001 (Emergency Classification).▪ <input type="checkbox"/> NSD-202 (Reportability)▪ <input type="checkbox"/> OMP 1-14 (Notifications)	✓	RIA		RIA-31		1RIA-32		1RIA-35		1RIA-39		1RIA-41		1RIA-42		1RIA-45, 46		1RIA-47, 48, 49, 49A		1RIA-50		1RIA-54
✓	RIA																							
	RIA-31																							
	1RIA-32																							
	1RIA-35																							
	1RIA-39																							
	1RIA-41																							
	1RIA-42																							
	1RIA-45, 46																							
	1RIA-47, 48, 49, 49A																							
	1RIA-50																							
	1RIA-54																							
This event is complete when 1A Letdown cooler has been isolated and the crew is monitoring RCS leakage OR as directed by the lead examiner.																								

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **2** Page 2 of 5
Event Description: **1A Letdown Cooler Leak**

Time	Position	Applicant's Actions or Behavior			
	SRO /BOP	AP/18 (cont) 4.2 GO TO appropriate sections for any monitors in High or Alert alarm: NOTE TO EXAMINER: Crew should go to Section 4I for 1RIA-50. <table border="1"><tr><td></td><td>4I</td><td>1RIA-50</td></tr></table> Section 4I 1 Verify either of the following: <ul style="list-style-type: none">• CC SURGE TANK increasing ≥ 5• CC SURGE TANK off-scale high 2. Initiate AP/2 (Excessive RCS Leakage).		4I	1RIA-50
	4I	1RIA-50			
	SRO/OATC/ BOP	AP/2 Immediate Actions 3.1 Verify HPI operating. 3.2 IAAT RC makeup flow is > 100 gpm, AND Pzr level is decreasing, THEN close 1HP-5. 3.3 IAAT all the following exist: <ul style="list-style-type: none">• HPI flow is > NORMAL MAKEUP CAPABILITY (≈ 160 gpm) with letdown isolated• Pzr level decreasing• SG Tube Leakage NOT indicated• LPI DHR NOT providing core cooling THEN perform the following: <ul style="list-style-type: none">A. Ensure Rx is tripped.B. Initiate Unit 1 EOP. Subsequent Actions 4.1 Initiate Pzr and LDST level makeup using Unit 1 EOP Encl 5.5 (Pzr and LDST Level Control), as necessary. 4.2 Announce AP entry using the PA system. 4.3 IAAT LPI DHR in service, AND RCS leakage > LDST makeup capability (≈ 50 gpm), THEN GO TO AP/26 (Loss of Decay Heat Removal)			
This event is complete when 1A Letdown cooler has been isolated and the crew is monitoring RCS leakage OR as directed by the lead examiner.					

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **2** Page 3 of 5
Event Description: **1A Letdown Cooler Leak**

Time	Position	Applicant's Actions or Behavior				
	SRO/OATC/ BOP	<p>Crew Response</p> <p><u>AP/2 (Cont)</u></p> <p>4.4 Initiate the following notifications:</p> <p>___ OSM to reference the following:</p> <ul style="list-style-type: none">• RP/0/B/1000/001 (Emergency Classification)• OMP 1-14 (Notifications)• Encl 5.9 (Oversight Guidelines) <p>___ STA</p> <p>___ RP</p> <p>4.5 Monitor the following trends to determine leak area (AB or RB) and trend for degradation:</p> <ul style="list-style-type: none">• "T6 AP02"• "T6 WASTE"• RIAs <p>4.6 Verify specific leak location is identified. (If not see RNO below)</p> <p>RNO: Notify WCC SRO to initiate Encl 5.2 (Primary Leak Check) and of the leak area (AB or RB), if known</p> <p>4.7 Initiate Encl 5.1 (Leak Rate Determination). (This will calculate RCS leakage based on CC surge tank level increase and is a very gross calculation since there is no OAC point for CC surge tank level and therefore control room gage must be used. Leak rate is 2-3 gpm)</p> <p>4.8 WHEN leak area/failure is identified, THEN GO TO applicable step that best fits leak area/failure:</p> <table border="1"><tr><td></td><td>CC System</td><td>↑ 1RIA-50 ↑ CC Surge Tank Level</td><td>4.16</td></tr></table> <p>4.16 Verify all of the following:</p> <ul style="list-style-type: none">• CC Surge Tank level increasing at ≥ 0.65 gpm) or level is off-scale high• 1RIA-50 in alarm or increasing <p>This event is complete when 1A Letdown cooler has been isolated and the crew is monitoring RCS leakage OR as directed by the lead examiner.</p>		CC System	↑ 1RIA-50 ↑ CC Surge Tank Level	4.16
	CC System	↑ 1RIA-50 ↑ CC Surge Tank Level	4.16			

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **2** Page 4 of 5
Event Description: **1A Letdown Cooler Leak**

Time	Position	Applicant's Actions or Behavior
	SRO /BOP	<p>Crew Response AP/2 (cont)</p> <p style="text-align: center;">NOTE:</p> <ul style="list-style-type: none"> • CC Surge Tank is hard piped to overflow to LAWT. • Chemicals from the CC system will rapidly exhaust demineralizers used to process LAWT water. Radwaste has limited storage capability and a Rx shutdown may be required if the leak CANNOT be isolated. <p>4.17 IAAT CC Surge Tank level is off-scale high, THEN notify Radwaste that the CC Surge Tank has overflowed to the LAWT.</p> <p>4.18 IAAT RCS leakage is flashing the CC system, OR threatens to overflow the LAWT, THEN perform the following: N/A at this time</p> <p style="text-align: center;">NOTE</p> <p>RCS to CC leakage may be indicated by one RCP cooler outlet temperature increasing more than the others (use historical temperature trend) near the time of increase on 1RIA-50.</p> <p>4.19 Verify leakage indicated by change in RCP cooler outlet temperatures (Turn-on code "GD AP02"): (No leakage indicated)</p> <p>RNO GO TO Step 4.24</p> <p style="text-align: center;">NOTE</p> <p>RCS leakage to CC in the letdown coolers may be indicated by a cooler outlet temperature increasing more than the other cooler. Due to CC system setup, letdown cooler CC outlet temperatures may be different. A historical OAC temperature trend may be required to determine if leakage exists and if actions taken are successful in leak isolation. If leaking cooler CANNOT be identified, the coolers will be isolated one at a time starting with the 1A Letdown Cooler.</p> <p>4.24 Monitor letdown cooler outlet temperatures to determine which cooler is leaking (Turn-on code "GD AP02"):</p> <ul style="list-style-type: none"> • O1A0065 (LETDOWN COOLER 1A CC OUTLET TEMP) • O1A0066 (LETDOWN COOLER 1B CC OUTLET TEMP) <p>4.25 GO TO the appropriate step to isolate affected cooler:</p>
<p>This event is complete when 1A Letdown cooler has been isolated and the crew is monitoring RCS leakage OR as directed by the lead examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **2**

Page 5 of 5

Event Description: **1A Letdown Cooler Leak**

Time	Position	Applicant's Actions or Behavior												
	SRO /BOP	<p>AP/2 (cont)</p> <p>EXAMINER NOTE: According to the Note above and the table below, the crew ends up in the same place whether they have diagnosed which cooler is leaking or not. Either path is acceptable and ends up with the 1A cooler isolated.</p> <table border="1"><thead><tr><th>✓</th><th>Letdown Cooler to be isolated</th><th>GO TO STEP</th></tr></thead><tbody><tr><td></td><td>1A</td><td>4.26</td></tr><tr><td></td><td>1B</td><td>4.33</td></tr><tr><td></td><td>Unknown</td><td>4.26</td></tr></tbody></table> <p>4.26 Verify 1B Letdown Cooler is isolated.</p> <p>RNO: 1 Isolate the 1A Letdown Cooler by performing the following:</p> <ol style="list-style-type: none">Close 1CC-1/1HP-1.Close 1HP-3. <p>2. GO TO Step 4.31.</p> <p>4.31 Verify the leak isolation was successful:</p> <ul style="list-style-type: none">CC Surge Tank level stable if 1CC-7 and 1CC-8 openDecrease in RCS leakage	✓	Letdown Cooler to be isolated	GO TO STEP		1A	4.26		1B	4.33		Unknown	4.26
✓	Letdown Cooler to be isolated	GO TO STEP												
	1A	4.26												
	1B	4.33												
	Unknown	4.26												

This event is complete when 1A Letdown cooler has been isolated and the crew is monitoring RCS leakage OR as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **3**

Page 1 of 8

Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>Plant response:</p> <p>1SA-1/B-10 ES 2 Trip 1SA-16/B-2 EL CT-4 SB Bus 2 Breaker Closed 2SA-17/A-5 KEOWEE STATALARM PANEL ALARM 2SA-17/C-1 KHU 1 EMERGENCY START INITIATED 2SA-18/C-1 KHU 2 EMERGENCY START INITIATED 1SA-6/A-5, B-5, C-5, D-5, RC Pump Seal Cavity Press Hi/Low (≈ 1 min later) 1SA-6/D-7, E-5, E-6, E-7 RC Pump Seal Return Temp High Both Keowee Hydro Units Emergency Start</p> <p>Examiner Note: Over time, rods will withdraw in response to BWST water injecting into the core. When control rods reach withdrawal limit (1SA-7/E-9), Reactor power will begin to slowly decrease. This affect will vary depending on crew response, primarily how quickly 1HP-25 is closed. The SRO may enter TS 3.4.9 if PZR level increases to > 260". The BOP may use Enclosure 5.5 for inventory control (page 24).</p> <p>Crew Response:</p> <p>The SRO will initiate AP/1/A/1700/042 Inadvertent ES Actuation</p> <p>4.1 Verify <u>any</u> of the following have <u>inadvertently actuated</u>:</p> <p>___ Diverse HPI (not actuated) ___ ES Channel 1 (not actuated) ___ ES Channel 2</p> <p>4.2 Perform the following on <u>all</u> <u>inadvertently actuated</u> system(s):</p> <p>___ Ensure DIVERSE HPI BYPASS is in BYPASS (does not apply) ___ Ensure ES CH-1 is in MANUAL (does not apply) ___ Ensure ES CH-2 is in MANUAL</p> <p>4.3 Throttle HPI, as required, to maintain <u>desired</u> Pzr level</p> <p>4.4 Verify <u>any</u> of the following have <u>inadvertently actuated</u>:</p> <p>___ ES Channel 5 (not actuated) ___ ES Channel 6 (not actuated)</p> <p>RNO: 1. IF ES Channel 1, ES Channel 2, <u>or</u> Diverse HPI have inadvertently actuated, AND it is desired to restore letdown, THEN initiate AP/42 Encl 5.2 (Letdown Restoration) (see page 12)</p> <p>2. GO TO Step 4.10</p> <p>4.10 Close 1HP-24 and 1HP-25</p>

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 3 Page 2 of 8

Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>AP/1/A/1700/042 (cont)</p> <p>4.11 Ensure AP/42 Encl 5.1 (Required Operator Actions) is in progress (see page 11)</p> <p>4.12 Verify <u>any</u> of the following have <u>inadvertently actuated</u>:</p> <p>___ Diverse LPI</p> <p>___ ES Channel 3</p> <p>___ ES Channel 4</p> <p>RNO: GO TO Step 4.17</p> <p>4.17 Verify the Rx is critical</p> <p>4.18 Verify ICS in Auto</p> <p>Examiner Note: Desired control band is <100% withdrawn for upper limit and Rod Insertion Limit for lower limit. Since rods are at 100%, the crew should decide to proceed to step 4.20.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">NOTE:</p> <p>It is expected that the Control Room SRO will begin AP/39 (Unintentional Boration) and transfer completion of AP/42 (Inadvertent ES Actuation) to another licensed operator; however, priorities will depend on the specific situation</p> </div> <p>4.19 Verify control rods are outside the desired control band</p> <p>4.20 Initiate AP/39 (Unintentional Boration) See page 14</p> <p>4.21 Verify <u>any</u> of the following have <u>inadvertently actuated</u>:</p> <p>___ ES Channel 1</p> <p>___ Diverse HPI</p> <p>RNO: GO TO Step 4.24</p> <p>4.24 Notify SPOC to investigate <u>and</u> repair the cause of the inadvertent ES actuation, as necessary</p> <p>4.25 Initiate logging TS/SLC Entry/Exit, as applicable, IAW Encl 5.4 (TS/SLC Requirements) (See page 13 for detailed TS information)</p> <p>4.26 WHEN <u>all</u> of the following exist:</p> <p>___ Reason for inadvertent ES Channel <u>or</u> Diverse HPI/LPI actuation has been resolved</p> <p>___ ES Channel <u>or</u> Diverse HPI/LPI reset is desired</p> <p>___ OSM concurs</p> <p>THEN continue</p> <p>Examiner Note: As time allows, the SRO may hand off AP/2 to the BOP to verify the RCS leak has been stopped from Event #2.</p>

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **3** Page 3 of 8
 Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>Crew Response:</p> <p>AP/1/A/1700/042 Enclosure 5.1 Required Operator Actions</p> <ol style="list-style-type: none"> 1 Initiate announcement of AP entry using the PA system 2 Verify <u>any</u> of the following have <u>inadvertently actuated</u>: <ul style="list-style-type: none"> <input type="checkbox"/> Diverse HPI (not actuated) <input type="checkbox"/> ES Channel 1 (not actuated) <input type="checkbox"/> ES Channel 2 3 Open the following: <ul style="list-style-type: none"> <input type="checkbox"/> 1HP-20 <input type="checkbox"/> 1HP-21 4 Open the following for operating RCPs: <ul style="list-style-type: none"> <input type="checkbox"/> 1HP-228 (1A1) <input type="checkbox"/> 1HP-226 (1A2) <input type="checkbox"/> 1HP-232 (1B1) <input type="checkbox"/> 1HP-230 (1B2) 5 Verify <u>any</u> of the following have <u>inadvertently actuated</u>: <ul style="list-style-type: none"> <input type="checkbox"/> ES Channel 7 (not actuated) <input type="checkbox"/> ES Channel 8 (not actuated) <p>RNO: GO TO Step 9</p> <ol style="list-style-type: none"> 9 Perform the following: <ol style="list-style-type: none"> A. Open the following to restore RB RIAs: <ul style="list-style-type: none"> <input type="checkbox"/> 1PR-7 <input type="checkbox"/> 1PR-8 <input type="checkbox"/> 1PR-9 <input type="checkbox"/> 1PR-10 B. From the ENABLE CONTROLS screen on the RIA View Node, perform the following: <ol style="list-style-type: none"> 1. Select OFF for RB RIA sample pump 2. Start the RB RIA sample pump 10. Verify <u>any</u> of the following have <u>inadvertently actuated</u>: <ul style="list-style-type: none"> <input type="checkbox"/> Diverse HPI <input type="checkbox"/> ES Channel 1 <p>RNO: GO TO Step 12</p> <ol style="list-style-type: none"> 12. EXIT this enclosure

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 3

Page 4 of 8

Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>Crew Response:</p> <p>AP/1/A/1700/042 Enclosure 5.2 Letdown Restoration</p> <ol style="list-style-type: none">1. Verify a CC pump operating2. Verify letdown is isolated3. Close 1HP-54. Verify it is desired to place <u>both</u> letdown coolers in service (1B only) <p>RNO: 1. <u> </u> IF desired to place the 1A Letdown Cooler in service, THEN open the following:</p> <ol style="list-style-type: none">A. 1HP-1B. 1HP-3 <p>2. <u> </u> IF desired to place the 1B Letdown Cooler in service, THEN open the following:</p> <ol style="list-style-type: none">A. 1HP-2B. 1HP-4 <p>3. <u> </u> GO TO Step 6.</p> <ol style="list-style-type: none">6. Close 1HP-67. Close 1HP-78. Verify letdown temperature < 135°F9. Open 1HP-510. Adjust 1HP-7 for ≈ 20 gpm letdown11. WHEN letdown temperature < 130°F, THEN place LETDOWN HI TEMP INTLK BYP switch in NORMAL12. Open 1HP-613. Adjust 1HP-7 to control desired letdown flow14. IAAT it is desired to <u>bleed</u> letdown flow to 1A BHUT, THEN perform the following:<ol style="list-style-type: none">A. Open the following:<ul style="list-style-type: none"><u> </u> 1CS-26<u> </u> 1CS-41B. Position 1HP-14 to BLEEDC. Notify SRO15. IAAT letdown <u>bleed</u> is NO longer desired, THEN position 1HP-14 to NORMAL16. WHEN SRO approves, THEN EXIT this enclosure

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 3 Page 5 of 8
 Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO	<p>Crew Response: AP/1/A/1700/042 Enclosure 5.4 (TS/SLC Requirements)</p> <p>Any ES Channel</p> <ul style="list-style-type: none"> TS 3.3.7 (Engineered Safeguards Protective System (ESPS) Digital Automatic Actuation Logic Channels) due to the automatic actuation logic being blocked if any ES channel is in MANUAL or ES Voters in OVERRIDE Condition "A". 1 hour completion time. <p>ES Channel 1 or 2</p> <ul style="list-style-type: none"> TS 3.4.15 (RCS Leakage Detection Instrumentation) due to Rx Bldg RIAs being out of service (Applies until RIAs are returned to service.) Condition B (24 hours for grab samples) (30 days) TS 3.10.1 (Standby Shutdown Facility(SSF)) for SSF inoperability due to the SSF power loss (ES Channel 1 only) Conditions A through E all apply (7 days) TS 3.4.9 (Pressurizer) if PZR level is > 260" (Applies if Pzr exceeds 260".) Condition A (1 hour)

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **1** Event No.: **3** Page 6 of 8
Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>AP/1/A/1700/039, Unintentional Boration</p> <p style="text-align: center;">CAUTION</p> <p>Do NOT add demin water to counter the boration until RCS boron concentration stabilizes to prevent a positive reactivity event.</p> <p>4.1 Announce AP entry using PA system.</p> <p>4.2 IAAT CTP < 6%, THEN perform the following:</p> <p style="margin-left: 40px;">A. Trip the Rx. B. GO TO Unit 1 EOP.</p> <p>4.3 IAAT all the following exist:</p> <ul style="list-style-type: none"> ▪ ICS is in Automatic ▪ Control rods approach upper limit of desired operating band <p>THEN perform the following:</p> <p>EXAMINER NOTE: It is anticipated that the crew will choose a target of approximately 90% Rx Power at either 1%/min or 2%/min since they are only trying to insert rods below 100% fully withdrawn.</p> <p>BOOTH CUE: If the crew selects anything less than 1%/min, call the CR as OSM and request that they increase the rate to 1%/min.</p> <p style="margin-left: 40px;">A. Establish desired shutdown rate. B. Decrease CTP demand setpoint, as necessary. C. Adjust shutdown rate, as necessary, to maintain control rods within the desired band.</p> <p>4.4 IAAT all the following exist:</p> <ul style="list-style-type: none"> ▪ ICS is in Manual ▪ Tave is outside the control band <p>THEN manually adjust FDW, as necessary, to maintain Tave within the control band until both SGs are on Low Level Limits.</p> <p>4.5 IAAT a power decrease is initiated, THEN initiate Encl 5.1 (Unit Shutdown Support Actions). See page 16</p> <p>4.6 Take action to identify and terminate the boration, as necessary.</p>

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 3 Page 7 of 8
Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>AP/1/A/1700/039 (cont)</p> <p>4.7 Verify the source of the boration has been identified and terminated.</p> <p>4.8 Notify Chemistry to sample/analyze the following for boron concentration, as frequently as possible, until RCS boron concentration stabilizes:</p> <ul style="list-style-type: none"> ▪ RCS ▪ LDST <p>4.9 Evaluate NI operability in accordance with OP/1/A/1102/004 (Operation At Power) Limits and Precautions.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">NOTE:</p> <p>Due to the power decrease initiated in this AP, the current plant configuration must be compared to the normal plant configuration in OP/1/A/1102/004 (Operation at Power) power reduction enclosure and/or OP/1/A/1102/010 (Controlling Procedure For Unit Shutdown), as appropriate. Equivalent steps performed by this AP should be signed off as intent met. Any steps NOT performed by this AP must be evaluated by the SRO in preparation for power increase or continued shutdown.</p> </div> <p>4.10 Initiate the following procedures, as appropriate based on plant conditions:</p> <ul style="list-style-type: none"> ▪ OP/1/A/1102/004 (Operation at Power) power reduction enclosure. ▪ OP/1/A/1102/010 (Controlling Procedure For Unit Shutdown) Encl (SD To Mode 3 Following Rx Trip Or Rapid SD). <p>4.11 WHEN the plant is stable, THEN perform the following:</p> <ul style="list-style-type: none"> A. Develop a Power Maneuver plan, as necessary. B. EXIT this procedure.

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: 1 Event No.: 3 Page 8 of 8
Event Description: **Inadvertent ES Channel 2 Actuation (TS)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>AP/1/A/1700/039 Enclosure 5.1, Unit Shutdown Support Actions</p> <ol style="list-style-type: none"> IAAT power decrease is terminated, AND SRO approves, THEN EXIT this Enclosure. Start the following pumps: <ul style="list-style-type: none"> 1A FDWP SEAL INJECTION PUMP 1A FDWP AUXILIARY OIL PUMP 1B FDWP AUXILIARY OIL PUMP 1B FDWP SEAL INJECTION PUMP IAAT CTP is changed $\geq 15\%$ within a one hour period, THEN notify Primary Chemistry to perform Tech Spec SR 3.4.11.2, as required. {6} <p>Examiner Note: Since power is not being reduced to $\leq 80\%$, step 4 is N/A and no further actions are required in Enclosure 5.1</p>

This event is complete when the SRO has referred to TS and control rods have been restored to less than fully withdrawn, or as directed by the Lead Examiner.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4 Page 1 of 2
Event Description: **Selected Tcold Fails HIGH**

Time	Time	Time
	OATC	<p>Plant Response:</p> <ul style="list-style-type: none"> • Loop "B" Tc Dixon meter high (620°F) • Loop "B" ΔT Dixon meter reads 0°F • ΔTc meter reads low (-10°F; "B" loop Hot) • Controlling NR Tave digital display reads ≈ 595.5°F • Controlling Tave Chessell display reads ≈ 595°F • 1SA-2/B4 (RC Average Temperature High/Low) • 1SA-2/B-5, RC COLD LEG DIFF TEMP HIGH • 1SA-2/A-12, ICS Tracking <p>Crew Response:</p> <ul style="list-style-type: none"> • When the Statalarms are received, the candidates should utilize the "Plant Transient Response" process to stabilize the plant, which should include ICS to HAND, inserting control rods, and re-ratioing feedwater. • Verbalize to the SRO reactor power level and direction of movement. • Place the Diamond and both FDW Masters in manual and position as necessary to stabilize the plant. • The SRO should: <ul style="list-style-type: none"> ➤ Refer to AP/28, ICS Instrument Failures ➤ Contact SPOC to repair the failed instrument. <p>AP/28, ICS Instrument Failures</p> <p>4.1 Provide control bands as required.</p> <p>4.2 Initiate notification of the following:</p> <p>___ OSM to reference the following:</p> <ul style="list-style-type: none"> • OMP 1-14 (Notifications) • Emergency Plan <p>___ STA</p> <p>4.3 Verify a power transient ≥ 5% has occurred.</p> <p>RNO: GO TO Step 4.5.</p> <p>4.4 Notify Rx Engineering and discuss the need for a maneuvering plan</p>
	SRO	

This event is complete when Section 4A Step 6 is reached, or as directed by the Lead Examiner.

Op-Test No.: 1 Scenario No.: 1 Event No.: 4

Page 2 of 2

Event Description: **Selected Tcold Fails HIGH**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>AP/28 (continued)</p> <p>4.5 Use the following, as necessary, to determine the applicable section from table in Step 4.6:</p> <ul style="list-style-type: none"> • OAC alarm video • OAC display points • Control Board indications • SPOC assistance, as needed <p>4.6 GO TO Section 4A, RCS Temperature</p> <p>AP/1/A/1700/028 Section 4A RCS Temperature Failure</p> <ol style="list-style-type: none"> 1. Ensure the following in HAND: <ul style="list-style-type: none"> ___ 1A FDW MASTER ___ 1B FDW MASTER 2. Ensure DIAMOND in MANUAL. 3. Notify SPOC to perform the following: <ul style="list-style-type: none"> • Select a valid RCS Tave and Delta Tc input to ICS per AM/1/A/0326/020 (Control of Unit 1 Star Module Signal Selection Function). • Investigate and repair the failed RCS temperature instrumentation. 4. PERFORM an instrumentation surveillance using applicable table in Encl 5.2 (ICS Instrument Surveillances) for the failed instrument. 5. Verify instrumentation surveillance in Encl 5.2 (ICS Instrument Surveillances) was performed satisfactorily as written. 6. WHEN notified by SPOC that a valid RCS Tave and Delta Tc input have been restored to ICS, THEN GO TO OP/1/A/1102/004 A Encl (Placing ICS Stations To Auto). <p><i>Examiner Note: The ICS will remain in manual for the remainder of the scenario.</i></p> <p><i>Examiner Note: The crew may initiate EOP Encl 5.5 for inventory control. These steps are included beginning on page 24 if necessary.</i></p>
This event is complete when Section 4A Step 6 is reached, or as directed by the Lead Examiner.		

Op-Test No.: 1Scenario No.: 1Event No.: 5

Page 1 of 3

Event Description: **Main Turbine trips resulting in an ATWS (Rule 1)**

Time	Position	Applicant's Actions or Behavior
	OATC	Plant Response: An automatic RX trip should have occurred due to a Main Turbine Trip Crew Response: The SRO will direct the OATC to perform EOP Immediate Manual Actions The SRO will direct the BOP to perform a Symptoms Check EOP Immediate Manual Actions: 3.1 Depress REACTOR TRIP pushbutton. 3.2 Verify reactor power < 5% FP and decreasing. RNO: GO TO Rule 1 (ATWS/Unanticipated Nuclear Power Production) EOP Rule 1 (CT-24) 1. Verify any Power Range NI \geq 5% FP 2. Initiate manual control rod insertion to the IN LIMIT 3. Notify CR SRO to GO TO UNPP tab (see next page) 4. Open 1HP-24 and 1HP-25 5. Ensure <u>only one</u> of the following operating: <ul style="list-style-type: none">1A HPI PUMP1B HPI PUMP 6. Start 1C HPI PUMP 7. Open 1HP-26 and 1HP-27 8. Dispatch <u>one</u> operator without wearing Arc Flash PPE to open 600V CRD breakers on the following: <ul style="list-style-type: none">1X9-5C (Unit 1 CRD Norm Fdr Bkr)2X1-5B (Unit 1 CRD Alternate Fdr Bkr) BOOTH CUE: Fire Timer 10 which will trip the CRD Breakers after a 3 minute time delay. EXAMINER NOTE: Tripping the CRD breakers inserts control rods and initiates the SGTR on the 1A SG (Event #6) 9. Verify only two HPI pumps operating RNO: IF all HPI pumps operating, THEN perform the following: (does not apply) 10. EXIT this rule

This event is complete when the SRO transfers to the Subsequent Actions tab, or as directed by the Lead Examiner.

Op-Test No.: 1

Scenario No.: 1

Event No.: 5

Page 2 of 3

Event Description: **Main Turbine trips resulting in an ATWS (Rule 1)**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p><u>EOP UNPP tab:</u></p> <ol style="list-style-type: none"> 1. Ensure Rule 1 is in progress or complete 2. Verify Main FDW is operating <u>and</u> in AUTO 3. IAAT Main FDW is NOT operating, THEN perform the following: <ol style="list-style-type: none"> A. Trip the turbine-generator B. Start <u>all available</u> EFDW pumps 4. IAAT all power range NIs are < 5% FP, THEN perform Steps 5-6 <p><i>EXAMINER NOTE: Depending on timing, operator could go to step 5 or step 7 from here (may have to come back to step 5 when < 5% FP). The turbine should not be manually tripped if power is not < 5%.</i></p> <p>RNO: GO TO Step 7</p> <ol style="list-style-type: none"> 5. Depress turbine TRIP pushbutton 6. Verify <u>all</u> turbine stop valves closed 7. Verify <u>any</u> wide range NI > 1% FP <p>RNO: GO TO Step 15</p> <ol style="list-style-type: none"> 8. Open 1RC-4 and 1HP-5 9. Maximize letdown 10. Verify Main FDW available 11. Adjust Main FDW flow as necessary to control RCS temperature 12. Verify overcooling in progress <p>RNO: GO TO Step 15</p> <ol style="list-style-type: none"> 15. Secure makeup to LDST 16. WHEN <u>all</u> Wide Range NIs are ≤ 1% FP, AND decreasing, THEN continue 17. Control RCS temperature using the following methods: <ul style="list-style-type: none"> — Tave ≤ 555°F – Adjust SG pressure as necessary to stabilize RCS temperature using either of the following: <ul style="list-style-type: none"> • TBVs • Dispatch two operators to perform Encl 5.24 (Operation of the ADVs) — Tave > 555°F – Utilize Rule 7 (SG Feed Control) to control SG feed rate as necessary to maintain cooldown rate within Tech Spec limits during the approach to the SG Level Control Point 18. Throttle HPI per Rule 6 (HPI) 19. WHEN RCS pressure < 2300 psig, THEN continue
<p>This event is complete when the SRO transfers to the Subsequent Actions tab, or as directed by the Lead Examiner.</p>		

Op-Test No.: <u> 1 </u>	Scenario No.: <u> 1 </u>	Event No.: <u> 5 </u>	Page 3 of 3
Event Description: Main Turbine trips resulting in an ATWS (Rule 1)			
Time	Position	Applicant's Actions or Behavior	
	SRO/OATC/ BOP	<p>EOP UNPP Tab (continued)</p> <ul style="list-style-type: none"> 20. Verify PORV closed 21. Adjust letdown flow as desired 22. Verify RCP seal injection available 23. GO TO Subsequent Actions tab <p>EOP Subsequent Actions tab:</p> <ul style="list-style-type: none"> 4.1 Verify <u>all</u> control rods in Groups 1-7 fully inserted 4.2 Verify Main FDW in operation 4.3 Verify <u>either</u> of the following: <ul style="list-style-type: none"> <input type="checkbox"/> Main FDW overfeeding causing excessive temperature decrease <input type="checkbox"/> Main FDW underfeeding causing SG level decrease below setpoint <p>RNO: GO TO Step 4.5</p> <ul style="list-style-type: none"> 4.5 IAAT Main FDW is operating, AND level in <u>any</u> SG is > 96% on the Operating Range, THEN perform Steps 4.6 – 4.8 <p>RNO: GO TO Step 4.9</p> <ul style="list-style-type: none"> 4.9 IAAT TBVs CANNOT control SG pressure at desired setpoint, THEN manually control pressure in <u>affected</u> SG using <u>either</u> of the following: <ul style="list-style-type: none"> <input type="checkbox"/> TBVs <input type="checkbox"/> Dispatch two operators to perform Encl 5.24 (Operation of the ADVs) (PS) 4.10 Verify 1RIA-40 operable with CSAE OFF-GAS BLOWER operating 4.11 GO TO Step 4.14 4.14 Dispatch operator with Encl 5.29 (MSRV Locations) to verify <u>all</u> MSRVs have reseated 4.15 Verify ES is required <p>RNO: 1. Initiate Encl 5.5 (Pzr and LDST Level Control) (page 24) 2. GO TO Step 4.17</p>	
<p>This event is complete when the SRO transfers to the Subsequent Actions tab, or as directed by the Lead Examiner.</p>			

Op-Test No.: 1

Scenario No.: 1

Event No.: 6

Page 1 of 2

Event Description: **1A Steam Generator Tube Rupture**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>Plant Response: 1SA-08/E-10 (N-16 RM PRIMARY TO SECONDARY TUBE LEAK) 1SA-08/D-10 (RM CSAE EXHAUST RADIATION HIGH)</p> <p>Crew Response: The SRO will transfer to the SGTR tab from SA Parallel Actions Page The SRO will declare Emergency Dose Limits in effect.</p> <p><u>EOP SGTR tab</u></p> <ol style="list-style-type: none"> 1. Verify Rx tripped 2. Maintain Pzr level 140 – 180" [175 – 215" acc] by <u>initiating</u> Encl 5.5 <p style="text-align: center;"><u>NOTE</u></p> <p>The remainder of this page may be given to an RO. The Procedure Director may continue.</p> <ol style="list-style-type: none"> 3. Start A and B OUTSIDE AIR BOOSTER FANS 4. Notify Unit 3 to start 3A and 3B OUTSIDE AIR BOOSTER FANS 5. Perform the following: ___ Monitor RIAs 16 and 17 to identify <u>all</u> SGs with a tube rupture ___ Inform SRO of results 6. Dispatch an operator to open: <ul style="list-style-type: none"> • 1XD-R3C (A Turb Bldg Sump Pump Bkr) (T-1, G-27) • 1XE-R3D (B Turb Bldg Sump Pump Bkr) (T-1, J-27) 7. Notify RP to survey <u>both</u> MS lines for radiation 8. GO TO Step 27 27. Secure <u>any</u> unnecessary offsite release paths (Main Vacuum Pumps, TDEFDW, Emergency Steam Air Ejector, etc.) 28. Verify Main FDW <u>or</u> EFDW controlling properly 29. Open 1HP-24 and 1HP-25 30. Secure makeup to LDST 31. Maintain <u>both</u> SG pressures < 950 psig using TBVs 32. IAAT <u>all</u> the following exists: ___ <u>All</u> SCMs > 0°F ___ ES Bypass Permit satisfied ___ RCS pressure controllable THEN perform Step 33 <p>RNO: GO TO Step 34</p>
<p>This event is complete when the crew demonstrates a controlled reduction in SCM with the PORV, and ES HPI has been bypassed, or as directed by the Lead Examiner.</p>		

Op-Test No.: 1

Scenario No.: 1

Event No.: 6

Page 2 of 2

Event Description: **1A Steam Generator Tube Rupture**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>EOP SGTR Tab (cont):</p> <ol style="list-style-type: none"> 33. Bypass HPI and LPI as applicable 34. Verify <u>any</u> RCP operating 35. Maintain RCP NPSH during the reduction of SCM (using the OAC and/or Enclosure 5.18) 36. Reduce <u>and</u> maintain <u>core</u> SCM at minimum using <u>any/all</u> of the following methods: (CT-7) <p>Note: To satisfy this CT, actions to begin reducing SCM to $\approx 10 - 20$ degrees in a controlled manner, must be in progress or complete.</p> <ul style="list-style-type: none"> <input type="checkbox"/> De-energize <u>all</u> Pzr heaters <input type="checkbox"/> Use Pzr spray <input type="checkbox"/> Maintain Pzr level 140 – 180" [175 – 215" acc] <p>EXAMINER NOTE: The Pzr Sray valve is failed closed therefore depressurization methods should be deemed inadequate and steps to use the PORV should be utilized.</p> <ol style="list-style-type: none"> 37. IAAT RCS de-pressurization methods are inadequate in minimizing <u>core</u> SCM, THEN perform Steps 38-40 38. Verify Pzr spray nozzle $\Delta T \geq 410^\circ\text{F}$ 39. Close 1LWD-1 and 1LWD-2 40. Cycle PORV as necessary <p>EXAMINER NOTE: The crew may stop the depressurization when ES Bypass Permit is satisfied in order to bypass ES and then continue.</p> <ol style="list-style-type: none"> 41. Verify 1SA-2/C-8 (AFIS HEADER A INITIATED) lit <p>RNO: Select OFF for <u>both</u> digital channels on AFIS HEADER A</p> <ol style="list-style-type: none"> 42. Verify 1SA-2/D-8 (AFIS HEADER B INITIATED) lit <p>RNO: Select OFF for <u>both</u> digital channels on AFIS HEADER B</p> <ol style="list-style-type: none"> 43. Verify RCS temperature $> 532^\circ\text{F}$ 44. Initiate a cooldown as follows: <ul style="list-style-type: none"> <input type="checkbox"/> Decrease SG pressure to 835 – 845 psig using any of the following: <ul style="list-style-type: none"> • TBV setpoint adjusted to 710 – 720 psig • TBVs in manual • ADVs <input type="checkbox"/> Maximize cooldown rate limited only by the ability to maintain Pzr level > 100" [180" acc]
<p>This event is complete when the crew demonstrates a controlled reduction in SCM with the PORV, and ES HPI has been bypassed, or as directed by the Lead Examiner.</p>		

NOTE

At any time during this scenario the operator may choose to use Enclosure 5.5 to maintain RCS inventory control. See below.

ENCLOSURE 5.5

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
NOTE Maintaining Pzr level >100" [180" acc] will ensure Pzr heater bundles remain covered.	
1. ___ Utilize the following as necessary to maintain <u>desired</u> Pzr level: <ul style="list-style-type: none">• 1A HPI Pump• 1B HPI Pump• 1HP-26• 1HP-7• 1HP-120 setpoint or valve demand• 1HP-5	___ IF 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level.
2. ___ IAAT <u>makeup</u> to the <u>LDST</u> is desired, THEN makeup from 1A BHUT.	
3. ___ IAAT it is desired to <u>secure</u> <u>makeup</u> to LDST, THEN secure makeup from 1A BHUT.	
4. ___ IAAT it is desired to <u>bleed</u> letdown flow to 1A BHUT, THEN perform the following: <ul style="list-style-type: none">A. Open:<ul style="list-style-type: none">___ 1CS-26___ 1CS-41B. ___ Position 1HP-14 to BLEED.C. ___ Notify SRO.	
5. ___ IAAT letdown <u>bleed</u> is NO longer desired, THEN position 1HP-14 to NORMAL.	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>6. <input type="checkbox"/> IAAT 1C HPI PUMP is required, THEN perform Steps 7 - 9.</p>	<p><input type="checkbox"/> GO TO Step 10.</p>
<p>7. <input type="checkbox"/> Open:</p> <ul style="list-style-type: none"> • 1HP-24 • 1HP-25 	<p>1. <input type="checkbox"/> IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. <input type="checkbox"/> Start 1A LPI PUMP.</p> <p>B. <input type="checkbox"/> Start 1B LPI PUMP.</p> <p>C. Open:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1LP-15 <input type="checkbox"/> 1LP-16 <input type="checkbox"/> 1LP-9 <input type="checkbox"/> 1LP-10 <input type="checkbox"/> 1LP-6 <input type="checkbox"/> 1LP-7 <p>D. <input type="checkbox"/> IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. <input type="checkbox"/> Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. <input type="checkbox"/> GO TO Step 8.</p> <p>2. <input type="checkbox"/> IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, THEN perform the following:</p> <p>A. <input type="checkbox"/> IF three HPI pumps are operating, THEN secure 1B HPI PUMP.</p> <p>B. <input type="checkbox"/> IF < 2 HPI pumps are operating, THEN start HPI pumps to obtain two HPI pump operation, preferably in opposite headers.</p> <p>C. <input type="checkbox"/> GO TO Step 9.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8. <input type="checkbox"/> Start 1C HPI PUMP.	<input type="checkbox"/> IF at least two HPI pumps are operating, THEN throttle 1HP-409 to maintain desired Pzr level.
9. Throttle the following as required to maintain desired Pzr level: <input type="checkbox"/> 1HP-26 <input type="checkbox"/> 1HP-27	1. <input type="checkbox"/> IF at least two HPI pumps are operating, AND 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level. 2. <input type="checkbox"/> IF 1A HPI PUMP <u>and</u> 1B HPI PUMP are operating, AND 1HP-27 will NOT open, THEN throttle 1HP-409 to maintain desired Pzr level.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>10. <input type="checkbox"/> IAAT <u>LDST</u> level CANNOT be maintained, THEN perform Step 11.</p>	<p><input type="checkbox"/> GO TO Step 12.</p>
<p>11. <input type="checkbox"/> Perform the following:</p> <ul style="list-style-type: none"> • Open 1HP-24. • Open 1HP-25. • Close 1HP-16. 	<p>1. <input type="checkbox"/> IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. <input type="checkbox"/> Start 1A LPI PUMP.</p> <p>B. <input type="checkbox"/> Start 1B LPI PUMP.</p> <p>C. Open:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1LP-15 <input type="checkbox"/> 1LP-16 <input type="checkbox"/> 1LP-9 <input type="checkbox"/> 1LP-10 <input type="checkbox"/> 1LP-6 <input type="checkbox"/> 1LP-7 <p>D. <input type="checkbox"/> IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. <input type="checkbox"/> Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. <input type="checkbox"/> GO TO Step 12.</p> <p>2. <input type="checkbox"/> IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, AND three HPI pumps are operating, THEN secure 1B HPI PUMP.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12. <input type="checkbox"/> IAAT additional makeup flow to LDST is desired, AND 1A BLEED TRANSFER PUMP is operating, THEN dispatch an operator to close 1CS-48 (1A BHUT Recirc) (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.).	
13. <input type="checkbox"/> IAAT <u>two</u> Letdown Filters are desired, THEN perform the following: <input type="checkbox"/> Open 1HP-17. <input type="checkbox"/> Open 1HP-18	
14. <input type="checkbox"/> IAAT <u>all</u> of the following exist: <input type="checkbox"/> Letdown isolated <input type="checkbox"/> LPSW available <input type="checkbox"/> Letdown restoration desired THEN perform Steps 15 - 33. {41}	<input type="checkbox"/> GO TO Step 34.
15. Open: <input type="checkbox"/> 1CC-7 <input type="checkbox"/> 1CC-8	1. <input type="checkbox"/> Notify CR SRO that letdown CANNOT be restored due to inability to restart the CC system. 2. <input type="checkbox"/> GO TO Step 34.
16. <input type="checkbox"/> Ensure only one CC pump running.	
17. <input type="checkbox"/> Place the non-running CC pump in AUTO.	
18. Verify <u>both</u> are open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-2	1. <input type="checkbox"/> IF 1HP-1 is closed due to 1HP-3 failing to close, THEN GO TO Step 20. 2. <input type="checkbox"/> IF 1HP-2 is closed due to 1HP-4 failing to close, THEN GO TO Step 20.
19. <input type="checkbox"/> GO TO Step 22.	
NOTE Verification of leakage requires visual observation of East Penetration Room.	
20. <input type="checkbox"/> Verify letdown line leak in East Penetration Room has occurred.	<input type="checkbox"/> GO TO Step 22.
21. <input type="checkbox"/> GO TO Step 34.	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22. <input type="checkbox"/> Monitor for unexpected conditions while restoring letdown.	
23. <input type="checkbox"/> Verify <u>both</u> letdown coolers to be placed in service.	1. <input type="checkbox"/> IF 1A letdown cooler is to be placed in service, THEN open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-3 2. <input type="checkbox"/> IF 1B letdown cooler is to be placed in service, THEN open: <input type="checkbox"/> 1HP-2 <input type="checkbox"/> 1HP-4 3. <input type="checkbox"/> GO TO Step 25.
24. Open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-2 <input type="checkbox"/> 1HP-3 <input type="checkbox"/> 1HP-4	
25. <input type="checkbox"/> Verify <u>at least one</u> letdown cooler is aligned.	Perform the following: A. <input type="checkbox"/> Notify CR SRO of problem. B. <input type="checkbox"/> GO TO Step 34.
26. <input type="checkbox"/> Close 1HP-6.	
27. <input type="checkbox"/> Close 1HP-7.	
28. <input type="checkbox"/> Verify letdown temperature < 125°F.	1. <input type="checkbox"/> Open 1HP-13. 2. Close: <input type="checkbox"/> 1HP-8 <input type="checkbox"/> 1HP-9&11 3. <input type="checkbox"/> IF <u>any</u> deborating IX is in service, THEN perform the following: A. <input type="checkbox"/> Select 1HP-14 to NORMAL. B. <input type="checkbox"/> Close 1HP-16. 4. <input type="checkbox"/> Select LETDOWN HI TEMP INTLK BYP switch to BYPASS.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29. ___ Open 1HP-5.	
30. ___ Adjust 1HP-7 for \approx 20 gpm letdown.	
31. ___ WHEN letdown temperature is < 125°F, THEN place LETDOWN HI TEMP INTLK BYP switch to NORMAL.	
32. ___ Open 1HP-6.	
33. ___ Adjust 1HP-7 to control desired letdown flow.	

NOTE

AP/32 (Loss of Letdown) provides direction to cool down the RCS to offset increasing pressurizer level.

34. ___ IAAT it is determined that letdown is unavailable due to equipment failures <u>or</u> letdown system leakage, THEN notify CR SRO to initiate AP/32 (Loss of Letdown).	
35. ___ IAAT > 1 HPI pump is operating, AND additional HPI pumps are NO longer needed, THEN perform the following: A. ___ Obtain SRO concurrence to reduce running HPI pumps. B. ___ Secure the desired HPI pumps. C. ___ Place secured HPI pump switch in AUTO, if desired.	
36. ___ IAAT <u>all</u> the following conditions exist: ___ Makeup from BWST NOT required ___ LDST level > 55" ___ <u>All</u> control rods inserted ___ Cooldown Plateau NOT being used THEN close: ___ 1HP-24 ___ 1HP-25	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
37. ___ Verify 1CS-48 (1A BHUT Recirc) has been closed to provide additional makeup flow to LDST.	___ GO TO Step 39.
38. ___ WHEN 1CS-48 (1A BHUT Recirc) is NO longer needed to provide additional makeup flow to LDST, THEN perform the following: A. ___ Stop 1A BLEED TRANSFER PUMP. B. ___ Locally position 1CS-48 (1A BHUT Recirc) <u>one</u> turn open (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.). C. ___ Close 1CS-46. D. ___ Start 1A BLEED TRANSFER PUMP. E. ___ Locally throttle 1CS-48 (1A BHUT Recirc) to obtain 90 - 110 psig discharge pressure. F. ___ Stop 1A BLEED TRANSFER PUMP.	
39. ___ Verify two Letdown Filters in service, AND <u>only one</u> Letdown filter is desired.	___ GO TO Step 41.
40. Perform <u>one</u> of the following: ___ Place 1HP-17 switch to CLOSE. ___ Place 1HP-18 switch to CLOSE.	
41. ___ WHEN directed by CR SRO, THEN EXIT this enclosure.	

• • • END •

CRITICAL TASKS

1. Shutdown the Reactor in accordance with **EOP Rule 1 (CT-24) (page 19)**
Ensure Reactor is shutdown by driving rods in at the maximum rate, borating at the maximum rate, and tripping the CRD breakers.
2. Minimize SCM **(CT-7) (page 23)**
SCM must be being reduced to $\approx 10 - 20$ degrees in a controlled evolution during SGTR mitigation to minimize primary to secondary leakage, but still above the RCP NPSH (if applicable).

SAFETY: Take a Minute			
UNIT 0 (OSM)			
SSF Operable: Yes	KHU's Operable: U1 - OH, U2 - UG	LCTs Operable: 2	Fuel Handling: No
UNIT STATUS (CR SRO)			
Unit 1 Simulator		Other Units	
Mode: 1		Unit 2	Unit 3
Reactor Power: 100%		Mode: 1	Mode: 1
Gross MWE: 896		100% Power	100% Power
RCS Leakage: 0.024 gpm		EFDW Backup: Yes	EFDW Backup: Yes
RBNS Rate: 0.01 gpm			
Technical Specifications/SLC Items (CR SRO)			
Component/Train	OOS Date/Time	Restoration Required Date/Time	TS/SLC #
AMSAC/DSS	48 hours ago	5 days from now	SLC 16.7.2
Shift Turnover Items (CR SRO)			
Primary			
• 1A RPS Channel in Manual Bypass to support SPOC			
• AMSAC/DSS bypassed			
•			
•			
Secondary			
• 1SSH-1, 1SSH-3, 1SD-2, 1SD-5, 1SD-140, 1SD-303, 1SD-355, 1SD-356 and 1SD-358 are closed with power supply breakers open per the Startup Procedure for SSF Overcooling Event.			
•			
•			
•			
•			
•			
Reactivity Management (CR SRO)			
RCS Boron: 6 ppmB	Gp 7 Rod Position: 92%		
Human Performance Emphasis (OSM)			
Procedure Use and Adherence			

Facility: **Oconee**Scenario No.: **2**Op-Test No.: **1**

Examiners: _____

Operators: _____ **SRO**

_____ **OATC**

_____ **BOP**

Initial Conditions:

- Reactor Power = 70% Stable

Turnover:

- Holding power at 70% following FDW heater repairs. Rx Engineering evaluating return to power maneuvering plan. Anticipate power increase next shift.
- No water additions for reactivity control required this shift.
- 1MS-82 and 1MS-84 closed in support of maintenance. TDEFWP supply from AS only.
- Unit 2 has the AS header
1B CFT Pressure high. In-leakage has been identified and repaired. Reduce 1B CFT pressure to below the High Pressure alarm setpoint

Event No.	Malfunction No.	Event Type*	Event Description
0a	Override		AFIS disabled
0b	MPI290 Override		Main Turbine fails to trip
0c	Updater		Standby LPSW Pump Auto Start disabled
0d	Override		Manual Override of ES-1 blocked
1	Override	N: BOP, SRO	Vent 1B CFT to QT
2	Override	C, BOP, SRO (TS)	Failure of AS Controller
3	MPI281 Override	C: OATC, SRO	1A2 RCP trips with failure of ΔT_c
4	Updater	C: BOP, SRO (TS)	Operating (A) LPSW Pump trips and standby pump fails to start
5		R: OATC, SRO	Rapid Manual Plant Shutdown
6	Override	C: OATC, SRO	1B2 RCP trips causing Rx trip but Main Turbine fails to trip requiring EHC pump lockout
7	MSS360	M: All	1A MSLB inside RB & AFIS fails to actuate <ul style="list-style-type: none"> ES Channel 1 fails to go to Manual
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **1** Page 1 of 2

Event Description: **Vent 1B CFT to QT**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant Response: Statalarm in alarm at turnover: <ul style="list-style-type: none"> ISA-08/A-12 (CORE FLOOD TANK "B" PRESSURE HIGH/LOW) in alarm <ul style="list-style-type: none"> Alarm Setpoint High Alarm ~ 615 psig Board indications: <ul style="list-style-type: none"> All CFT B pressure indications are ~ 617 psig Crew Response: Refer to OP/1/A/1104/001 (Core Flooding System) to adjust pressure as necessary. OP/1/A/1104/001 Enclosure 4.13 (Lowering 1B CFT Pressure) Booth Cue: If asked, the High Pressure N₂ Header is in service. NEO may be dispatched to determine if N₂ might be leaking into the CFT. 3.1 Verify high pressure nitrogen header in service. 3.2 RCS > 800 psig. 3.3 Verify 1B CFT \geq 610 psig: 3.4 Review TS 3.5.1 (CFTs). 3.5 IF RB is open for entry, perform the following: N/A 3.6 Station an Operator at 1XP-R2B (1CF-6 Bkr). Booth Cue: If asked, there is already an R&R in support of operating 1XP-R2B (1CF-6 Bkr) 3.7 Remove White Tag and close 1XP-R2B (1CF-6 Bkr). <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> NOTE: 1CF-6 must be throttled with a series of small bumps to switch. 1CF-6 may NOT indicate throttled as CFT pressure begins to decrease. </div> 3.8 Throttle 1CF-6 (1B CFT VENT). 3.9 IF AT ANY TIME QT approaches 5 psig, perform the following: 3.9.1 Close 1CF-6 (1B CFT VENT). 3.9.2 Depressurize QT per OP/1/A/1104/017 (Enclosure 4.4) (see next page) 3.9.3 IF 1B CFT depressurization needs to continue, throttle 1CF-6 3.10 WHEN CFT pressure is acceptable, close 1CF-6 (1B CFT VENT) switch. EXAMINER NOTE: After the crew discusses the need to vent the QT, they may also discuss the need to lock open 1CF-6 Bkr and re-hang white tag. </p>
<p>This event is complete when the initial 1B CFT venting to the Quench Tank is completed, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **1** Page 2 of 2

Event Description: **Vent 1B CFT to QT**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>OP/1/A/1104/017 (Enclosure 4.4) Lower QT Pressure</p> <p>2.1 Open 1GWD-12 (QUENCH TANK VENT INSIDE RB).</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">NOTE:</p> <p>Cycling 1GWD-13 will prevent exceeding Vent Header Pressure limit. Do NOT exceed +2 inches Vent Header Pressure.</p> </div> <p>2.2 Cycle 1GWD-13 (QUENCH TANK VENT OUTSIDE RB) as required to lower QT pressure.</p> <p>2.3 WHEN Quench Tank at desired pressure, perform the following:</p> <ul style="list-style-type: none"> Ensure closed 1GWD-12 (QUENCH TANK VENT INSIDE RB). Ensure closed 1GWD-13 (QUENCH TANK VENT OUTSIDE RB).
<p>This event is complete when the initial 1B CFT venting to the Quench Tank is completed, or as directed by the Lead Examiner.</p>		

Op-Test No.: 1 Scenario No.: 2 Event No.: 2 Page 1 of 2
Event Description: **Failure of AS Controller**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant response:</p> <ul style="list-style-type: none"> 1SA-06/C-10, AS HDR PRESS LOW will actuate 1MS-126 & 1MS-129 MAIN STM TO SU STM PRESS controller will indicate AS pressure < 300 psig and decreasing. <p>Crew response:</p> <p><u>1SA06/C-10 ARG</u></p> <p><i>Booth Cue: While the crew is referring to the ARG, call Unit 1 control room to notify them (using time compression) that Unit 2 AS Controller has failed and Unit 3 cannot take control. The OSM is directing you as Unit 1 to take control of AS system pressure.</i></p> <p>3.1 IF excessive steam flow exists, reduce AS load or locate and isolate leak.</p> <p>3.2 Verify proper operation of MS/AS controller on Unit supplying Auxiliary Steam Header (U2).</p> <p>3.3 IF necessary, transfer AS Header to another Unit per OP/1/A/1106/22 (Auxiliary Steam System).</p> <p><u>OP/1/A/1106/22 (Auxiliary Steam System) Encl 4.2</u></p> <p>Initial Conditions</p> <p>1.1 Verify Unit 1 in Mode 1 or 2.</p> <p>1.2 Verify all conditions of SLC 16.10.9 will be met with Unit 1 supplying the Aux Steam Header. {15}</p> <div style="border: 1px solid black; padding: 5px;"> <p>NOTE: If ICS is in Manual, supplying Aux Steam Header from MS has the potential to affect core reactivity by changing RCS temperature.</p> </div> <p>1.3 Verify Unit 1 ICS in "AUTO". (R.M.)</p> <p>1.4 Verify Unit 1 has ≥ 100 EFPD Core burnup. {12}</p> <p>1.5 Notify Secondary chemist that the AS header will be transferred</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Person Notified</div> <div>Date</div> </div> <p>1.6 Review Limits and Precautions.</p>

This event is complete when the Unit 1 AS controller is in AUTO and Tech Spec determination has been made or when directed by the lead examiner.

Op-Test No.: 1 Scenario No.: 2 Event No.: 2 Page 2 of 2
Event Description: **Failure of AS Controller**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>OP/1/A/1106/22 (Auxiliary Steam System) Encl 4.2 (continued)</p> <p>Procedure</p> <p>2.1 Notify Unit 2 to reduce setpoint on AS controller. (no actions required since pressure is below setpoint due to the failure).</p> <p>2.2 Ensure 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS) controller in "MANUAL".</p> <p>2.3 Ensure closed 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS).</p> <p>2.4 Verify Unit 2 has reduced setpoint on AS controller. (no actions required since pressure is below setpoint due to the failure)</p> <p>2.5 Perform one of the following: Open 1MS-24 (or Open 1MS-33)</p> <p>2.6 Manually throttle open 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS) to increase Aux Steam Header pressure.</p> <p>2.7 Continue to throttle 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS) to increase Aux Steam Header pressure to \approx 300 psig.</p> <p>2.8 WHEN Aux Steam Header is \approx 300 psig:</p> <p>2.8.2 Adjust 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS) controller setpoint to match Aux Steam Header pressure.</p> <p>Place 1MS-126 & 1MS-129 (MAIN STM TO SU STM PRESS) controller to "AUTO".</p> <p>2.9 Notify Unit 2 to secure AS supply.</p> <p>2.10 IF Aux Steam will remain being supplied from Unit 1, align Condensate Returns to Unit 1 per OP/0/A/1104/37 (Plant Heating).</p> <p>NOTE to Examiner: Since AS pressure is set to go to < 250 psig, the below TS applies.</p>
	SRO	<p>The SRO should refer to TS:</p> <ul style="list-style-type: none"> • TS 3.7.5 (Emergency Feedwater (EFW) System) <ul style="list-style-type: none"> ○ Condition "B" applies. Restore turbine driven EFW pump and EFW flow path to Operable status. <p>72 hours AND 10 days from discovery of failure to meet LCO.</p>

This event is complete when the Unit 1 AS controller is in AUTO and Tech Spec determination has been made or when directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **3**

Page 1 of 2

Event Description: **1A2 RCP trips with failure of ΔT_c**

Time	Position	Applicant's Actions or Behavior						
	OATC/BOP	Plant Response: <ul style="list-style-type: none">The following alarms actuate due to the RCP trip:<ul style="list-style-type: none">1SA-7/D81SA-2/A31SA-2/A5FDW flow will begin to re-ratio but the delta T_c failure will not allow correct re-ratioActual ΔT_c to increase (become more negative).NI's will begin to slowly diverge until T_c's are restored to normal.Failure to adjust FDW flow will result in QPT alarm (1SA-4/C1) approximately 4 minutes following the failure. This will result in entry into TS 3.2.3. Crew Response: <ul style="list-style-type: none">Crew should perform Plant Transient Response (PTR)<ul style="list-style-type: none">Diagnose the ΔT_c failure by observing the ΔT_c meter on 1UB1. It should return to zero but is staying at + 3.5 degrees.Take the Diamond and Feedwater Masters to MANUAL and re-ratio feedwater using the Loop T_c meters and/or OAC to return actual ΔT_c to near zero.						
	SRO/OATC/ BOP	SRO will refer to AP/28 (ICS Instrument Failures) <ul style="list-style-type: none">4.1 Provide control bands as required (per OMP 1-18 Attach I)4.2 Initiate notification of the following:<ul style="list-style-type: none">___ OSM to reference OMP 1-14 and Emergency Plan___ STA4.3 Verify a power transient $\geq 5\%$ has occurred4.4 Notify Rx Engineering and discuss the need for a maneuvering plan4.5 Determine the applicable section from table in Step 4.64.6 GO TO the applicable section per the following table:<table><tr><td>√</td><td>Section</td><td>Failure</td></tr><tr><td></td><td>4F</td><td>Delta T_c</td></tr></table>	√	Section	Failure		4F	Delta T_c
√	Section	Failure						
	4F	Delta T_c						

This event is complete when the SRO reaches the **WHEN** step (4) in Section 4F, or as directed by the Lead Evaluator.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **3** Page 2 of 2
 Event Description: **1A2 RCP trips with failure of ΔT_c**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>AP/28 Section 4F</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> This section applies to Delta T_c controller failures. T_c input signal failures are addressed in Section 4A <p>The following may occur when an ICS Delta T_c controller fails:</p> <ul style="list-style-type: none"> Delta T_c controller may re-ratio loop FDW flows Possible ICS RUNBACK </div> <p>1. Ensure the following in HAND:</p> <p style="margin-left: 40px;">___ 1A and 1B FDW MASTERS</p> <p style="margin-left: 40px;">___ DELTA T_c</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">CAUTION:</p> <p>Total feedwater flow should be maintained constant while individual loop flows are adjusted to establish the desired ΔT_c. Maintaining total FDW flow constant will prevent unwanted changes in reactor power.</p> </div> <p>2. Re-ratio feedwater flow, as required, to establish desired DELTA T_c while maintaining total feedwater flow constant</p> <p>3. Notify SPOC to perform the following:</p> <p style="margin-left: 40px;">___ Investigate <u>and</u> repair the failed Delta T_c controller</p> <p>BOOTH CUE: When notified to investigate and repair the failed ΔT_c controller, respond as SPOC and state that the ΔT_c controller will be repaired as soon as possible.</p> <p>4. WHEN notified by SPOC that DELTA T_c controller has been repaired, THEN GO TO OP/1/A/1102/004 A Encl (Placing ICS Stations To Auto)</p> <p>EXAMINER NOTE: ICS will remain in manual for the remainder of the scenario.</p>

This event is complete when the SRO reaches the WHEN step (4) in Section 4F, or as directed by the Lead Evaluator.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **4** Page 1 of 2
 Event Description: **Operating (A) LPSW Pump trips and standby pump fails to start**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant response:</p> <p>Statalarms:</p> <ul style="list-style-type: none"> • 1SA-9/A-9 (LPSW Header A Press Low) <p>OAC Alarm:</p> <ul style="list-style-type: none"> • LPSW HDR Pressure LO LO • LPSW leakage accumulator level • LO LO RCP MTR Cooler Inlet HDR LPSW <p>Control board indications:</p> <ul style="list-style-type: none"> • LPSW Header A/B Pressure Low <p>Crew response:</p> <ul style="list-style-type: none"> • Refer to OAC alarm response <ol style="list-style-type: none"> 1. Refer to AP/24 (Loss of LPSW) 2. Notify engineering 3. Refer to TS 3.7.7 • Refer to ARG for 1SA-9/A-9 (LPSW Header A/B Press Low) <ol style="list-style-type: none"> 3.1 Refer to AP/1/A/1700/024 (Loss of LPSW) 3.2 Have Unit 2 refer to AP/2/A/1700/024 (Loss of LPSW). <p>Booth Cue: If notified to refer to AP/2/A/1700/024, inform operator that AP/2/A/1700/24 will be referenced.</p> <p><u>AP/1/A/1700/024</u> (Loss of LPSW) steps begin on next page.</p>

This event is complete when the SRO has referred to TS, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **4** Page 2 of 2

Event Description: **Operating (A) LPSW Pump trips and standby pump fails to start**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p><u>AP/1/A/1700/024 (Loss of LPSW)</u></p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;"><u>NOTE</u></p> <p>Unit 1 normally handles LPSW System operation unless otherwise directed by the CR SRO</p> </div> <p>4.1 Verify Unit 1 is going to handle LPSW system operations.</p> <p>4.2 IAAT any LPSW pump is cavitating, THEN perform Steps 4.3 – 4.4</p> <p>RNO: GO TO Step 4.5</p> <p>4.5 Start available (NOT previously cavitating) LPSW pumps, as necessary, to raise LPSW header pressure.</p> <p>4.6 IAAT LPSW to <u>all</u> RBCUs has been isolated, AND LPSW header pressure is > 25 psig, THEN perform Step 4.7</p> <p>RNO: GO TO Step 4.8</p> <p>4.8 Verify normal LPSW System operation is restored.</p> <p>4.9 Verify that RB Auxiliary Coolers have isolated:</p> <ul style="list-style-type: none"> • 1LPSW-1054 closed • 1LPSW-1055 closed • 1LPSW-1061 closed • 1LPSW-1062 closed <p>RNO: GO TO Step 4.11</p> <p>4.11 EXIT this procedure</p>
	SRO	<p>The SRO should refer to TS:</p> <ul style="list-style-type: none"> • TS 3.7.7 (Low Pressure Service Water System) <ul style="list-style-type: none"> ○ Condition “A” applies. Restore required LPSW pump to operable status. 72 hours completion time. ○ Condition “B” applies due to LPSW Leakage Accumulator Level Alarm (exit this TS Condition when alarm clears). • TS 3.3.28 (LPSW pump Auto-Start Circuitry) Condition “A”. Restore Auto-Start Circuitry to operable. 7 day completion time.
<p>This event is complete when the SRO has referred to TS, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **5**

Page 1 of 4

Event Description: **Rapid Manual Plant Shutdown**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>EXAMINER/BOOTH CUE: <i>The booth will call the Control Room as the OSM and inform them that a vehicle has impacted the 1A Main Steam Line concrete supports. There are visible signs of damage to the concrete. The OSM will instruct the crew to perform a Rapid Unit Shutdown.</i></p> <p>The SRO will initiate AP/29 (Rapid Unit Shutdown) to direct power reduction</p> <p>AP/29</p> <ol style="list-style-type: none"> 4.1 Initiate Encl 5.1 (Support Actions During Rapid Unit Shutdown) (Details on page 12) 4.2 Announce AP entry using the PA system. 4.3 IAAT both of the following apply: <ul style="list-style-type: none"> ___ It is desired to stop power decrease. ___ CTP > 18% <p>THEN perform Steps 4.4 – 4.7 (Does NOT apply now)</p> <p>RNO: GO TO Step 4.8</p>
	SRO/OATC	<ol style="list-style-type: none"> 4.8 Verify ICS in AUTO (It is NOT in Auto) <p>RNO: 1. Initiate manual power reduction to desired power level.</p> <p>Examiner Note: <i>OATC reduces power by first reducing feedwater and then inserting control rods as necessary.</i></p> <ol style="list-style-type: none"> 2. GO TO Step 4.10 <p>4.10 Verify <u>both</u> Main FDW pumps running.</p>
	SRO/BOP	<div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> 1B Main FDW Pump is the preferred pump to be shutdown first. To lower 1B Main FDW Pump suction flow, bias is adjusted counter-clockwise. To lower 1A Main FDW Pump suction flow, bias is adjusted clockwise. </div> <ol style="list-style-type: none"> 4.11 Adjust bias for first Main FDW pump desired to be shutdown (1B) until its suction flow is $\approx 1 \times 10^6$ lbm/hr less than remaining Main FDW pump suction flow.

This event is complete once a 10% power decrease has occurred and Unit Auxiliaries have been transferred IAW Encl. 5.1 of AP/29 or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **5**

Page 2 of 4

Event Description: **Rapid Manual Plant Shutdown**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>AP/29 (continued)</p> <p>4.12 WHEN core thermal power is < 65% FP, THEN continue.</p> <p>4.13 IAAT <u>both</u> Main FDW pumps running, AND <u>both</u> of the following exist:</p> <p>___ 1B Main FDW Pump is first pump to be shut down.</p> <p>___ <u>Any</u> of the following alarms occur:</p> <ul style="list-style-type: none"> FWP B FLOW MINIMUM (1SA-16/A-3) FWP B FLOW BELOW MIN (1SA-16/A-4) <p>THEN trip 1B Main FDW Pump.</p> <p>4.14 IAAT both Main FDW pumps running, AND both of the following exists:</p> <p>___ 1A Main FDW pump is the first pump to be shut down</p> <p>___ Any of the following alarms occur:</p> <ul style="list-style-type: none"> FWP A FLOW MINIMUM (1SA-16/A-1) FWP A FLOW BELOW MIN (1SA-16/A-2) <p>THEN trip 1A Main FDW Pump (Does not Apply)</p> <p>4.15 Verify Turbine-Generator shutdown is required.</p> <p>4.16 Start the TURBINE TURNING GEAR OIL PUMP.</p> <p>4.17 Start 1A through 1E TURBINE BRNG OIL LIFT PUMPS.</p> <p>4.18 Start the TURBINE MOTOR SUCTION PUMP.</p> <p>4.19 IAAT both of the following apply:</p> <p>ICS in automatic</p> <p>NI power is ≤ 18%</p> <p>THEN deselect MAXIMUM RUNBACK.</p>
	BOP	

This event is complete once a 10% power decrease has occurred and Unit Auxiliaries have been transferred IAW Encl. 5.1 of AP/29 or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **5**

Page 3 of 4

Event Description: **Rapid Manual Plant Shutdown**

Time	Position	Applicant's Actions or Behavior
	BOP	<p><u>AP/29 Encl. 5.1</u></p> <ol style="list-style-type: none">1. Notify WCC SRO to initiate Encl 5.2 (WCC SRO Support During Rapid Unit Shutdown).2. Start the following pumps:<ul style="list-style-type: none">• 1A FDWP SEAL INJECTION PUMP• 1A FDWP AUXILIARY OIL PUMP• 1B FDWP AUXILIARY OIL PUMP• 1B FDWP SEAL INJECTION PUMP3. WHEN CTP is $\leq 80\%$, THEN continue.4. Stop 1E1 HTR DRN PUMP.5. Place 1HD-254 switch to OPEN.6. Stop 1E2 HTR DRN PUMP.7. Place 1HD-276 switch to OPEN.8. Verify Turbine-Generator shutdown is required. (It is)9. Place the following transfer switches to MAN:<ul style="list-style-type: none">• 1TA AUTO/MAN• 1TB AUTO/MAN10. Close 1TA SU 6.9 KV FDR.11. Verify 1TA NORMAL 6.9 KV FDR opens.12. Close 1TB SU 6.9 KV FDR.13. Verify 1TB NORMAL 6.9 KV FDR opens.14. Place the following transfer switches to MAN:<ul style="list-style-type: none">• MFB1 AUTO/MAN• MFB2 AUTO/MAN15. __ Close E11 MFB1 STARTUP FDR.16. __ Verify N11 MFB1 NORMAL FDR opens.17. __ Close E21 MFB2 STARTUP FDR.18. __ Verify N21 MFB2 NORMAL FDR opens.19. __ Notify CR SRO that Unit auxiliaries have been transferred.
This event is complete once a 10% power decrease has occurred and Unit Auxiliaries have been transferred IAW Encl. 5.1 of AP/29 or as directed by the lead examiner.		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **5**

Page 4 of 4

Event Description: **Rapid Manual Plant Shutdown**

Time	Position	Applicant's Actions or Behavior
	BOP	<p><u>AP/29 Encl. 5.1 (cont.)</u></p> <p>20. IAAT 1SSH-9 is NOT closed, AND CTP is $\leq 75\%$, THEN throttle 1SSH-9 to maintain Steam Seal Header pressure 2.5 - 4.5 psig.</p> <p>21. WHEN CTP $\leq 65\%$, THEN place the following in MANUAL and close:</p> <p>___ 1FDW-53 ___ 1FDW-65</p> <p><i>Examiner Note: After a 10% power reduction and Unit Auxiliaries have been transferred, the booth operator will fire timer to trip the 1B2 RCP. This will cause a reactor trip (1A2 RCP already tripped).</i></p>

This event is complete once a 10% power decrease has occurred and Unit Auxiliaries have been transferred IAW Encl. 5.1 of AP/29 or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **6** Page 1 of 1

Event Description: **1B2 RCP trips causing Rx trip but Main Turbine fails to trip requiring EHC pump lockout.**

Time	Position	Applicant's Actions or Behavior
	SRO OATC	<p>Plant response:</p> <ul style="list-style-type: none"> The Reactor will trip due to 1A2 & 1B2 RCPs tripped. The Main Turbine should trip but does not. This will result in a reduction of steam pressure in both SGs until actions are taken to trip the turbine. <p>Crew response:</p> <ul style="list-style-type: none"> SRO will enter the EOP. OATC will perform Immediate Manual Actions OATC will perform IMAs <ul style="list-style-type: none"> 3.1 Depress REACTOR TRIP pushbutton. 3.2 Verify reactor power < 5% FP and decreasing. 3.3 Depress turbine TRIP pushbutton. <p>*Note: The OATC should diagnose that the turbine did not trip and then perform the RNO step which will stop and lock out both EHC pumps. This will cause the turbine to trip. (CT-18)</p> <ul style="list-style-type: none"> 3.4 Verify all turbine stop valves closed.* <p>RNO: Place both EHC pumps in PULL TO LOCK.</p> <ul style="list-style-type: none"> 3.5 Verify RCP seal injection available. <p>Examiner Note: The MSLB that follows will automatically activate as the MSSV's close.</p>

Event is complete when EHC pumps have been placed in "Pull to Lock" or when directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 1 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
		Plant response: <ul style="list-style-type: none">• 1SA-1/A-1, B-1, C-1, D-1, RP Channel Trip• 1SA-2/D-3, RC Press High/Low• Statalarm 1SA-02/A-9 (MS PRESS HIGH/LOW)• AFIS will fail to actuate• ES Channels 1-8 will actuate Crew response: <p>SRO will enter the EOP by directing the OATC to perform Immediate Manual Actions (or IMAs).</p> <p>OATC will perform Immediate Manual Actions</p> <ul style="list-style-type: none">➤ Depress REACTOR TRIP pushbutton➤ Verify reactor power < 5% FP and decreasing➤ Depress turbine TRIP pushbutton.➤ Verify all turbine stop valves closed➤ Verify RCP seal injection available <p>BOP will perform a Symptoms Check (per OMP 1-18 Attachment C) and determine that a MSLB has occurred in the 1A Steam Generator</p> <p>BOP performs Rule #5 (Main Steam Line Break) after receiving concurrence from the SRO (detail begin on next page)</p> <p>BOP will perform Rule 3 (page 18) as directed by Rule 5 and Enclosure 5.9 (page 19) as directed by Rule 3.</p> <p>SRO refers to "Parallel Actions" page of the Subsequent Actions Tab and transfers to the Excessive Heat Transfer Tab</p> <p>SRO will initiate EOP Enclosure 5.1 (ES Actuation) (details begin on page 20)</p> <p>The SRO will direct Excessive Heat Transfer Tab actions (see page 23)</p> <p>The SRO will direct an RO to make a PA announcement and notify the OSM to reference the Emergency Plan and NSD-202</p>

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 2 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Rule 5</p> <ol style="list-style-type: none"> Perform the following on <u>affected</u> headers: <ul style="list-style-type: none"> Initiate AFIS 1A SG Digital Channels 1 and 2 Select OFF for 1A MDEFDW Pump (CT-17) <p>Note: Overcooling must be stopped prior to violating NDT limits. Note: The critical task is to stop feeding the affected SG.</p> <ul style="list-style-type: none"> Trip both Main FDW pumps Close 1FDW-315, 1FDW-33, and 1FDW-31 Verify 1 TD EFDW PUMP operating. RNO: IF MD EFDWP for the <u>intact</u> SG is operating, THEN GO TO Step 5. Verify 1B SG is an <u>affected</u> SG. RNO: GO TO Step 7 WHEN overcooling is stopped, THEN adjust steaming of <u>unaffected</u> SG to maintain CETCs constant using <u>either</u>: <ul style="list-style-type: none"> TBVs Dispatch two operators to perform Encl 5.24 (Operation of ADV's) <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">CAUTION</p> <p>Thermal shock conditions may develop if HPI is NOT throttled and RCS pressure NOT controlled.</p> </div> WHEN <u>all</u> exist: <ul style="list-style-type: none"> ___ Core SCM >0° F ___ Rx Pwr ≤ 1% ___ Pzr Level increasing, THEN continue Verify ES HPI actuated Place Diverse HPI in BYPASS

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 3 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Rule 5 (continued)</p> <p>Examiner Note: The ODD voter will be placed to OVERRIDE and will be done here or in Enclosure 5.1 (whichever comes first).</p> <p>11. Place ES CH 1 and ES CH 2 in MANUAL</p> <p>RNO: 1. IF ES CH 1 fails to go to MANUAL, THEN place ODD voter in OVERRIDE.</p> <p>2. IF ES CH 2 fails to go to MANUAL, THEN place EVEN voter in OVERRIDE.</p> <p>12. Perform the following to stabilize RCS P/T:</p> <ul style="list-style-type: none"> • Throttle HPI • Reduce 1HP-120 setpoint to > 100" (180" ACC) • Adjust steaming of <u>unaffected</u> SG (1B SG) to maintain CETCs constant <p>13. WHEN CETCs have stabilized, THEN resume use of T_c for RCS temperature control</p> <p>14. Ensure Rule 3 (Loss of Main or Emergency FDW) is in progress or complete (see next page)</p> <p>Examiner Note: The plant does not meet either of the plant conditions in the Note at the beginning of Rule 8, so no actions are taken in Rule 8.</p> <p>15. Ensure Rule 8 (Pressurized Thermal Shock (PTS)) is in progress or complete</p> <p>16. WHEN directed by CR SRO, THEN EXIT this rule</p>
This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 4 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Crew Response:</p> <p>EOP Rule 3</p> <ol style="list-style-type: none"> 1. Verify loss of Main FDW/EFDW is due to Turbine Building Flooding <p>RNO: GO TO Step 3</p> <ol style="list-style-type: none"> 3. IAAT NO SGs can be fed with FDW (Main/CBP/Emergency), AND <u>any</u> of the following exist: <ul style="list-style-type: none"> • RCS pressure reaches 2300 psig OR NDT limit • Pzr level reaches 375" [340" acc] <p>THEN PERFORM Rule 4 (Initiation of HPI Forced Cooling)</p> 4. Start <u>operable</u> EFDW pumps, as required, to feed all <u>intact</u> SGs 5. Verify <u>any</u> EFDW pump operating. 6. GO TO Step 37 37. IAAT an EFDW valve CANNOT control in AUTO OR manual operation if EFDW valve is desired to control flow/level, THEN perform Steps 38-42 <p>RNO: GO TO step 43</p> <ol style="list-style-type: none"> 43. Verify <u>any</u> SCM ≤ 0°F <p>RNO: IF overcooling or exceeding limits in Rule 7, THEN throttle EFDW as necessary.</p> <ol style="list-style-type: none"> 44. IAAT Unit 1 EFDW is in operation, THEN initiate Encl 5.9 (Extended EFDW Operation) (see next page) 45. WHEN directed by CR SRO, THEN EXIT this rule

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7** Page 5 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Crew Response:</p> <p>EOP Enclosure 5.9 (Extended EFDW Operation)</p> <ol style="list-style-type: none"> 1. Monitor EFDW parameters on EFW graphic display 2. IAAT UST level is < 4', THEN GO TO Step 117 3. IAAT feeding <u>both</u> SGs with one MD EFDWP is desired, THEN perform Steps 4-7 <p>RNO: GO TO Step 8</p> <ol style="list-style-type: none"> 8. Perform the following as required to maintain UST level > 7.5' <ul style="list-style-type: none"> ___ Makeup with demin water ___ Place CST pumps in AUTO 9. IAAT <u>all</u> the following exist: <ul style="list-style-type: none"> ___ Rapid cooldown NOT in progress ___ MD EFDWP operating for each <u>available</u> SG ___ EFDW flow in <u>each</u> header < 600 gpm <p>THEN place 1 TD EFDW PUMP switch in PULL TO LOCK</p> <ol style="list-style-type: none"> 10. Verify 1 TD EFDW PUMP operating <p>RNO: GO TO Step 12</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Loss of the condensate system for ≥ 25 minutes results in cooling down to LPI using the ADVs. If NO HWP's are operating, continuing this enclosure to restore the condensate system is a priority unless the CR SRO deems EOP activities higher priority. The 25 minute criterion is satisfied when a HWP is started and 1C-10 is 10% open. • If the condensate system is operating, the remaining guidance establishes FDW recirc, monitors and maintains UST, and transfers EFDW suction to the hotwell if required. </div> <ol style="list-style-type: none"> 12. Notify CR SRO to set priority based on the NOTE above <u>and</u> EOP activities <p>Note: The SRO should determine that restoring the secondary side of the plant is not a priority at this time and direct the RO to continue in Rule 3.</p>
This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 6 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior								
	OATC/BOP	<p>Crew Response:</p> <p>EOP Enclosure 5.1 (ES Actuation)</p> <ol style="list-style-type: none">Determine <u>all</u> ES channels that <u>should</u> have actuated based on <u>RCS pressure and RB pressure</u>.<ul style="list-style-type: none">RB 3 psig: Channels 1, 2, 3, 4, 5 & 6RB 10 psig: Channels 7 & 8Verify <u>all</u> expected ES digital channels have actuated.IAAT additional ES actuation setpoints are exceeded, THEN perform Steps 1-2.Place Diverse HPI in BYPASS <p>Examiner Note: The ODD voter will be placed to OVERRIDE and will be done here or in Rule 5 (whichever comes first).</p> <ol style="list-style-type: none">Place ES CH 1 and ES CH 2 in MANUAL <p>RNO: 1. IF ES CH 1 fails to go to MANUAL, THEN place ODD voter in OVERRIDE.</p> <ol style="list-style-type: none">IF ES CH 2 fails to go to MANUAL, THEN place EVEN voter in OVERRIDE. <ol style="list-style-type: none">Verify Rule 2 in progress <u>or</u> complete. <p>RNO: GO TO Step 73</p> <ol style="list-style-type: none">Open 1HP-24 and 1HP-25Ensure <u>at least two</u> HPI pumps are operatingVerify 1HP-26 and 1HP-27 are openIAAT at least two HPI pumps are operating, AND HPI flow in <u>any</u> header that has NOT been <u>intentionally</u> throttled is in the Unacceptable Region of Figure 1, THEN open the following in the <u>affected</u> header: <table border="1"><thead><tr><th>√</th><th>1A Header</th><th>√</th><th>1B Header</th></tr></thead><tbody><tr><td></td><td>1HP□410</td><td></td><td>1HP-409</td></tr></tbody></table> <ol style="list-style-type: none">Verify <u>any</u> RCP operatingOpen 1HP-20 and 1HP-21IAAT <u>all</u> exist:<ul style="list-style-type: none">___ Voter associated with ES channel is in OVERRIDE___ An ES channel is <u>manually</u> actuated___ Components on that channel required manipulationTHEN depress RESET on the required channel	√	1A Header	√	1B Header		1HP□410		1HP-409
√	1A Header	√	1B Header							
	1HP□410		1HP-409							
This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.										

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7**

Page 7 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1 (ES Actuation) (continued)</p> <p>EXAMINER NOTE: ES-3 through ES-6 may not actuate, depending on how quickly AFIS is actuated in Rule 5</p> <p>80. IAAT <u>any</u> RCP is operating, AND ES Channels 5 and 6 actuate, THEN perform Steps 81-84</p> <p>81. Place ES CH 5 and ES CH 6 in MANUAL</p> <p>82. Open:</p> <p> ___ 1CC-7</p> <p> ___ 1CC-8</p> <p> ___ 1LPSW-15</p> <p> ___ 1LPSW-6</p> <p>83. Ensure <u>only one</u> CC pump operating</p> <p>84. Ensure Standby CC pump in AUTO</p> <p>85. IAAT ES Channels 3 & 4 are actuated, THEN GO TO Step 86</p> <p>86. Place Diverse LPI in BYPASS</p> <p>87. Place ES CH 3 and ES CH 4 in MANUAL</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"><p style="text-align: center;"><u>CAUTION</u></p><p>LPI pump damage may occur if operated in excess of 30 minutes against shutoff head</p></div> <p>88. IAAT <u>any</u> LPI pump is operating against shutoff head, THEN at the CR SROs discretion, stop <u>affected</u> LPI pumps</p> <p>89. IAAT RCS pressure is < LPI pump shutoff head, THEN perform Steps 90-91</p> <p>RNO: GO TO Step 92</p> <p>92. IAAT 1A <u>and</u> 1B LPI PUMPs are off/tripped, AND <u>all</u> of the following exists.....</p> <p>RNO: GO TO Step 95</p> <p>95. IAAT 1A LPI PUMP fails while operating, AND 1B LPI PUMP is operating, THEN close 1LP-17</p> <p>99. IAAT 1B LPI PUMP fails while operating, AND 1A LPI PUMP is operating, THEN close 1LP-18</p> <p>97. Start A and B OUTSIDE AIR BOOSTER FANS</p> <p>98. Notify Unit 3 to start 3A and 3B OUTSIDE AIR BOOSTER FANS</p>

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

Op-Test No.: **ILT43**

Scenario No.: **2**

Event No.: **7**

Page 8 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1 (ES Actuation) (continued)</p> <p>99. Verify 1CF-1 and 1CF-2 are open</p> <p>100. Verify 1HP-410 closed</p> <p>101. Secure makeup to the LDST</p> <p>102. Verify <u>all</u> ES channel 1-4 components are in the ES position</p> <p>103. Verify Unit 2 turbine tripped</p> <p>RNO: GO TO Step 106</p> <p>106. Close 1LPSW-139</p> <p>107. Place 1LPSW-251 and 1LPSW-252 FAIL SWITCH in FAIL OPEN</p> <p>108. Start <u>all available</u> LPSW pumps</p> <p>109. Verify <u>either</u>:</p> <p>___ Three LPSW pumps operating</p> <p>___ Two LPSW pumps operating when TS only requires two operable</p> <p>110. Open 1LPSW-4 and 1LPSW-5</p> <p>111. IAAT BWST level $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES)</p> <p>112. Dispatch an operator to perform Encl 5.2 (Placing RB Hydrogen Analyzers In Service) (PS)</p> <p>113. Select DECAY HEAT LOW FLOW ALARM SELECT switch to ON</p> <p>114. IAAT ES channels 5 & 6 have actuated, THEN perform Step 115</p> <p>115. Verify <u>all</u> ES channel 5 & 6 components in the ES position</p> <p>RNO: Notify SRO to evaluate components NOT in ES position <u>and</u> initiate action to place in ES position if desired</p> <p>116. IAAT ES channels 7 & 8 have actuated, THEN perform Step 117 – 118.</p> <p>RNO: GO TO Step 119</p> <p>119. Notify U2 CR SRO that SSF is inoperable due to OTS1-1 open.</p> <p>120. Ensure any turnover sheet compensatory measures for ES actuation are complete as necessary.</p> <p>121. IAAT conditions causing ES actuation have cleared, THEN initiate Encl 5.41 (ES Recovery)</p> <p>122. WHEN CR SRO approves, THEN EXIT this enclosure</p>
<p>This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43**Scenario No.: **2**Event No.: **7**

Page 9 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	SRO	<p>Crew Response:</p> <p>EOP Excessive Heat Transfer Tab (EHT)</p> <ol style="list-style-type: none">1. Verify <u>any</u> SG pressure < 550 psig2. Ensure Rule 5 (Main Steam Line Break) in progress or complete3. Place the following in HAND and decrease demand to zero on <u>all affected</u> SGs:<ul style="list-style-type: none">• 1FDW-32 and 1FDW-35 (for 1A SG)4. Close the following on <u>all affected</u> SGs:<ul style="list-style-type: none">• 1FDW-372, 1MS-17, 1MS-79, 1MS-35, 1MS-82, 1MS-3685. Verify level in <u>both</u> SGs < 96% O.R.6. IAAT <u>core</u> SCM is > 0°F, THEN perform Steps 7 and 87. Throttle HPI per Rule 6 (HPI) (CT-5) <p>Note: HPI flow must be throttled and RCS temperature controlled to prevent a solid Pzr and subsequent operation of the PORV.</p> <ol style="list-style-type: none">8. Verify letdown in service <p>RNO: IF desired to restore letdown, THEN initiate Encl 5.5 (Pzr and LDST Level Control) (see page 27)</p> <ol style="list-style-type: none">9. Verify <u>any</u> SG has an intact secondary boundary (intact SG is B)10. Open the following on <u>all intact</u> SGs<ul style="list-style-type: none">• 1FDW-382, 1FDW-369, and 1MS-2611. Start MDEFDWP associated with <u>all intact</u> SGs<ul style="list-style-type: none">• 1B MD EFDWP (already running)12. Feed and steam <u>all intact</u> SGs to stabilize RCS P/T using <u>either</u> of the following:<ul style="list-style-type: none">• TBVs• Dispatch two operators to perform Encl 5.24 (Operation of the ADVs)13. GO TO Step 3232. Verify <u>any</u> of the following:<ul style="list-style-type: none">___ HPI has operated in the injection mode while NO RCPs were operating___ A cooldown below 400°F at > 100°F/hr has occurred
This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7** Page 10 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>EOP Excessive Heat Transfer Tab (continued)</p> <p>RNO: GO TO Step 34</p> <p>34. Verify 1MS-24 and 1MS-33 are closed</p> <p>RNO: 1. IF an <u>unaffected</u> Unit 1 SG is available to supply aux steam, THEN:</p> <p>A. Open aux steam supply from <u>unaffected</u> SG:</p> <ul style="list-style-type: none"> • 1MS-33 <p>B. Close aux steam supply from <u>affected</u> SG:</p> <ul style="list-style-type: none"> • 1MS-24 <p>C. GO TO Step 35</p> <p>35. Open 1AS-8</p> <p>36. Close 1SSH-9</p> <p>37. Perform the following notifications:</p> <ul style="list-style-type: none"> • Notify Chemistry to determine RCS boron concentration • Notify Secondary Chemistry to check for indications of SGTR • Notify RP to check for indications of a SGTR <p>38. IAAT RCS boron is determined to be insufficient for adequate SDM, THEN initiate Encl 5.11 (RCS Boration)</p> <p>39. IAAT <u>all</u> the following exist:</p> <ul style="list-style-type: none"> • ES Bypass Permit satisfied • <u>All</u> SCMs > 0°F • RCS pressure controllable <p>THEN bypass ES as necessary</p> <p>RNO: GO TO Step 41</p> <p>41. Verify <u>any</u> SG is dry</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">NOTE:</p> <p>Minimizing SCM reduces tensile stress on the SG. PORV should be used if Pzr spray is not available. Procedure progression may continue when actions to minimize SCM are in progress.</p> </div> <p>42. Minimize SCM using the following methods as necessary:</p> <ul style="list-style-type: none"> <input type="checkbox"/> De-energize all Pzr heaters <input type="checkbox"/> Use Pzr spray <input type="checkbox"/> Throttle HPI to maintain Pzr level > 100" [180" acc] <input type="checkbox"/> Use PORV
<p>This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7** Page 11 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>EOP Excessive Heat Transfer Tab (continued)</p> <p>43. Verify any RCP operating</p> <p>44. Maintain RCP NPSH</p> <ul style="list-style-type: none"> • OAC • Encl 5.18 (p/T Curves) <p>Examiner Note: SG tube to shell ΔT is not approaching either limit so the crew enters Encl 5.16 and then immediately Exits.</p> <p>45. Initiate Encl 5.16 (SG Tube-to-Shell ΔT Control)</p> <p>46. IAAT <u>all</u> exist:</p> <ul style="list-style-type: none"> • < one RCP operating in <u>any</u> loop • <u>All</u> SCMs > 0°F • RCP available in an idle loop <p>THEN initiate Encl 5.6 (RCP Restart) to start one RCP in each idle loop.</p> <p>47. IAAT <u>all</u> exist:</p> <ul style="list-style-type: none"> • RBS actuated • RB pressure < 10 psig • 1RIA-57 NOT in alarm • 1RIA-58 NOT in alarm <p>THEN stop <u>both</u> RBS pumps.</p> <p>48. IAAT T_{cold} approaches 470°F, AND <u>all</u> RCPs are operating, THEN ensure < four RCPs are operating.</p> <p>49. IAAT BWST level is $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES).</p> <p>50. Verify <u>all</u> SCMs > 0°F</p> <p>51. Verify indications of SGTR ≥ 25 gpm.</p> <p>RNO: GO TO Step 53</p> <p>53. Verify required RCS makeup flow within normal makeup capability.</p> <p>54. Verify <u>either</u>:</p> <ul style="list-style-type: none"> • <u>Any</u> SG isolated • <u>Any</u> SG has an unisolable steam leak <p>55. GO TO FCD Tab (see next page)</p>

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **2** Event No.: **7** Page 12 of 12

Event Description: **1A MSLB inside RB & AFIS fails to actuate**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>EOP Forced Cooldown (FCD) Tab</p> <ol style="list-style-type: none"> IAAT cooldown rate CANNOT be controlled within Tech Spec limits: <ul style="list-style-type: none"> $T_{cold} > 280^{\circ}\text{F}$: $= \leq 50^{\circ}\text{F} / \frac{1}{2} \text{ hr}$ $T_{cold} \leq 280^{\circ}\text{F}$: $= \leq 25^{\circ}\text{F} / \frac{1}{2} \text{ hr}$ <p>THEN GO TO EHT tab.</p> <p>Examiner Note: Letdown may have already been restored in the EHT Tab "if desired". If not, it will be restored here.</p> Verify letdown in service. <p>RNO:</p> <ol style="list-style-type: none"> Ensure CC System in operation. IF 1A Letdown Cooler available, THEN open the following: <ul style="list-style-type: none"> 1HP-1 1HP-3 IF 1B Letdown Cooler available, THEN open the following: <ul style="list-style-type: none"> 1HP-2 1HP-4 Close the following: <ul style="list-style-type: none"> 1HP-6 1HP-7 Open 1HP-5. Adjust 1HP-7 for $\approx 20 \text{ gpm}$ letdown. Open 1HP-6. Adjust 1HP-7 to control desired letdown flow. <ol style="list-style-type: none"> Establish and maintain appropriate level per Rule 7 (SG Feed Control) and pressure in <u>available intact</u> SGs. IAAT T_{cold} approaches 470°F, AND <u>all</u> RCPs are operating, THEN ensure < four RCPs are operating.

This event is complete when the SRO reaches step 37 of the EHT Tab, or as directed by the Lead Examiner.

NOTE

At any time during this scenario the operator may choose to use Enclosure 5.5 to maintain RCS inventory control. See below.

ENCLOSURE 5.5

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
NOTE Maintaining Pzr level >100" [180" acc] will ensure Pzr heater bundles remain covered.	
1. ___ Utilize the following as necessary to maintain <u>desired</u> Pzr level: <ul style="list-style-type: none">• 1A HPI Pump• 1B HPI Pump• 1HP-26• 1HP-7• 1HP-120 setpoint or valve demand• 1HP-5	___ IF 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level.
2. ___ IAAT <u>makeup</u> to the <u>LDST</u> is desired, THEN makeup from 1A BHUT.	
3. ___ IAAT it is desired to <u>secure</u> <u>makeup</u> to LDST, THEN secure makeup from 1A BHUT.	
4. ___ IAAT it is desired to <u>bleed</u> letdown flow to 1A BHUT, THEN perform the following: <ul style="list-style-type: none">A. Open:<ul style="list-style-type: none">___ 1CS-26___ 1CS-41B. ___ Position 1HP-14 to BLEED.C. ___ Notify SRO.	
5. ___ IAAT letdown <u>bleed</u> is NO longer desired, THEN position 1HP-14 to NORMAL.	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>6. <input type="checkbox"/> IAAT 1C HPI PUMP is required, THEN perform Steps 7 - 9.</p>	<p><input type="checkbox"/> GO TO Step 10.</p>
<p>7. <input type="checkbox"/> Open:</p> <ul style="list-style-type: none"> • 1HP-24 • 1HP-25 	<p>1. <input type="checkbox"/> IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. <input type="checkbox"/> Start 1A LPI PUMP.</p> <p>B. <input type="checkbox"/> Start 1B LPI PUMP.</p> <p>C. Open:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1LP-15 <input type="checkbox"/> 1LP-16 <input type="checkbox"/> 1LP-9 <input type="checkbox"/> 1LP-10 <input type="checkbox"/> 1LP-6 <input type="checkbox"/> 1LP-7 <p>D. <input type="checkbox"/> IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. <input type="checkbox"/> Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. <input type="checkbox"/> GO TO Step 8.</p> <p>2. <input type="checkbox"/> IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, THEN perform the following:</p> <p>A. <input type="checkbox"/> IF three HPI pumps are operating, THEN secure 1B HPI PUMP.</p> <p>B. <input type="checkbox"/> IF < 2 HPI pumps are operating, THEN start HPI pumps to obtain two HPI pump operation, preferably in opposite headers.</p> <p>C. <input type="checkbox"/> GO TO Step 9.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8. <input type="checkbox"/> Start 1C HPI PUMP.	<input type="checkbox"/> IF at least two HPI pumps are operating, THEN throttle 1HP-409 to maintain desired Pzr level.
9. Throttle the following as required to maintain desired Pzr level: <input type="checkbox"/> 1HP-26 <input type="checkbox"/> 1HP-27	1. <input type="checkbox"/> IF at least two HPI pumps are operating, AND 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level. 2. <input type="checkbox"/> IF 1A HPI PUMP <u>and</u> 1B HPI PUMP are operating, AND 1HP-27 will NOT open, THEN throttle 1HP-409 to maintain desired Pzr level.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>10. <input type="checkbox"/> IAAT <u>LDST</u> level CANNOT be maintained, THEN perform Step 11.</p>	<p><input type="checkbox"/> GO TO Step 12.</p>
<p>11. <input type="checkbox"/> Perform the following:</p> <ul style="list-style-type: none"> • Open 1HP-24. • Open 1HP-25. • Close 1HP-16. 	<p>1. <input type="checkbox"/> IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. <input type="checkbox"/> Start 1A LPI PUMP.</p> <p>B. <input type="checkbox"/> Start 1B LPI PUMP.</p> <p>C. Open:</p> <p><input type="checkbox"/> 1LP-15</p> <p><input type="checkbox"/> 1LP-16</p> <p><input type="checkbox"/> 1LP-9</p> <p><input type="checkbox"/> 1LP-10</p> <p><input type="checkbox"/> 1LP-6</p> <p><input type="checkbox"/> 1LP-7</p> <p>D. <input type="checkbox"/> IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. <input type="checkbox"/> Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. <input type="checkbox"/> GO TO Step 12.</p> <p>2. <input type="checkbox"/> IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, AND three HPI pumps are operating, THEN secure 1B HPI PUMP.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12. <input type="checkbox"/> IAAT additional makeup flow to LDST is desired, AND 1A BLEED TRANSFER PUMP is operating, THEN dispatch an operator to close 1CS-48 (1A BHUT Recirc) (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.).	
13. <input type="checkbox"/> IAAT <u>two</u> Letdown Filters are desired, THEN perform the following: <input type="checkbox"/> Open 1HP-17. <input type="checkbox"/> Open 1HP-18	
14. <input type="checkbox"/> IAAT <u>all</u> of the following exist: <input type="checkbox"/> Letdown isolated <input type="checkbox"/> LPSW available <input type="checkbox"/> Letdown restoration desired THEN perform Steps 15 - 33. {41}	<input type="checkbox"/> GO TO Step 34.
15. Open: <input type="checkbox"/> 1CC-7 <input type="checkbox"/> 1CC-8	1. <input type="checkbox"/> Notify CR SRO that letdown CANNOT be restored due to inability to restart the CC system. 2. <input type="checkbox"/> GO TO Step 34.
16. <input type="checkbox"/> Ensure only one CC pump running.	
17. <input type="checkbox"/> Place the non-running CC pump in AUTO.	
18. Verify <u>both</u> are open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-2	1. <input type="checkbox"/> IF 1HP-1 is closed due to 1HP-3 failing to close, THEN GO TO Step 20. 2. <input type="checkbox"/> IF 1HP-2 is closed due to 1HP-4 failing to close, THEN GO TO Step 20.
19. <input type="checkbox"/> GO TO Step 22.	
NOTE Verification of leakage requires visual observation of East Penetration Room.	
20. <input type="checkbox"/> Verify letdown line leak in East Penetration Room has occurred.	<input type="checkbox"/> GO TO Step 22.
21. <input type="checkbox"/> GO TO Step 34.	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22. <input type="checkbox"/> Monitor for unexpected conditions while restoring letdown.	
23. <input type="checkbox"/> Verify <u>both</u> letdown coolers to be placed in service.	1. <input type="checkbox"/> IF 1A letdown cooler is to be placed in service, THEN open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-3 2. <input type="checkbox"/> IF 1B letdown cooler is to be placed in service, THEN open: <input type="checkbox"/> 1HP-2 <input type="checkbox"/> 1HP-4 3. <input type="checkbox"/> GO TO Step 25.
24. Open: <input type="checkbox"/> 1HP-1 <input type="checkbox"/> 1HP-2 <input type="checkbox"/> 1HP-3 <input type="checkbox"/> 1HP-4	
25. <input type="checkbox"/> Verify <u>at least one</u> letdown cooler is aligned.	Perform the following: A. <input type="checkbox"/> Notify CR SRO of problem. B. <input type="checkbox"/> GO TO Step 34.
26. <input type="checkbox"/> Close 1HP-6.	
27. <input type="checkbox"/> Close 1HP-7.	
28. <input type="checkbox"/> Verify letdown temperature < 125°F.	1. <input type="checkbox"/> Open 1HP-13. 2. Close: <input type="checkbox"/> 1HP-8 <input type="checkbox"/> 1HP-9&11 3. <input type="checkbox"/> IF <u>any</u> deborating IX is in service, THEN perform the following: A. <input type="checkbox"/> Select 1HP-14 to NORMAL. B. <input type="checkbox"/> Close 1HP-16. 4. <input type="checkbox"/> Select LETDOWN HI TEMP INTLK BYP switch to BYPASS.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29. ___ Open 1HP-5.	
30. ___ Adjust 1HP-7 for \approx 20 gpm letdown.	
31. ___ WHEN letdown temperature is < 125°F, THEN place LETDOWN HI TEMP INTLK BYP switch to NORMAL.	
32. ___ Open 1HP-6.	
33. ___ Adjust 1HP-7 to control desired letdown flow.	

NOTE

AP/32 (Loss of Letdown) provides direction to cool down the RCS to offset increasing pressurizer level.

34. ___ IAAT it is determined that letdown is unavailable due to equipment failures <u>or</u> letdown system leakage, THEN notify CR SRO to initiate AP/32 (Loss of Letdown).	
35. ___ IAAT > 1 HPI pump is operating, AND additional HPI pumps are NO longer needed, THEN perform the following: A. ___ Obtain SRO concurrence to reduce running HPI pumps. B. ___ Secure the desired HPI pumps. C. ___ Place secured HPI pump switch in AUTO, if desired.	
36. ___ IAAT <u>all</u> the following conditions exist: ___ Makeup from BWST NOT required ___ LDST level > 55" ___ <u>All</u> control rods inserted ___ Cooldown Plateau NOT being used THEN close: ___ 1HP-24 ___ 1HP-25	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
37. ___ Verify 1CS-48 (1A BHUT Recirc) has been closed to provide additional makeup flow to LDST.	___ GO TO Step 39.
38. ___ WHEN 1CS-48 (1A BHUT Recirc) is NO longer needed to provide additional makeup flow to LDST, THEN perform the following: A. ___ Stop 1A BLEED TRANSFER PUMP. B. ___ Locally position 1CS-48 (1A BHUT Recirc) <u>one</u> turn open (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.). C. ___ Close 1CS-46. D. ___ Start 1A BLEED TRANSFER PUMP. E. ___ Locally throttle 1CS-48 (1A BHUT Recirc) to obtain 90 - 110 psig discharge pressure. F. ___ Stop 1A BLEED TRANSFER PUMP.	
39. ___ Verify two Letdown Filters in service, AND <u>only one</u> Letdown filter is desired.	___ GO TO Step 41.
40. Perform <u>one</u> of the following: ___ Place 1HP-17 switch to CLOSE. ___ Place 1HP-18 switch to CLOSE.	
41. ___ WHEN directed by CR SRO, THEN EXIT this enclosure.	

• • • END •

CRITICAL TASKS

1. Trip the Turbine (Failure to Auto trip) **(CT-18) (page 14)**
Places EHC pumps in PULL TO LOCK resulting in the turbine stop valves going closed.
2. Stop Overcooling **(CT-17) (page 16)**
Isolate the affected (overcooling) SG during EHT to prevent approach to NDT limits (stopped feeding the A SG by turning off the 1A MDEFDW pump).
3. Throttle HPI per Rule 6 (HPI) **(CT-5) (page 23)**
Done to prevent overpressurization of the RCS when SCM exists by keeping the RCS pressure below the RV P-T limit, while maintaining HPI flow above minimum allowable (EHT mitigation).

SAFETY: Take a Minute			
UNIT 0 (OSM)			
SSF Operable: No	KHU's Operable: U1 - OH, U2 - UG	LCTs Operable: 2	Fuel Handling: No
UNIT STATUS (CR SRO)			
Unit 1 Simulator		Other Units	
Mode: 1		Unit 2	Unit 3
Reactor Power: 70%		Mode: 1	Mode: 5
Gross MWE: 660		100% Power	0% Power (shutdown)
RCS Leakage: 0.024 gpm		EFDW Backup: Yes	EFDW Backup: No
RBNS Rate: 0.01 gpm			
Technical Specifications/SLC Items (CR SRO)			
Component/Train	OOS Date/Time	Restoration Required Date/Time	TS/SLC #
SSF	48 hours ago	5 days from now	TS 3.10.1
Shift Turnover Items (CR SRO)			
Primary			
<ul style="list-style-type: none">Holding power at 70% following FDW heater repairs. Rx Engineering evaluating return to power maneuvering plan. Anticipate power increase next shift. No water additions for reactivity control required this shift.			
<ul style="list-style-type: none">1B CFT Pressure high. In-leakage has been identified and repaired. Reduce 1B CFT pressure to below the High Pressure alarm setpoint			
<ul style="list-style-type: none">			
<ul style="list-style-type: none">			
Secondary			
<ul style="list-style-type: none">1MS-82 and 1MS-84 closed in support of maintenance. TDEFWP supply from AS only.			
<ul style="list-style-type: none">Unit 2 has the Aux Steam Header			
<ul style="list-style-type: none">			
<ul style="list-style-type: none">			
<ul style="list-style-type: none">			
Reactivity Management (CR SRO)			
RCS Boron: 85 ppmB	Gp 7 Rod Position: 66%		
Human Performance Emphasis (OSM)			
Procedure Use and Adherence			

Facility: **Oconee**Scenario No.: **3**Op-Test No.: **1**Examiners: _____

_____Operators: _____ **SRO**
_____ **OATC**
_____ **BOP**

Initial Conditions:

- Reactor Power = 3% Stable

Turnover:

- Holding power at 3% at step 3.42 of OP/1/A/1102/001 (Controlling Procedure for Unit Startup) Encl. 4.7 (Unit Startup from 532°F/2155 psig to Mode 1) while PT/1/A/0630/001 (Mode Change Verification) Enclosure 13.10 (Prior To Entry Into MODE 1) is being performed.
- Per Rx Engineering, use OP/1/A/1103/004A (RCS Boration) Encl. 4.1 (RCS Boration from CBAST with CBAST Pump) and add approximately 50 gal CBAST with 1A CBAST Pump in Manual and flush with approximately 50 gal of DW. Should result in approximately 15% rod withdrawal on Gp 7 over next 2 hrs.
- Both Letdown filters are in service and Chemistry has requested they both be left in service until the plant reaches 100% power.

Event No.	Malfunction No.	Event Type*	Event Description
0a	MPI300		Block all Rx trips except Manual
0b	Override		1HP-25 failed closed
0c	Override		1HP-20 fails to close
1		R: OATC, SRO	RCS Boration From CBAST
2	MSS200	C, BOP, SRO	Vacuum Leak
3	MPS090	C: OATC SRO	1HP-120 fails closed (concurrent with Event 2)
4	MPS 290	C: BOP, SRO (TS)	1HP-5 fails closed
5	MPS400	C: BOP, SRO (TS)	60 gpm RCS leak
6	MCR070	C: OATC, SRO	Group 1 Rods drop into core requiring Manual Rx Trip
7	MPS400	M: All	SBLOCA <ul style="list-style-type: none">• 1HP-25 fails closed• 1HP-20 fails to close
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **1** Page 1 of 5

Event Description: **RCS Boration From CBAST**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>OP/1/A/1103/004A, Encl 4.1 (RCS Boration From CBAST With CBAST Pump)</p> <p style="text-align: center;">NOTE:</p> <p><input type="checkbox"/> OP/1/A/1103/004 (Soluble Poison Control) provides guidance for RCS boron change calculation or computer calculation for determining required volumes. (R.M.)</p> <p><input type="checkbox"/> LDST temperature may increase from adding CBAST because of CBAST temperature.</p> <p><input type="checkbox"/> 50 gal flush must be performed to ensure calculated volume of CBAST is added.</p> <p>Main process piping between CBAST and LDST contains {16}</p> <p><input type="checkbox"/> If RCS boration is for a Forced Outage, targeted boron should not exceed 200 ppm above the required SDM to prevent excessive RCS boration. The 200 ppm above required SDM will borate the Pressurizer to the required SDM since the Pressurizer usually lags the RCS by approximately 200 ppm.</p> <p>Section 2: Procedure</p> <p>2.1 Determine required volume of CBAST needed for desired RCS boron changes. (R.M.)</p> <ul style="list-style-type: none"> 50 gal of DW added due to flushing must be included in determination Volume required _____ gallons. <p>2.2 CBAST required volume approved (SRO). (R.M.)</p> <p style="text-align: center;">NOTE:</p> <p>Placing an idle Letdown Filter in service can change RCS boron by adding ≈ 60 gals of water to RCS at different boron (negligible for RCS boration). {10} (R.M.)</p> <p>2.3 IF two Letdown Filters are available, perform the following:</p> <ul style="list-style-type: none"> Ensure open 1HP-17 (1A LETDOWN FILTER INLET) Ensure open 1HP-18 (1B LETDOWN FILTER INLET) <p>2.4 Ensure open 1CS-64 (CBAST OUTLET).</p> <p>2.5 Open 1CS-72 (CBAST Header to Letdown Filter Inlet). (A-2 LDST Hatch area)</p>
<p>This event is complete when the 50 gallon piping flush is complete or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **1** Page 2 of 5
Event Description: **RCS Boration From CBAST**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>OP/1/A/1103/004A, Encl 4.1 (continued)</p> <p>2.6 Ensure 1HP-15 Controller reset for Normal Operations.</p> <p>2.7 WHILE RCS boration in progress, monitor the following indication: {19}</p> <ul style="list-style-type: none"> • Appropriate Range NIs • Primary Tank Levels • CRD position (if applicable) • Neutron error (if applicable) <p>NOTE: If RCS Boration is being performed during a unit shutdown, CBAST pump should NOT be started until directed by OP/1/A/1102/010 (Controlling Procedure For Unit Shutdown).</p> <p>2.8 IF desired, operate the 1A CBAST pump in manual per Section 3 (Make-Up With 1A CBAST Pump In Manual). (see page 5)</p> <p>NOTE: If a Deborating IX is in service the CBAST pump must be operated in manual.</p> <p>2.9 IF desired, operate the 1A CBAST pump in auto per Section 4 (Make-Up With 1A CBAST Pump In Auto) N/A</p> <p>NOTE: 50 gal flush must be performed to ensure calculated volume of CBAST is added. (R.M.)</p> <p>2.10 Perform piping flush per Section 6 (Piping Flush From CBAST)(see page 6).</p> <p>2.11 IF a Deborating IX is NOT in service, verify closed 1HP-16 (LDST MAKEUP ISOLATION) (R.M.)</p> <p>NOTE: If during RCS makeup the wrong volume is added an SRO should evaluate the effect on reactivity and take action to minimize reactivity management events. (R.M.)</p> <p>2.12 Perform one of the following: (R.M.)</p> <ul style="list-style-type: none"> • Verify correct volume added • Notify appropriate SRO

This event is complete when the 50 gallon piping flush is complete or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **1** Page 3 of 5
Event Description: **RCS Boration From CBAST**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>OP/1/A/1103/004A, Encl 4.1 (continued)</p> <p>2.13 Ensure 1HP-15 Controller reset for Normal Operation</p> <p>2.14 IF "Continuous Boron Dilution Bypass Keyswitch" was bypassed, place "Continuous Boron Dilution Bypass Keyswitch" to "Normal" (Cable Rm). (Continue)</p> <p>2.15 Close 1CS-72 (CBAST to Letdown Filter Inlet). (A-2 LDST Hatch area) (R.M.)</p> <p>2.16 Record RCS make-up volume in Auto Log.</p> <p>2.17 IF desired, request RCS and Pzr sample for boron. (R.M.)</p> <p>_____</p> <p>Person Notified _____ Date _____</p> <p style="text-align: center;">NOTE:</p> <p>1B Letdown Filter is the preferred filter to leave in service for ALARA.</p> <p>EXAMINER CUE: If asked, inform the candidate it is not desired to remove one letdown filter from service.</p> <p>2.18 IF desired, remove one Letdown Filter from service by performing the following:</p> <p>2.18.1 Verify > 10 minutes since RCS makeup was secured. {7} (R.M.)</p> <p>2.18.2 Position one of the following:</p> <ul style="list-style-type: none"> • 1HP-17 (1A LETDOWN FILTER INLET) switch to "CLOSE" • 1HP-18 (1B LETDOWN FILTER INLET) switch to "CLOSE" <p>2.18.3 Record current RCS boron in Component Boron Log for OOS Letdown Filter. {10} (R.M.)</p>

This event is complete when the 50 gallon piping flush is complete or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **1** Page 4 of 5
Event Description: **RCS Boration From CBAST**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>OP/1/A/1103/004A, Encl 4.1 (continued)</p> <p>Section 3. Make-Up With 1A CBAST Pump In Manual</p> <p>3.1 Perform the following:</p> <ul style="list-style-type: none"> • IF "BLEED" is NOT required for makeup, open 1HP-16 (LDST MAKEUP ISOLATION) • IF 1SA-2/D-10 (CRD Continuous Boron Dilute Inhibit) in alarm AND "BLEED" required during makeup, perform one of the following: <ol style="list-style-type: none"> 1. Ensure open 1HP-16 (LDST Makeup Isolation) (Waste Disposal Panel) 2. Perform the following: <ol style="list-style-type: none"> A. Place "Continuous Boron Dilution Bypass Keyswitch" to "Bypass" (Cable Rm) B. Ensure open 1HP-16 (LDST MAKEUP ISOLATION) <p>3.2 Verify open 1CS-64 (CBAST OUTLET).</p> <p>3.3 Ensure 1A CBAST pump to "MAN".</p> <p>NOTE: LDST temperature may increase from adding CBAST because of CBAST temperature.</p> <p>3.4 Place 1A CBAST pump to "ON". (R.M.)</p> <p>NOTE: Increased makeup flow may be required during RCS boration, ZPPT, etc. {9}</p> <p>3.5 IF AT ANY TIME increased makeup flow is required, perform Section 5 (Throttling 1CS-70 For Increased Make-up Flow). {9}</p> <p>NOTE: Selecting STOP / "START" on 1HP-15 Controller will reset 1HP-15 batch.</p> <p>3.6 IF volume of > 5500 gallons is desired, reset 1HP-15 batch size between 5000-5500 gallons by selecting "STOP" / "START".</p> <p>NOTE: CBAST should NOT be pumped < 6" using 1A CBAST pump. {6}</p> <p>3.7 WHEN desired volume is added, position 1A CBAST pump to "OFF". (R.M.)</p> <p>3.8 Ensure 1HP-15 Controller reset for Normal Operations.</p> <p>3.9 IF a Deborating IX is NOT in service, close 1HP-16 (LDST MAKEUP ISOLATION). (R.M.)</p> <p>3.10 WHEN desired return to next step in Section 2 (Procedure) (page 3).</p>
<p>This event is complete when the 50 gallon piping flush is complete or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **1** Page 5 of 5
Event Description: **RCS Boration From CBAST**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>OP/1/A/1103/004A, Encl 4.1 (continued)</p> <p>Section 6. Piping Flush from CBAST</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">NOTE: <input type="checkbox"/></p> <p>Flush prevents boron from crystallizing in piping if heat tracing fails. 50 gal flush must be performed to ensure calculated volume of CBAST is added. (R.M.)</p> <p><input type="checkbox"/> Failure to properly position valves could affect CBAST boron. (R.M.)</p> </div> <p>6.1 After CBAST make-up flush header:</p> <p>6.1.1 Ensure 1A CBAST pump is "OFF".</p> <p>6.1.2 Ensure DW make-up stopped to all units UST(s) (ensures adequate DW pressure).</p> <p>6.1.3 Close 1CS-64 (CBAST OUTLET). (R.M.)</p> <p>6.1.4 Ensure closed 1CS-70 (CBAST Recirc). (Unit 1 CBAST Rm) (R.M.)</p> <p>6.1.5 Ensure open 1HP-16 (LDST MAKEUP ISOLATION).</p> <p>6.1.6 Throttle 1DW-87 (DW To 1A CBAST Pump Suction) to establish flow. (Unit 1 CBAST Rm)</p> <p>6.1.7 Flush ≥ 50 gallons. (R.M.)</p> <p>6.1.8 Close 1DW-87 (DW To 1A CBAST Pump Suction). (Unit 1 CBAST Rm) (R.M.)</p> <p>6.1.9 Open 1CS-70 (CBAST Recirc). (Unit 1 CBAST Rm) (R.M.)</p> <p>6.1.10 Open 1CS-64 (CBAST OUTLET).</p> <p>6.1.11 IF a Deborating IX is NOT in service, close 1HP-16 (LDST MAKEUP ISOLATION). (R.M.)</p> <p>6.2 IF make-up from CBAST is no longer needed, continue with Step 2.11 for normal alignment (page 3).</p>
<p>This event is complete when the 50 gallon piping flush is complete or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **2** Page 1 of 1
Event Description: **Vacuum Leak**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant Response:</p> <ul style="list-style-type: none"> 1SA-3/A-6, Condenser Vacuum Low (25" Hg) <p>Crew response:</p> <p>1SA-3/A-6, Condenser Vacuum Low</p> <p>3.1 Refer to AP/2/A/1700/027</p> <p>AP/1/A/1700/027 (Loss of Condenser Vacuum)</p> <p>4.1 Announce AP entry using the PA system.</p> <p>4.2 IAAT both of the following apply:</p> <p>___ Condenser vacuum \leq 22" Hg</p> <p>___ MODE 1 or 2</p> <p>THEN trip the Rx.</p> <p>4.3 Dispatch operators to perform the following:</p> <p>___ Perform Encl 5.1 (Main Vacuum Pump Alignment)</p> <p>___ Look for vacuum leaks</p> <p>4.4 Ensure <u>all</u> available Main Vacuum Pumps operating (A, B, & C)</p> <p>Booth Cue: After all MVPs are running, using TIME COMPRESSION, call the Control Room to notify the operator that the Main Vacuum Pumps are aligned to Unit 1.</p> <p>4.5 Ensure 1V-186 is closed</p> <p>4.6 Ensure Steam to Steam Air Ejector A, B, C > 255 psig</p> <p>4.7 Verify Steam Seal Header Press > 1.5 psig</p> <p>4.8 Ensure <u>all</u> available CCW pumps operating</p> <p>Booth Cue: Call Control Room as the NEO sent out to look for vacuum leaks and report that a leak was found on the 1B Main FDW Pump pumping trap sight glass.</p> <p>The leak will be removed after the control room directs the NEO to isolate the sight glass.</p> <p>4.9 Verify Condensate flow \geq 2300 gpm</p> <p>4.10 WHEN condenser vacuum is stable, AND Encl 5.1 (Main Vacuum Pump Alignment) is complete, THEN EXIT this procedure</p>
This event is complete when SRO reaches Step 4.10 of AP/027, or as directed by the lead examiner.		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **3**

Page 1 of 3

Event Description: **1HP-120 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC	<p>Plant Response:</p> <ul style="list-style-type: none"> • RCS makeup flow goes to \approx 10 gpm (HPI Warming Flow) • PZR level begins to decrease • LDST level begins to increase • Valve position <u>demand</u> for 1HP-120 begins to increase to the 100% demand value and valve position indication will indicate closed (green light) • 1SA-02/ B-1, HP LETDOWN TANK LEVEL HIGH/LOW, will illuminate after several minute time delay <p>Crew Response:</p> <p>Examiner Note: <i>If the 1HP-120 failure is recognized before the LDST statalarm actuates, the SRO will make a direct entry into AP/14 (next page). Otherwise they may perform the ARG and OP below and enter AP/14 when the SRO determines the entry conditions are met</i></p> <p>The crew may refer to ARG 1SA-02/B-1, HP LETDOWN TANK LEVEL HIGH/LOW and perform the required actions.</p> <p>3.1 Instrument Failed:</p> <p>3.1.1 Compare alternate channels to verify alarm validity:</p> <ul style="list-style-type: none"> • O1A1042 LDST LEVEL 1 • O1A1043 LDST LEVEL 2 <p>3.2 Verify LDST pressure does not exceed LDST level/pressure operability requirement per OP/1/A/1104/002, (HPI System).</p> <p>3.3 IF High Level alarm is received:</p> <p>3.3.1 Bleed as required by OP/1/A/1103/004 (Soluble Poison Concentration Control).</p> <p>EXAMINER NOTE: <i>The crew may perform Enclosure 4.8 as necessary to reduce inventory. Enclosure 4.6 is performed to makeup/batch.</i></p> <p>OP/1/A/1103/004, Soluble Poison Concentration Control (Enclosure 4.8 Reducing RCS Inventory)</p> <p>2.1 Verify HPI System operating.</p> <p>2.2 Ensure open 1CS-26 (LETDOWN TO RC BHUT).</p> <p>2.3 Ensure open 1CS-41 (1A RC BHUT INLET).</p> <p>2.4 Position 1HP-14 (LDST BYPASS) to "BLEED".</p> <p>2.5 WHEN desired LDST level achieved, position 1HP-14 to "NORMAL".</p>
	OATC	

This event is complete when normal HPI makeup and letdown flow have been restored, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **3**

Page 2 of 3

Event Description: **1HP-120 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>Examiner Note: The crew may initiate EOP Encl 5.5 for RCS inventory control due LDST level increase (see page 39)</p> <p>Crew Response:</p> <p>AP/1/A/1700/014, Loss of Normal Makeup and/or RCP Seal Injection</p> <p>3.1 IAAT RCP seal injection flow is lost, AND Component Cooling is lost, THEN perform the following:</p> <ul style="list-style-type: none"> A. Trip the Rx B. Stop all RCPs C. Initiate AP/25 (SSF EOP) <p>3.2 IAAT loss of suction to operating HPI pumps is indicated:</p> <ul style="list-style-type: none"> • Motor amps low or cycling • Discharge pressure low or cycling • Abnormal LDST level trend <p>THEN GO TO Step 3.3</p> <p>RNO: GO TO Step 4.7</p> <p>4.7 Announce AP entry using PA System</p> <p>4.8 Verify <u>any</u> HPI pump operating</p> <p>4.9 Verify RCP seal injection or HPI makeup line leak indicated by <u>any</u> of the following:</p> <ul style="list-style-type: none"> • Report of line leak • Abnormal LDST level decrease • 1RIA-32 (AUX BLDG GAS) • 1RIA-45 (NORM VENT GAS) • RB RIAs in alarm • Abnormal RBNS level increase • Abnormal LAWT or HAWT level increase <p>RNO: GO TO Step 4.11</p> <p>4.11 Verify RCP seal injection flow exists to <u>any</u> RCP</p> <p>4.12 Verify 1HP-120 operable in AUTO</p> <p>RNO: 1. Attempt to operate 1HP-120 in HAND</p> <p>2. IF 1HP-120 fails to operate, THEN GO TO Step 4.176</p> <p>4.176 Perform the following as necessary to maintain Pzr level > 200"</p> <ul style="list-style-type: none"> • Close 1HP-6 • Throttle 1HP-7 • Throttle 1HP-26
<p>This event is complete when normal HPI makeup and letdown flow have been restored, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **3**

Page 3 of 3

Event Description: **1HP-120 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/OATC/ BOP	<p>AP/14, Loss of Normal Makeup and/or RCP Seal Injection (continued)</p> <p>4.177 Place 1HP-120 in HAND and close</p> <p>4.178 Notify SPOC to investigate and repair 1HP-120</p> <p>4.179 WHEN 1HP-120 is repaired, THEN slowly re-establish flow through 1HP-120</p> <p>Booth Cue: Fire Timer 12 to remove 1HP-120 failure, then call the CR and inform them that, using time compression, 1HP-120 has been repaired.</p> <p>4.180 Place 1HP-120 in AUTO.</p> <p>4.181 Close 1HP-26.</p> <p>4.182 Verify 1HP-122 (RC VOLUMECONTROL BYPASS) throttled.</p> <p>RNO: GO TO Step 4.184</p> <p>4.184 Verify 1HP-5 open.</p> <p>4.185 Verify 1HP-6 open.</p> <p>RNO: 1. Throttle 1HP-7 for \cong 20 gpm letdown flow. 2. Open 1HP-6.</p> <p>4.186 Adjust 1HP-7 for desired letdown</p> <p>4.187 WHEN conditions permit, THEN EXIT this procedure.</p>
<p>This event is complete when normal HPI makeup and letdown flow have been restored, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **4**

Page 1 of 3

Event Description: **1HP-5 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Plant Response:</p> <ul style="list-style-type: none"> 1HP-5 green closed light is lit Pzr Level slowly increases LDST Level slowly decreases <p>Crew Response: SRO should enter AP/1/A/1700/032 (Loss of Letdown)</p> <p style="text-align: center;">NOTE</p> <p>This AP may be performed by an RO if the EOP is also in progress. The Procedure Director should resume directing the actions of this AP as soon as EOP actions allow.</p> <p>4.1 Place 1HP-120 in HAND <u>and</u> reduce demand to zero.</p> <p>4.2 Position the standby HPI pump switch to OFF.</p> <p style="text-align: center;">CAUTION</p> <p>RCP individual seal return valves will close if seal injection is < 22 gpm with CC flow < 575 gpm.</p> <p>Note: Statalarm 1SA-2/B-2 (RCP SEAL INLET HEADER FLOW HIGH/LOW) will actuate once seal inlet header flow is decreased to < 22 gpm)</p> <p>4.3 Throttle 1HP-31, preferably in AUTO, to establish 12 - 15 gpm SEAL INLET HDR FLOW.</p> <p style="text-align: center;">NOTE</p> <p>The running HPI pump may operate below 65 gpm for up to 4 hours. HPI pump time of operation below minimum flow is cumulative.</p> <p>4.4 Verify HPI pump flow ≥ 65 gpm. (<u>30</u> gpm Recirc + ____ SI + ____ MU)</p> <p>RNO: Log beginning time for HPI pump flow below minimum</p> <p>4.5 Initiate makeup to LDST as required (Encl.5.5 or OP/1/A/1103/004).</p> <p>4.6 Initiate notification of the following:</p> <p>____ OSM to reference the following:</p> <ul style="list-style-type: none"> OMP 1-14 (Notifications) Emergency Plan <p>____ STA</p> <p>4.7 Verify 1HP-5 closed</p> <p>4.8 Dispatch an operator to 1HP-5 (LETDOWN ISOLATION)(East Pen Rm) to establish communication with Control Room.</p>
<p>This event is complete when the Standby HPI pump is placed in AUTO, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **4**

Page 2 of 3

Event Description: **1HP-5 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/ BOP	<p>AP/1/A/1700/032 (continued)</p> <p style="text-align: right;">NOTE:</p> <p>Tech Spec 3.4.9 applies when indicated Pzr level > 260" <input type="checkbox"/> (285").</p> <p>Conditions where it is known that letdown CANNOT be restored do not require waiting until 260" <input type="checkbox"/> to begin a Rapid Shutdown.</p> <p>4.9 IAAT either of the following exists: ___ Pzr level ≥ 260", AND letdown CANNOT be established ___ Plant conditions exist such that letdown will NOT be restored THEN initiate unit shutdown per AP/29 (Rapid Unit Shutdown).</p> <p>4.10 IAAT Pzr level ≥ 375", THEN trip Rx.</p> <p>4.11 Determine the cause of loss of letdown AND GO TO Step 4.12 for 1HP-5 failed closed.</p> <p>4.12 Close 1HP-6.</p> <p>4.13 Close 1HP-7.</p> <p>4.14 Open 1HP-5 (will NOT open)</p> <p>RNO: 1. Notify operator dispatched to 1HP-5 to: A. Manually open 1HP-5 (LETDOWN ISOLATION) (East Pen Rm). B. Maintain continuous communication with Control Room.</p> <p>Booth cue: <i>When called, use TIME COMPRESSION and FIRE TIMER 14 to manually open 1HP-5.</i></p> <p>2. IF 1HP-5 is manually open, THEN enter TS 3.6.3.</p> <p>3. IF 1HP-5 CANNOT be manually opened, THEN GO TO Step 4.28.</p> <p>4.15 Place CC system in operation</p> <p>NOTE: If letdown temp is still <135°F, skip RNO and go directly to step 4.17</p> <p>4.16 Verify letdown temperature < 135°F (it is not)</p> <p>RNO: 1. Open 1HP-13. 2. Close the following: • 1HP-8 • 1HP-9&11</p>
<p>This event is complete when the Standby HPI pump is placed in AUTO, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **4**

Page 3 of 3

Event Description: **1HP-5 fails closed**

Time	Position	Applicant's Actions or Behavior
	SRO/ BOP	<p>AP/1/A/1700/032 step 4.16 RNO (continued)</p> <p>3. IF any deborating IX in service...(no deborating IX is in service)</p> <p>Note: Statalarm 1SA-2/E-4 (HP LETDOWN FLOW INTERLOCK BYPASSED) will actuate once the LETDOWN HI TEMP INTLK BYP switch is placed in BYPASS.</p> <p>4. Select LETDOWN HI TEMP INTLK BYP switch to BYPASS</p> <p>4.17 Throttle open 1HP-7 to establish ≈ 20 gpm.</p> <p>4.18 WHEN letdown temperature < 130°F, THEN place LETDOWN HI TEMP INTLK BYP switch in NORMAL</p> <p>4.19 Open 1HP-6</p> <p>4.20 Adjust 1HP-7 to control desired letdown flow (≈ 75 gpm)</p> <p>4.21 Re-establish normal makeup through 1HP-120.</p> <p>4.22 Verify <u>any</u> purification IX in service (should be in service, if not = RNO)</p> <p>RNO: IF purification IX operation is desired, THEN initiate OP/1/A/1103/004 B (Purification IXs) to establish desired IX operation</p> <p>4.23 Notify SPOC to initiate repairs on 1HP-5</p> <p>4.24 Re-establish normal RCP seal injection flow (≈ 32 gpm)</p> <p>4.25 Position the standby HPI pump switch to AUTO</p> <p>4.26 WHEN repairs complete on 1HP-5, THEN perform the following:</p> <p>A. Locally turn 1HP-5 handwheel fully clockwise</p> <p>B. EXIT TS 3.6.3</p> <p>4.27 EXIT</p> <p>Note: 1HP-5 will not be repaired for this scenario.</p> <p>Note: If pressurizer level exceeds 260 inches, TS 3.4.9 Condition A should be entered requiring level be restored within 1 hour</p> <p>The SRO enters TS 3.6.3 Condition A due to one or more penetration flow paths with one containment isolation valve inoperable</p> <ul style="list-style-type: none"> Required Action is to isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, one closed and de-activated non-automatic power operated valve, closed manual valve, blind flange, or check valve with flow through the valve secured within 4 hours AND verify the affected penetration flow path is isolated once per 31 days for isolation devices outside containment.
<p>This event is complete when the Standby HPI pump is placed in AUTO, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 1 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior
		<p>Plant Response:</p> <p>Alarms:</p> <ul style="list-style-type: none"> • OAC RB Normal Sump Temp HI HI • 1SA-9/A-6 (RB NORMAL SUMP HIGH/LOW) • 1SA-8/B-9 (RM Process Monitor Radiation HIGH) • 1SA-8/A-9 (RM Area Monitor Radiation High) <p>Control Board Indications</p> <ul style="list-style-type: none"> • PZR and LDST level decreasing • RC makeup flow increasing • RB normal sump level increasing <p>Crew Response:</p> <p>The SRO may refer to TS 3.4.13 (RCS Operational Leakage) and determine that Condition A, Reduce leakage to within limits within 4 hours and Condition B, Be in MODE 3 in 12 hours are in effect. This is for an unidentified leak > 1 gpm.</p> <p>Examiners Note: SRO may not refer to TS during the scenario due to other events occurring.</p> <p>The crew may determine that Immediate Manual Action Step 3.2 of AP/02 applies and close 1HP-5 prior to the SRO entering AP/02.</p> <p>SRO enters AP/02 (Excessive RCS Leakage)</p> <p>AP/02 Immediate Manual Actions</p> <p>3.1 Verify HPI operating</p> <p>3.2 IAAT RC makeup flow is > 100 gpm, AND Pzr level is decreasing, THEN close 1HP-5</p>
	SRO	
	SRO/BOP	
This event is complete when the 1B RBCU is started or as directed by the lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 2 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Crew response:</p> <p>AP/02 (Excessive RCS Leakage) IMAs (continued)</p> <p>3.3 IAAT all the following exist: (should not apply)</p> <ul style="list-style-type: none"> HPI flow is > NORMAL MAKEUP CAPABILITY (\approx 160 gpm) with letdown isolated Pzr level decreasing SG Tube Leakage NOT indicated LPI DHR NOT providing core cooling <p>THEN perform the following:</p> <p>A. Ensure Rx is tripped</p> <p>B. Initiate Unit 1 EOP</p> <p>AP/02 Subsequent Actions</p> <p>4.1 Initiate Pzr and LDST level makeup using Unit 1 EOP Encl 5.5, as necessary (see page 39)</p> <p>Booth Cue: If requested by crew, use Manual Valves to close 1CS-48 and report that using time compression, 1CS-48 is closed.</p> <p>4.2 Announce AP entry using the PA system</p> <p>4.3 IAAT LPI DHR in service, AND RCS leakage > LDST makeup capability (\approx 50 gpm) THEN GO TO AP/26 (Loss of Decay Heat Removal)</p> <p>4.4 Initiate the following notifications:</p> <p>OSM to reference the following:</p> <ul style="list-style-type: none"> RP/1000/001 (Emergency Classification) OMP 1-14 (Notifications) Encl 5.9 (Oversight Guidelines) <p>STA and RP</p>
This event is complete when the 1B RBCU is started or as directed by the lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 3 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior								
	SRO/BOP	<p>Crew response:</p> <p>4.5 Monitor the following trends to determine leak area (AB or RB) and trend for degradation:</p> <ul style="list-style-type: none">• T6 AP02• T6 WASTE• RIAs <p>Examiner/Booth Note: <i>AP/1/A/1700/018 entry conditions will also be met due to RB RIA alarms. If the crew asks, Unit 2 will perform AP/18 (Abnormal Release of Radioactivity) actions.</i></p> <p>4.6 Verify specific leak location is identified</p> <p>RNO: Notify WCC SRO to initiate Encl 5.2 (Primary Leak Check) and of the leak area (AB or RB), if known.</p> <p>Examiner Note: <i>Crew should determine that the leak is in the Reactor Building due to RB RIAs increasing, RBNS rate increasing, and NO RCP seal failure indications</i></p> <p>4.7 Initiate Encl 5.1 (Leak Rate Determination)</p> <p>(See page 19 for actions of Encl 5.1)</p> <p>4.8 WHEN leak area/failure is identified, THEN GO TO applicable step that best fits leak area/failure</p> <table><tr><th>✓</th><th>Area/ Failure</th><th>Symptoms</th><th>Step</th></tr><tr><td></td><td>Rx Bldg</td><td>↑ RB RIAs ↑ RBNS rate NO RCP seal failure indications</td><td>4.53</td></tr></table> <p>4.53 IAAT in MODE 1 AND leak is > LDST makeup capability from 1A BHUT, THEN initiate a shutdown using AP/29 (Rapid Unit Shutdown)</p> <p>Examiner Note: <i>Not in Mode 1 nor is 60 gpm leak greater than LDST makeup capability from 1A BHUT.</i></p>	✓	Area/ Failure	Symptoms	Step		Rx Bldg	↑ RB RIAs ↑ RBNS rate NO RCP seal failure indications	4.53
✓	Area/ Failure	Symptoms	Step							
	Rx Bldg	↑ RB RIAs ↑ RBNS rate NO RCP seal failure indications	4.53							

This event is complete when the 1B RBCU is started or as directed by the lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 4 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior
	SRO/BOP	<p>Crew response:</p> <p>4.54 IAAT leak rate is ≥ 10 gpm, THEN discontinue pumping RBNS.</p> <p>4.55 IAAT either of the following conditions exist:</p> <ul style="list-style-type: none"> RCS pressure ≤ 50 psig and RCS leakage ≥ 10 gpm RCS pressure > 50 psig and RCS leakage ≥ 1 gpm <p>THEN perform Steps 4.56 - 4.59</p> <p>4.56 Verify the RB is occupied. (It is not)</p> <p>RNO: GO TO Step 4.58</p> <p>4. 58 Verify LPI DHR in service (It is not)</p> <p>RNO: GO TO Step 4.60</p> <p>4.60 Verify RB pressure ≥ 3 psig.</p> <p>Examiner Note: Starting the 1B RBCU will automatically fire a timer to initiate the next event.</p> <p>RNO: Maximize RB Cooling by performing the following:</p> <ul style="list-style-type: none"> Ensure all available RBCUs operating in HIGH. Open 1LPSW-18. Open 1LPSW-21. Open 1LPSW-24. <p>4.61 IAAT RB is accessible to locate the leak, THEN GO TO Step 4.62</p> <p>RNO: GO TO Step 4.77</p> <p>4.77 Verify 1HP-5 is closed (May have been closed as part of IMA's)</p> <p>4.78 Place standby CC pump switch in OFF</p>
This event is complete when the 1B RBCU is started or as directed by the lead Examiner.		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 5 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior
		<p style="text-align: center;">NOTE</p> <p>Statalarm, 1SA-9C-1 (CC COMP COOLING RETURN FLOW LOW) will alarm when the letdown coolers are isolated</p>
	SRO/BOP	<p>4.79 Close the following:</p> <ul style="list-style-type: none"> • 1CC-1/1HP-1 • 1CC-2/1HP-2 <p>4.80 Verify leak is isolated (it will not be).</p>
	SRO/OATC	<p>RNO:1. Perform the following to shutdown and depressurize the RCS:</p> <p>A. Initiate shutdown by one of the following as necessary:</p> <ul style="list-style-type: none"> • AP/29 (Rapid Unit Shutdown) • OP/1/A/1102/004 (Operation at Power) <p>B. Initiate OP/1/A/1102/010 (Controlling Procedure For Unit Shutdown) to continue shutdown and depressurization.</p> <p>2. WHEN conditions permit, THEN EXIT this procedure.</p>
<p>This event is complete when the 1B RBCU is started or as directed by the lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **5**

Page 6 of 6

Event Description: **60 gpm RCS Leak**

Time	Position	Applicant's Actions or Behavior
	BOP/OATC	<p>AP/02 Enclosure 5.1 (Leak Rate Determination)</p> <ol style="list-style-type: none">1. Stabilize RCS Temperature2. Notify WCC to secure all primary draining/RB washdown evolutions if applicable. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"><p style="text-align: center;">NOTE</p><p>Depending on leak location, leakage may NOT be detected by all the formulas. One or more of the following methods may be necessary to determine RCS leak rate.</p></div> <ol style="list-style-type: none">3. Calculate leak rate using the following, as required: Examiners Note: There are several other methods to calculate leakage rate. While one of the two below will most likely be used, depending on plant conditions they may not be the only correct methods available. Method #1: Calculation of RCS Volume Loss: Leak Rate = $\frac{\text{MU}}{\text{MU}} + \frac{\text{SI}}{\text{SI}} - \frac{\text{LD}}{\text{LD}} - \frac{\text{TSR}}{\text{TSR}} = \text{_____}$ Where: MU = makeup Flow SI = Seal Inlet Hdr Flow LD = Letdown Flow TSR = Total Seal Return Flow Method #2: LDST Level Change: Leak Rate = $\frac{(\text{LDST level change}) \times (31 \text{ gal/inch})}{(\text{minutes})} + \text{BTP Flowrate (gpm)}$ Leak Rate = $\frac{(\text{inches}) \times 31 \text{ gal/inch}}{\text{minutes}} + \text{_____ gpm} = \text{_____ gpm}$4. Notify OSM and SRO of calculated leak rate.

This event is complete when the 1B RBCU is started or as directed by the lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **6** Page 1 of 2

Event Description: **Group 1 Rods drop into core requiring Manual Rx Trip**

Time	Position	Applicant's Actions or Behavior
		<p>Plant Response:</p> <p>Group 1 control rods will drop into the core which will cause Reactor power to decrease</p> <p>Crew Response:</p> <p>The OATC should manually trip the reactor</p> <p><i>Examiner Note: The SBLOCA (Event #7) will be triggered when the rods hit the bottom after the Reactor is manually tripped.</i></p> <p>The SRO will direct the OATC to perform Immediate Manual Actions:</p> <ul style="list-style-type: none"> • Depress REACTOR TRIP pushbutton • Verify reactor power < 5% FP and decreasing • Depress turbine TRIP pushbutton. • Verify all turbine stop valves closed • Verify RCP seal injection available <p>The SRO will direct the BOP to perform a Symptoms Check</p> <ul style="list-style-type: none"> • Reactivity Control <ul style="list-style-type: none"> ➤ Power Range NIs < 5% and decreasing • ICC/Loss of Subcooling Margin (SCM) <ul style="list-style-type: none"> ➤ If any SCM ≤ 0°F, perform Rule 2 • Loss of Heat Transfer (LOHT) <ul style="list-style-type: none"> ➤ Loss of Main <u>and</u> Emergency FDW (including unsuccessful manual initiation of EFDW) • Excessive Heat Transfer (EHT) <ul style="list-style-type: none"> ➤ Uncontrolled Main Steam Line(s) pressure decrease • Steam Generator Tube Rupture <ul style="list-style-type: none"> ➤ CSAE off-gas alarms, process RIAs (RIA-40, 59, 60), area RIAs (RIA-16/17) <p><i>Examiner Note: The BOP may report indications of a SBLOCA, but depending on the size and the timing the SRO may or may not have time to perform any of the "Subsequent Actions" on the next page prior to the ES actuation or LOSCM, which will initiate the next event (Event #7).</i></p>
<p>This event is complete when reactor is tripped, or as directed by the Lead Examiner.</p>		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **6**

Page 2 of 2

Event Description: **Group 1 Rods drop into core requiring Manual Rx Trip**

Time	Position	Applicant's Actions or Behavior
	SRO	<p>Verify Immediate Manual Actions with the OATC</p> <p>Transfer to Subsequent Actions</p> <p>4.1 Verify all control rods in Groups 1 – 7 fully inserted.</p> <p>4.2 Verify Main FDW in operation.</p> <p>4.3 Verify either of the following:</p> <p> ___ Main FDW overfeeding causing excessive temperature decrease.</p> <p> ___ Main FDW underfeeding causing SG level decrease below setpoint.</p> <p>RNO GO TO Step 4.5.</p> <p>4.5 IAAT Main FDW is operating, AND level in any SG is > 96% on the Operating Range, THEN perform Steps 4.6 - 4.8.</p> <p>RNO GO TO Step 4.9.</p> <p>4.9 IAAT TBVs CANNOT control SG pressure at desired setpoint, THEN manually control pressure in affected SGs using either of the following:</p> <p> ___ TBVs</p> <p> ___ Dispatch two operators to perform Encl 5.24</p> <p>4.10 Verify 1RIA-40 operable with CSAE OFF-GAS BLOWER operating.</p> <p>Once the BOP reports the SCM ≤ 0°F and initiating Rule 2, proceed to the next event</p>

This event is complete when reactor is tripped, or as directed by the Lead Examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 1 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
		<p>Plant response:</p> <p>Control board indications:</p> <ul style="list-style-type: none"> • 1SA-2/D-3 (RC PRESS HI/LOW) • RCS Pressure and PZR level decreasing • ES 1-6 actuate • RCS subcooling margin will indicate 0°F <p>Crew response:</p> <ul style="list-style-type: none"> • The SRO will direct the OATC to perform IMAs and the BOP a symptom check. • OATC will perform IMAs per Event 6 • The BOP will perform a symptom check per Event 6 <p>Examiners Note: The SRO will transfer to the Subsequent Actions Tab and then use the Parallel Actions page transfer to go to the LOSCM tab to direct crew activities. LOSCM tab begins on page 36.</p>
	OATC/BOP	
	SRO	<p>Once the RCS saturates, one of the RO's will perform Rule 2 which begins on next page. Rule 2 will direct performing Rule 3 which will direct performing Enclosure 5.9.</p>
	OATC/BOP	<p>The RO not performing Rule 2 will begin performing Enclosure 5.1 due to ES actuation. Enclosure 5.1 begins on page 28.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 2 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p><u>Rule 2 (Loss of SCM)</u></p> <p>1. IAAT all the following exist:</p> <ul style="list-style-type: none"> Any SCM $\leq 0^{\circ}\text{F}$ Rx power $\leq 1\%$ ≤ 2 minutes elapsed since loss of SCM <p>THEN perform steps 2 & 3</p> <p>2. Stop all RCPs CT-1: (Trip ALL RCPs within 2 minutes)</p> <p>3. Notify CR SRO of RCP status</p> <p>4. Verify Blackout exists.</p> <p>RNO: GO TO Step 6</p> <p>Examiner Note: 1HP-25 failed closed as part of the scenario</p> <p>6. Open 1HP-24 & 25</p> <p>RNO: 1. IF both BWST suction valves (1HP-24 and 1HP-25) are closed, THEN: N/A</p> <p>2. GO TO Step 9</p> <p>9. Verify <u>all</u> (3) HPI pumps operating.</p> <p>10. Place Diverse HPI in Bypass</p> <p>11. Place ES CH 1 & CH 2 in MANUAL</p> <p>EXAMINER NOTE: Only 2 HPI pumps are allowed due to failure of 1HP-25 to open</p> <p>12. Secure 1B HPI Pump</p> <p>13. Open 1HP-26 & 27</p> <p>14. Verify at least two HPI pumps are operating using two diverse indications.</p> <p>15. IAAT ≥ 2 HPI pumps operating and HPI flow in any header is in Unacceptable Region of Fig. 1, THEN perform Steps 16-21.</p> <p>RNO: GO TO Step 17</p> <p>17. IAAT flow limits are exceeded THEN perform Steps 18 - 20</p> <p>RNO: GO TO Step 21</p> <p>21. Notify CR SRO of HPI status.</p> <p>22. Verify RCS pressure >550 psig</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 3 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Rule 2 (continued)</p> <p>23. IAAT either of the following exists: LPI FLOW TRAIN A plus LPI FLOW TRAIN B \geq 3400 gpm Only one LPI header in operation with header flow \geq 2900 gpm THEN GO TO Step 24.</p> <p>RNO: GO TO Step 35</p> <p>35. IAAT TBV's are unavailable, THEN</p> <p>A Dispatch two operators to perform Encl 5.24 (Operation of ADVs) B Notify CR SRO the ADVs are being aligned for use.</p> <p>36/37. Select OFF on both Digital Channels on AFIS HEADER A&B if not actuated</p> <p>38. Verify any EFDW pump operating.</p> <p>39. Start MD EFDW pumps on all intact SGs:</p> <ul style="list-style-type: none"> • 1A MD EFDWP • 1B MD EFDWP <p>40. Verify any EFDW pump operating.</p> <p>41. Verify both SGs intact.</p> <p>42. Establish 300 gpm EFDW flow to each SG</p> <p>43. Verify both MD EFDWPs operating.</p> <p>44. Place TD EFDW PUMP in PULL TO LOCK.</p> <p>45. Trip both Main FDW pumps.</p> <p>46. Place FDW block valve switches in CLOSE:</p> <ul style="list-style-type: none"> • 1FDW-33 • 1FDW-31 • 1FDW-42 • 1FDW-40 <p>47. Utilize Rule 7 (SG Feed Control) to feed all intact SGs to the appropriate SG Level Control Point using available feed sources; EFDW/Main FDW.</p> <p>48. IAAT SG Level Control Point is reached, Then maintain SG Level Control Point by feeding and steaming as necessary.</p> <p>49. Notify CR SRO of SG feed status.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 4 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Rule 2 (continued)</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center;">CAUTION</p> <p>If 1 TD EFDW PUMP is being used for SG feed and Unit 1 is supplying the Auxiliary Steam header, reducing SG pressure below \approx 250 psig can result in reduced pumping capability.</p> </div> <p>50. IAAT SG pressure is > RCS pressure, THEN reduce SG pressure < RCS pressure using either:</p> <ul style="list-style-type: none"> • TBVs • Dispatch two operators to perform Encl 5.24 (operation of the ADVs) <p>51. Verify any Main FDW pump operating.</p> <p>RNO: GO TO Step 58.</p> <p>58. Ensure Rule 3 (Loss of Main or Emergency FDW) is in progress or complete. (next page)</p> <p>59. WHEN directed by CR SRO, THEN EXIT this rule.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 5 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Rule 3 due to loss of Main Feedwater as directed by Rule 2</p> <ol style="list-style-type: none"> 1. Verify loss of Main FDW/EFDW is due to Turbine Building Flooding. <p>RNO: GO TO Step 3</p> <ol style="list-style-type: none"> 3. IAAT NO SGs can be fed with FDW (Main/CBP/Emergency), AND any of the following exist: <ul style="list-style-type: none"> • RCS pressure reaches 2300 psig OR NDT limit • Pzr level reaches 375" [340" acc] <p>THEN PERFORM Rule 4 (Initiation of HPI Forced Cooling).</p> <ol style="list-style-type: none"> 4. Start operable EFDW pumps, as required, to feed all intact SGs. 5. Verify any EFDW pump operating. 6. GO TO Step 37. 37. IAAT an EFDW valve CANNOT control in AUTO... <p>RNO: GO TO Step 43</p> <ol style="list-style-type: none"> 43. Verify any SCM $\leq 0^{\circ}\text{F}$. 44. IAAT Unit 1 EFDW is in operation, THEN initiate Encl 5.9 (Extended EFDW Operation). (next page) 45. WHEN directed by CR SRO, THEN EXIT this rule.

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 6 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>Encl 5.9 (Extended EFDW Operation) as directed by Rule 3</p> <ol style="list-style-type: none"> 1. Monitor EFDW parameters on EFW graphic display. 2 IAAT UST level is < 4', THEN GO TO Step 120 3 IAAT feeding <u>both</u> SGs with one MD EFDWP is desired, THEN perform Steps 4 – 7. <p>RNO: GO TO Step 8</p> <ol style="list-style-type: none"> 8. Perform the following as required to maintain UST level > 7.5': <ul style="list-style-type: none"> • Makeup with demin water. • Place CST pumps in AUTO. 9. IAAT <u>all</u> the following exist: <ul style="list-style-type: none"> • Rapid cooldown NOT in progress • MD EFDWP operating for each <u>available</u> SG • EFDW flow in <u>each</u> header < 600 gpm <p>THEN place 1 TD EFDW PUMP switch in PULL TO LOCK.</p> 10. Verify 1 TD EFDW PUMP operating. <p>RNO: GO TO Step 12</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • Loss of the condensate system for ≥ 25 minutes results in cooling down to LPI using the ADVs. If NO HWPs are operating, continuing this enclosure to restore the condensate system is a priority <u>unless</u> the CR SRO deems EOP activities higher priority. The 25 minute criterion is satisfied when a HWP is started and 1C-10 is 10% open. • If the condensate system is operating, the remaining guidance establishes FDW recirc, monitors and maintains UST, and transfers EFDW suction to the hotwell if required. </div> <ol style="list-style-type: none"> 12. Notify CR SRO to set priority based on the NOTE above <u>and</u> EOP activities.

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 7 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior															
	OATC/BOP	<p>Crew Response:</p> <p>EXAMINER NOTE: ES 1 and 2 will actuate when RCS pressure decreases below 1600 psig. When RB pressure increases to > 3 psig, ES Channels 3-6 will actuate. The path through Encl. 5.1 is dependent on timing of ES 3-6. If the RO reaches Step 15 prior to ES 3&4 actuation, they go to Step 53. When ES Channels 3&4 actuate, the RO should review IAAT Steps 3, 9, 10, and 15 and perform any required actions.</p> <p>EOP Enclosure 5.1, ES Actuation</p> <ol style="list-style-type: none"> Determine all ES channel that <u>should</u> have actuated based on <u>RCS</u> pressure and RB pressure: <table border="1"> <thead> <tr> <th>√</th><th>Actuation Setpoint (psig)</th><th>Associated ES Channel</th></tr> </thead> <tbody> <tr> <td></td><td>1600 (RCS)</td><td>1 & 2</td></tr> <tr> <td></td><td>550 (RCS)</td><td>3 & 4</td></tr> <tr> <td></td><td>3 (RB)</td><td>1, 2, 3, 4, 5, & 6</td></tr> <tr> <td></td><td>10 (RB)</td><td>7 & 8</td></tr> </tbody> </table> Verify <u>all</u> ES channels associated with actuation setpoints have actuated IAAT additional ES actuation setpoints are exceeded, THEN perform Steps 1 – 2 Place Diverse HPI in BYPASS Perform <u>both</u>: <ul style="list-style-type: none"> Place ES CH 1 in MANUAL Place ES CH 2 in MANUAL <p>Examiner Note: If subcooling has not yet been lost at step 6, crew will proceed to step 73 as directed by step 6 RNO.</p> <ol style="list-style-type: none"> Verify Rule 2 in progress <u>or</u> complete. <p>RNO: GO TO step 73 (see page 32)</p> <ol style="list-style-type: none"> Verify <u>any</u> RCP operating RNO: GO TO Step 9 IAAT <u>all</u> exist: <ul style="list-style-type: none"> Voter associated with ES channel is in OVERRIDE An ES channel is <u>manually</u> actuated Components on that channel require manipulation THEN depress RESET on the required channel IAAT <u>any</u> RCP is operating, AND ES Channels 5 and 6 actuate, THEN perform Steps 11-14 <p>RNO: GO TO Step 15</p>	√	Actuation Setpoint (psig)	Associated ES Channel		1600 (RCS)	1 & 2		550 (RCS)	3 & 4		3 (RB)	1, 2, 3, 4, 5, & 6		10 (RB)	7 & 8
√	Actuation Setpoint (psig)	Associated ES Channel															
	1600 (RCS)	1 & 2															
	550 (RCS)	3 & 4															
	3 (RB)	1, 2, 3, 4, 5, & 6															
	10 (RB)	7 & 8															

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 8 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation (continued)</p> <p>15. IAAT ES Channels 3 & 4 are actuated, THEN GO TO Step 16 RNO: GO TO Step 53 (Step 53 is on page 31 if that direction is taken)</p> <p>16. Place Diverse LPI in BYPASS</p> <p>17. Perform <u>both</u>:</p> <ul style="list-style-type: none"> Place ES CH 3 in MANUAL Place ES CH 4 in MANUAL <p>18. IAAT <u>any</u> LPI pump is operating against a shutoff head, THEN at the CR SROs discretion, stop <u>affected</u> LPI pumps</p> <p>19. IAAT RCS pressure is < LPI pump shutoff head, THEN perform Steps 20 - 21 RNO: GO TO Step 22</p> <p>22. IAAT 1A <u>and</u> 1B LPI PUMPs are off / tripped, AND <u>all</u> of the following exist:</p> <ul style="list-style-type: none"> RCS pressure < LPI pump shutoff head 1LP-19 closed 1LP-20 closed <p>THEN perform Steps 23 - 24 RNO: GO TO Step 25</p> <p>25. IAAT 1A LPI PUMP fails while operating, AND 1B LPI PUMP is operating, THEN close 1LP-17</p> <p>26. IAAT 1B LPI PUMP fails while operating, AND 1A LPI PUMP is operating, THEN close 1LP-18</p> <p>27. Start A and B OUTSIDE AIR BOOSTER FANs (CT-27) (Must be started within 30 minutes of LOCA)</p> <p>28. Notify Unit 3 to start 3A and 3B OUTSIDE AIR BOOSTER FANs</p> <p>29. Verify 1CF-1 and 1CF-2 are open</p> <p>30. Verify 1HP-410 closed</p> <p>31. Secure makeup to the LDST</p> <p>Examiner Note: 1HP-5 may not be in its ES position because it failed earlier in the scenario and was manually opened to restore Letdown. An operator should be dispatched to close 1HP-5, unless it was already closed to isolate letdown in.</p> <p>Examiner Note: 1HP-20 is not in its ES position and no RCPs are operating (secured during Rule 2), so step 32 RNO 3 (below) must be performed.</p>
This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.		

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 9 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>32. Verify <u>all</u> ES channel 1 – 4 components are in the ES position</p> <p>RNO: 1. IF 1HP-3 fails to close, THEN close 1HP-1</p> <p>2. IF 1HP-4 fails to close, THEN close 1HP-2</p> <p>3. IF 1HP-20 fails to close and no RCPs operating, THEN close 1HP-228, 1HP-226, 1HP-232, & 1HP-230</p> <p>4. Notify SRO to evaluate components NOT in ES position <u>and</u> initiate action to place in ES position if desired</p> <p>33. Verify Unit 2 turbine tripped</p> <p>RNO: GO TO Step 36</p> <p>36. Close 1LPSW-139</p> <p>37. Place in FAIL OPEN:</p> <p>___ 1LPSW-251 FAIL SWITCH</p> <p>___ 1LPSW-252 FAIL SWITCH</p> <p>38. Start <u>all available</u> LPSW pumps</p> <p>39. Verify <u>either</u>:</p> <p>___ Three LPSW pumps operating</p> <p>___ Two LPSW pumps operating when Tech Specs only requires two operable</p> <p>40. Open 1LPSW-4 and 1LPSW-5</p> <p>41. IAAT BWST level \leq 19', THEN initiate Encl 5.12 (ECCS Suction Swap to RBES)</p> <p>42. Dispatch an operator to perform Encl 5.2 (Placing RB Hydrogen Analyzers In Service) (PS)</p> <p>43. Select DECAY HEAT LOW FLOW ALARM SELECT switch to ON</p> <p>44. IAAT ES channels 5 & 6 have actuated THEN perform Step 45</p> <p>Note: RBCU transfer to low speed will NOT occur until 3 minute time delay is satisfied.</p> <p>45. Verify <u>all</u> ES channel 5 & 6 components are in the ES position</p> <p>46. IAAT ES channels 7 & 8 have actuated, THEN perform Step 47-48</p> <p>RNO: GO TO Step 49</p> <p>49. Notify U2 CR SRO that SSF is inoperable due to OTS1-1 open</p> <p>50. Ensure any turnover sheet compensatory measures for ES actuation are complete as necessary.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 10 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>51. IAAT conditions causing ES actuation have cleared, THEN initiate Encl 5.41 (ES Recovery)</p> <p>52. WHEN CR SRO approves, THEN EXIT this enclosure.</p> <p>EXAMINER NOTE: If the RO reaches Step 15 prior to ES 3&4 actuation, the procedure directs performing steps 53 – 72 below. When ES Channel 3&4 actuate, the RO should return to IAAT Steps 3, and perform any required actions (see page 28).</p> <p>53. Start A and B OUTSIDE AIR BOOSTER FANS. (CT-27) (Must be started within 30 minutes of LOCA)</p> <p>54. Notify Unit 3 to start 3A and 3B OUTSIDE AIR BOOSTER FANS</p> <p>55. Verify 1CF-1 and 1CF-2 are open</p> <p>56. Verify 1HP-410 closed</p> <p>57. Secure makeup to the LDST</p> <p>Examiner Note: 1HP-5 may not be in its ES position because it failed earlier in the scenario and was manually opened to restore Letdown. An operator should be dispatched to close 1HP-5, unless it was already closed to isolate letdown.</p> <p>Examiner Note: 1HP-20 is not in its ES position and no RCPs are operating, so step 58 RNO 3 above must be performed.</p> <p>58. Verify all ES channel 1&2 components are in the ES position</p> <p>RNO:</p> <ol style="list-style-type: none"> 1. IF 1HP-3 fails to close, THEN close 1HP-1 2. IF 1HP-4 fails to close, THEN close 1HP-2 3. IF 1HP-20 fails to close and no RCPs operating, THEN close 1HP-228, 1HP-226, 1HP-232, & 1HP-230 4. Notify SRO to evaluate components NOT in ES position <u>and</u> initiate action to place in ES position if desired <p>59. Verify Unit 2 turbine tripped</p> <p>RNO: GO TO Step 62</p> <p>62. Close 1LPSW-139</p> <p>63. Place in FAIL OPEN:</p> <ul style="list-style-type: none"> • 1LPSW-251 FAIL SWITCH • 1LPSW-252 FAIL SWITCH <p>64. Start <u>all available</u> LPSW pumps.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 11 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior								
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>65. Verify <u>either</u>:</p> <ul style="list-style-type: none">• Three LPSW pumps operating• Two LPSW pumps operating when Tech Specs only requires two operable <p>66. Open:</p> <p>— 1LPSW-4</p> <p>— 1LPSW-5</p> <p>67. IAAT BWST level $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES).</p> <p>68. Dispatch an operator to perform Encl 5.2 (Placing RB Hydrogen Analyzers In Service). (PS)</p> <p>69. Notify U2 CR SRO that SSF is inoperable due to OTS1-1 open.</p> <p>70. Ensure any turnover sheet compensatory measures for ES actuation are complete as necessary.</p> <p>71. IAAT conditions causing ES actuation have cleared, THEN initiate Encl 5.41 (ES Recovery).</p> <p>72. WHEN CR SRO approves, THEN EXIT this enclosure.</p> <p>73. Open 1HP-24 and 1HP-25</p> <p>74. Ensure <u>at least two</u> HPI pumps are operating</p> <p>75. Verify 1HP-26 and 1HP-27 are open</p> <p>76. IAAT at least two HPI pumps are operating, AND HPI flow in <u>any</u> header that has NOT been <u>intentionally</u> throttled is in the Unacceptable Region of Figure 1, THEN open the following in the <u>affected</u> header:</p> <table><tr><td>√</td><td>1A Header</td><td>√</td><td>1B Header</td></tr><tr><td></td><td>1HP-410</td><td></td><td>1HP-409</td></tr></table> <p>77. Verify <u>any</u> RCP operating</p> <p>78. Open 1HP-20 and 1HP-21</p> <p>79. IAAT <u>all</u> exist:</p> <ul style="list-style-type: none">— Voter associated with ES channel is in OVERRIDE— An ES channel is <u>manually</u> actuated— Components on that channel required manipulation <p>THEN depress RESET on the required channel</p>	√	1A Header	√	1B Header		1HP-410		1HP-409
√	1A Header	√	1B Header							
	1HP-410		1HP-409							

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 12 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>80. IAAT <u>any</u> RCP is operating, AND ES Channels 5 and 6 actuate, THEN perform Steps 81-84</p> <p>81. Place ES CH 5 and ES CH 6 in MANUAL</p> <p>82. Open:</p> <p>___ 1CC-7</p> <p>___ 1CC-8</p> <p>___ 1LPSW-15</p> <p>___ 1LPSW-6</p> <p>83. Ensure <u>only one</u> CC pump operating</p> <p>84. Ensure Standby CC pump in AUTO</p> <p>85. IAAT ES Channels 3 & 4 are actuated, THEN GO TO Step 86</p> <p>86. Place Diverse LPI in BYPASS</p> <p>87. Place ES CH 3 and ES CH 4 in MANUAL</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><u>CAUTION</u></p> <p>LPI pump damage may occur if operated in excess of 30 minutes against shutoff head</p> </div> <p>88. IAAT <u>any</u> LPI pump is operating against shutoff head, THEN at the CR SROs discretion, stop <u>affected</u> LPI pumps</p> <p>89. IAAT RCS pressure is < LPI pump shutoff head, THEN perform Steps 90-91</p> <p>RNO: GO TO Step 92</p> <p>92. IAAT 1A <u>and</u> 1B LPI PUMPs are off/tripped, AND <u>all</u> of the following exists.....</p> <p>RNO: GO TO Step 95</p> <p>95. IAAT 1A LPI PUMP fails while operating, AND 1B LPI PUMP is operating, THEN close 1LP-17</p> <p>99. IAAT 1B LPI PUMP fails while operating, AND 1A LPI PUMP is operating, THEN close 1LP-18</p> <p>97. Start A and B OUTSIDE AIR BOOSTER FANS(CT-27) (Must be started within 30 minutes of LOCA)</p> <p>98. Notify Unit 3 to start 3A and 3B OUTSIDE AIR BOOSTER FANS</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 13 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>99. Verify 1CF-1 and 1CF-2 are open</p> <p>100. Verify 1HP-410 closed</p> <p>101. Secure makeup to the LDST</p> <p>Examiner Note: 1HP-5 may not be in its ES position because it failed earlier in the scenario and was manually opened to restore Letdown. An operator should be dispatched to close 1HP-5, unless it was already closed to isolate letdown in.</p> <p>Examiner Note: 1HP-20 is not in its ES position and no RCPs are operating (secured during Rule 2), so step 102 RNO 3 (below) must be performed.</p> <p>102. Verify <u>all</u> ES channel 1-4 components are in the ES position</p> <p>RNO: 1. IF 1HP-3 fails to close, THEN close 1HP-1</p> <p>2. IF 1HP-4 fails to close, THEN close 1HP-2</p> <p>3. IF 1HP-20 fails to close and no RCPs operating, THEN close 1HP-228, 1HP-226, 1HP-232, & 1HP-230</p> <p>4. Notify SRO to evaluate components NOT in ES position <u>and</u> initiate action to place in ES position if desired</p> <p>103. Verify Unit 2 turbine tripped</p> <p>RNO: GO TO Step 106</p> <p>106. Close 1LPSW-139</p> <p>107. Place 1LPSW-251 and 1LPSW-252 FAIL SWITCH in FAIL OPEN</p> <p>108. Start <u>all available</u> LPSW pumps</p> <p>109. Verify <u>either</u>:</p> <p>___ Three LPSW pumps operating</p> <p>___ Two LPSW pumps operating when TS only requires two operable</p> <p>110. Open 1LPSW-4 and 1LPSW-5</p> <p>111. IAAT BWST level $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES)</p> <p>112. Dispatch an operator to perform Encl 5.2 (Placing RB Hydrogen Analyzers In Service) (PS)</p> <p>113. Select DECAY HEAT LOW FLOW ALARM SELECT switch to ON</p> <p>114. IAAT ES channels 5 & 6 have actuated, THEN perform Step 115</p> <p>Note: RBCU transfer to low speed will NOT occur until 3 minute time delay is satisfied.</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 14 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	OATC/BOP	<p>EOP Enclosure 5.1, ES Actuation</p> <p>115. Verify <u>all</u> ES channel 5 & 6 components in the ES position</p> <p>116. IAAT ES channels 7 & 8 have actuated, THEN perform Step 117 – 118.</p> <p>RNO: GO TO Step 119</p> <p>119. Notify U2 CR SRO that SSF is inoperable due to OTS1-1 open.</p> <p>120. Ensure any turnover sheet compensatory measures for ES actuation are complete as necessary.</p> <p>121. IAAT conditions causing ES actuation have cleared, THEN initiate Encl 5.41 (ES Recovery)</p> <p>122. WHEN CR SRO approves, THEN EXIT this enclosure</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **32** Event No.: **7** Page 15 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	SRO SRO/OATC /BOP	<p>SRO will transfer to the LOSCM tab.</p> <p><u>LOSCM tab</u></p> <ol style="list-style-type: none"> 1. Ensure Rule 2 (Loss of SCM) is in progress or complete. 2. Verify Station ASW feeding any SG. <p>RNO: GO TO Step 4</p> <ol style="list-style-type: none"> 4. Verify LOSCM caused by excessive heat transfer. <p>RNO: GO TO Step 6</p> <ol style="list-style-type: none"> 6. IAAT either of the following exists: <ul style="list-style-type: none"> ➤ LPI FLOW TRAIN A plus LPI FLOW TRAIN B \geq 3400 gpm ➤ Only one LPI header in operation with header flow \geq 2900 gpm <p>THEN GO TO LOCA CD tab.</p> 7. Verify SSF activated per AP/25 with both of the following systems required: <ul style="list-style-type: none"> • SSF RC Makeup • SSF Aux Service Water <p>RNO: GO TO Step 9</p> 9. Verify all of the following exist: <ul style="list-style-type: none"> • NO RCPs operating • HPI flow in both HPI headers • Adequate total HPI flow per LOSCM Tab Figure 1 (Total Required HPI Flow) 10. GO TO Step 89. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;"><u>Unit Status</u></p> <p><u>All</u> SCMs are $> 0^{\circ}\text{F}$ OR <u>all</u> the following conditions exist:</p> <ul style="list-style-type: none"> • NO RCPs operating • HPI flow in <u>both</u> headers • Adequate total HPI flow </div> <p>89. Open 1AS-40 while closing 1MS-47.</p> <p>90. Verify HPI forced cooling in progress.</p> <p>RNO: Close 1RC-4</p> <p>91. Close 1GWD-17, 1HP-1, 1HP-2, and 1RC-3</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 16 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	SRO SRO/OATC /BOP	<p><u>LOSCM tab (continued)</u></p> <p>92. Verify either of the following:</p> <ul style="list-style-type: none"> • Core superheated • Rx vessel head level at 0" <p>RNO: GO TO Step 94</p> <p>94. IAAT BWST level is $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES).</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><u>CAUTION</u></p> <p>If TDEFDWP is being used for SG feed, reducing SG pressure below ≈ 250 psig can result in reduced pumping capability</p> </div> <p>95 Maintain SG pressure < RCS pressure utilizing <u>either</u>:</p> <p style="padding-left: 40px;">__TBVs</p> <p style="padding-left: 40px;">__ADVs</p> <p>96 Verify <u>any</u> SG available for feeding/steaming.</p> <p>97 Initiate Encl 5.16 (SG Tube-to-Shell ΔT Control).</p> <p>98 Verify indications of SGTR exist.</p> <p>RNO: GO TO Step 101</p> <p>101 Verify HPI forced cooling in progress.</p> <p>RNO: GO TO Step 103</p> <p>103 Verify CETCs trend decreasing.</p> <p>104 Verify primary to secondary heat transfer is excessive.</p> <p>RNO: GO TO Step 106</p> <p>106 Verify indications of SGTR ≥ 25 gpm.</p> <p>RNO: GO TO Step 108</p> <p>108 Verify required RCS makeup flow within normal makeup capability.</p> <p>RNO: GO TO LOCA CD tab (next page)</p>

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

Op-Test No.: **ILT43** Scenario No.: **3** Event No.: **7** Page 17 of 17

Event Description: **SBLOCA**

Time	Position	Applicant's Actions or Behavior
	<p>SRO</p> <p>SRO/OATC /BOP</p>	<p><u>LOCA CD Tab</u></p> <ol style="list-style-type: none"> 1 IAAT BWST level is $\leq 19'$, THEN initiate Encl 5.12 (ECCS Suction Swap to RBES). 2 Verify ES actuated. 3 GO TO Step 7. 7 Perform the following: <ul style="list-style-type: none"> • Ensure <u>all</u> RBCUs in low speed. • Open 1LPSW-18. • Open 1LPSW-21. • Open 1LPSW-24. 8 Initiate Encl 5.35 (Containment Isolation). 9 Start all RB Aux Fans

This event is complete when the SRO goes to the LOCA CD Tab or as directed by the lead examiner.

NOTE

At any time during this scenario the operator may choose to use Enclosure 5.5 to maintain RCS inventory control. See below.

ENCLOSURE 5.5

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p align="center">NOTE</p> <p>Maintaining Pzr level >100" [180" acc] will ensure Pzr heater bundles remain covered.</p>	
<p>1. Utilize the following as necessary to maintain <u>desired</u> Pzr level:</p> <ul style="list-style-type: none"> • 1A HPI Pump • 1B HPI Pump • 1HP-26 • 1HP-7 • 1HP-120 setpoint or valve demand • 1HP-5 	<p>— IF 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level.</p>
<p>2. IAAT <u>makeup</u> to the <u>LDST</u> is desired, THEN makeup from 1A BHUT.</p>	
<p>3. IAAT it is desired to <u>secure</u> <u>makeup</u> to LDST, THEN secure makeup from 1A BHUT.</p>	
<p>4. IAAT it is desired to <u>bleed</u> letdown flow to 1A BHUT, THEN perform the following:</p> <p>A. Open:</p> <p>— 1CS-26</p> <p>— 1CS-41</p> <p>B. Position 1HP-14 to BLEED.</p> <p>C. Notify SRO.</p>	
<p>5. IAAT letdown <u>bleed</u> is NO longer desired, THEN position 1HP-14 to NORMAL.</p>	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>6. IAAT 1C HPI PUMP is required, THEN perform Steps 7 - 9.</p>	<p>___ GO TO Step 10.</p>
<p>7. Open:</p> <ul style="list-style-type: none"> • 1HP-24 • 1HP-25 	<p>1. ___ IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. ___ Start 1A LPI PUMP.</p> <p>B. ___ Start 1B LPI PUMP.</p> <p>C. Open:</p> <ul style="list-style-type: none"> ___ 1LP-15 ___ 1LP-16 ___ 1LP-9 ___ 1LP-10 ___ 1LP-6 ___ 1LP-7 <p>D. ___ IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. ___ Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. ___ GO TO Step 8.</p> <p>2. ___ IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, THEN perform the following:</p> <p>A. ___ IF three HPI pumps are operating, THEN secure 1B HPI PUMP.</p> <p>B. ___ IF < 2 HPI pumps are operating, THEN start HPI pumps to obtain two HPI pump operation, preferably in opposite headers.</p> <p>C. ___ GO TO Step 9.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8. Start 1C HPI PUMP.	___ IF at least two HPI pumps are operating, THEN throttle 1HP-409 to maintain desired Pzr level.
9. Throttle the following as required to maintain desired Pzr level: <ul style="list-style-type: none"> • 1HP-26 • 1HP-27 	1. ___ IF at least two HPI pumps are operating, AND 1HP-26 will NOT open, THEN throttle 1HP-410 to maintain desired Pzr level. 2. ___ IF 1A HPI PUMP <u>and</u> 1B HPI PUMP are operating, AND 1HP-27 will NOT open, THEN throttle 1HP-409 to maintain desired Pzr level.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>10. IAAT <u>LDST</u> <u>level</u> CANNOT be maintained, THEN perform Step 11.</p>	<p>___ GO TO Step 12.</p>
<p>11. Perform the following:</p> <ul style="list-style-type: none"> • Open 1HP-24. • Open 1HP-25. • Close 1HP-16. 	<p>1. ___ IF <u>both</u> BWST suction valves (1HP-24 and 1HP-25) are closed, THEN perform the following:</p> <p>A. ___ Start 1A LPI PUMP.</p> <p>B. ___ Start 1B LPI PUMP.</p> <p>C. Open:</p> <p>___ 1LP-15</p> <p>___ 1LP-16</p> <p>___ 1LP-9</p> <p>___ 1LP-10</p> <p>___ 1LP-6</p> <p>___ 1LP-7</p> <p>D. ___ IF two LPI Pumps are running <u>only</u> to provide HPI pump suction, THEN secure one LPI pump.</p> <p>E. ___ Dispatch an operator to open 1HP-363 (Letdown Line To LPI Pump Suction Block) (A-1-119, U1 LPI Hatch Rm, N end).</p> <p>F. ___ GO TO Step 12.</p> <p>2. ___ IF <u>only one</u> BWST suction valve (1HP-24 or 1HP-25) is open, AND three HPI pumps are operating, THEN secure 1B HPI PUMP.</p>

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12. IAAT additional makeup flow to LDST is desired, AND 1A BLEED TRANSFER PUMP is operating, THEN dispatch an operator to close 1CS-48 (1A BHUT Recirc) (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.).	
13. IAAT <u>two</u> Letdown Filters are desired, THEN perform the following: <ul style="list-style-type: none"> • Open 1HP-17. • Open 1HP-18 	
14. IAAT <u>all</u> of the following exist: <ul style="list-style-type: none"> • Letdown isolated • LPSW available • Letdown restoration desired THEN perform Steps 15 - 33. {41}	___ GO TO Step 34.
15. Open: <ul style="list-style-type: none"> • 1CC-7 • 1CC-8 	1. ___ Notify CR SRO that letdown CANNOT be restored due to inability to restart the CC system. 2. ___ GO TO Step 34.
16. Ensure only one CC pump running.	
17. Place the non-running CC pump in AUTO.	
18. Verify <u>both</u> are open: <ul style="list-style-type: none"> • 1HP-1 • 1HP-2 	1. ___ IF 1HP-1 is closed due to 1HP-3 failing to close, THEN GO TO Step 20. 2. ___ IF 1HP-2 is closed due to 1HP-4 failing to close, THEN GO TO Step 20.
19. GO TO Step 22.	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> NOTE Verification of leakage requires visual observation of East Penetration Room. </div>	
20. Verify letdown line leak in East Penetration Room has occurred.	___ GO TO Step 22.
21. GO TO Step 34.	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22. Monitor for unexpected conditions while restoring letdown.	
23. Verify <u>both</u> letdown coolers to be placed in service.	1. ___ IF 1A letdown cooler is to be placed in service, THEN open: ___ 1HP-1 ___ 1HP-3 2. ___ IF 1B letdown cooler is to be placed in service, THEN open: ___ 1HP-2 ___ 1HP-4 3. ___ GO TO Step 25.
24. Open: <ul style="list-style-type: none"> • 1HP-1 • 1HP-2 • 1HP-3 • 1HP-4 	
25. Verify <u>at least one</u> letdown cooler is aligned.	Perform the following: A. ___ Notify CR SRO of problem. B. ___ GO TO Step 34.
26. Close 1HP-6.	
27. Close 1HP-7.	
28. Verify letdown temperature < 125°F.	1. ___ Open 1HP-13. 2. Close: ___ 1HP-8 ___ 1HP-9&11 3. ___ IF <u>any</u> deborating IX is in service, THEN perform the following: A. ___ Select 1HP-14 to NORMAL. B. ___ Close 1HP-16. 4. ___ Select LETDOWN HI TEMP INTLK BYP switch to BYPASS.

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29. Open 1HP-5.	
30. Adjust 1HP-7 for \approx 20 gpm letdown.	
31. WHEN letdown temperature is $< 125^{\circ}\text{F}$, THEN place LETDOWN HI TEMP INTLK BYP switch to NORMAL.	
32. Open 1HP-6.	
33. Adjust 1HP-7 to control desired letdown flow.	

NOTE

AP/32 (Loss of Letdown) provides direction to cool down the RCS to offset increasing pressurizer level.

34. IAAT it is determined that letdown is unavailable due to equipment failures <u>or</u> letdown system leakage, THEN notify CR SRO to initiate AP/32 (Loss of Letdown).	
35. IAAT > 1 HPI pump is operating, AND additional HPI pumps are NO longer needed, THEN perform the following: A. Obtain SRO concurrence to reduce running HPI pumps. B. Secure the desired HPI pumps. C. Place secured HPI pump switch in AUTO, if desired.	
36. IAAT <u>all</u> the following conditions exist: <ul style="list-style-type: none"> • Makeup from BWST NOT required • LDST level $> 55''$ • <u>All</u> control rods inserted • Cooldown Plateau NOT being used THEN close: <ul style="list-style-type: none"> • 1HP-24 • 1HP-25 	

ENCLOSURE 5.5 (cont.)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
37. Verify 1CS-48 (1A BHUT Recirc) has been closed to provide additional makeup flow to LDST.	___ GO TO Step 39.
38. WHEN 1CS-48 (1A BHUT Recirc) is NO longer needed to provide additional makeup flow to LDST, THEN perform the following: A. Stop 1A BLEED TRANSFER PUMP. B. Locally position 1CS-48 (1A BHUT Recirc) <u>one</u> turn open (A-1-107, Unit 1 RC Bleed Transfer Pump Rm.). C. Close 1CS-46. D. Start 1A BLEED TRANSFER PUMP. E. Locally throttle 1CS-48 (1A BHUT Recirc) to obtain 90 - 110 psig discharge pressure. F. Stop 1A BLEED TRANSFER PUMP.	
39. Verify two Letdown Filters in service, AND <u>only one</u> Letdown filter is desired.	___ GO TO Step 41.
40. Perform <u>one</u> of the following: • Place 1HP-17 switch to CLOSE. • Place 1HP-18 switch to CLOSE.	
41. WHEN directed by CR SRO, THEN EXIT this enclosure.	

• • • END •

CRITICAL TASKS

1. Trip all RCPs **CT-1: (page 23)**
Required to Trip ALL RCPs within 2 minutes of loss of SCM (Rule 2).
2. Start A and B OUTSIDE AIR BOOSTER FANS **(CT-27) (page 29, 31, or 33 depending on procedure path through Enclosure 5.1)**. Must be started within 30 minutes of LOCA to maintain Control Room habitability.

SAFETY: Take a Minute			
UNIT 0 (OSM)			
SSF Operable: No	KHU's Operable: U1 - OH, U2 - UG	LCTs Operable: 2	Fuel Handling: No
UNIT STATUS (CR SRO)			
Unit 1 Simulator		Other Units	
Mode: 2		Unit 2	Unit 3
Reactor Power: CTP = 3%		Mode: 1	Mode: 1
Gross MWE: N/A		100% Power	100% Power
RCS Leakage: 0.024 gpm		EFDW Backup: Yes	EFDW Backup: Yes
RBNS Rate: 0.01 gpm			
Technical Specifications/SLC Items (CR SRO)			
Component/Train	OOS Date/Time	Restoration Required Date/Time	TS/SLC #
SSF	18 hours ago	6 days 6 hours from now	TS 3.10.1
Shift Turnover Items (CR SRO)			
Primary			
<ul style="list-style-type: none">Tave = 543°FHolding power at 3% at step 3.42 of OP/1/A/1102/001 (Unit Startup from 532°F/2155 psig to Mode 1) while PT/1/A/0630/001 (Mode Change Verification) Enclosure 13.10 "Prior To Entry Into MODE 1 is being performed.Per Rx Engineering, use OP/1/A/1103/004A (RCS Boration) Encl. 4.1 (RCS Boration from CBAST with CBAST Pump) and add approximately 50 gal CBAST with 1A CBAST Pump in Manual and flush with approximately 50 gal of DW. Should result in approximately 15% rod withdrawal on Gp 7 over next 2 hrs.Both Letdown filters are in service and Chemistry has requested they both be left in service until the plant reaches 100% power.SRO to direct the OATC to perform the 50 gal CBAST addition.			
Secondary			
<ul style="list-style-type: none">1SSH-1, 1SSH-3, 1SD-2, 1SD-5, 1SD-140, 1SD-303, 1SD-355, 1SD-356 and 1SD-358 are closed with power supply breakers open per the Startup Procedure for SSF Overcooling Event.1AS-35 throttled per Secondary Chemist to provide steam to E heaters for secondary O2 removal.			
Reactivity Management (CR SRO)			
RCS Boron = 1756 ppmb	Rod position Gp 7 5% WD	R2 Reactivity management controls established in the Control Room per SOMP 01-02	
Human Performance Emphasis (OSM)			
Procedure Use and Adherence			