

2. Examiner comment on 303 form p. 14 of 32, related to Scenario 6, Event 4

A. FACTUAL SEQUENCE OF EVENTS

-During the simulator scenario, at time 08:29:56, event 4 was initiated with pressurizer level channel LT-459 slowly failing low.

-At time 08:31:27, [REDACTED], the Reactor Operator (RO) reported "pressurizer level is lowering ... pressurizer pressure is going up?" (in a questioning voice at the end)

-A few seconds later, Carla Smith, as Senior Reactor Operator (SRO), directed "Perform Immediate Operator Actions—" when [REDACTED], the Balance-of-Plant (BOP) operator, held up his hand and stated "there are no immediate actions ... it's an instrument failure."

-At time 08:33:54, Carla entered AOP-18001-C section D and directed the team to begin monitoring the continuous action page.

-At time 08:36:37, the team placed FIC-121 to MANUAL.

-At time 08:37:44, the team selected an unaffected channel on LS-459D.

-At time 08:41:??, the team reached step D9 to return PRZR level control to AUTO. The team decided to leave FIC-121 in MANUAL.

-At time 08:46:32, Carla began to lead a crew briefing on the LT-459 failure.

-During the briefing, Carla stated, "FIC-121 was in AUTO." [REDACTED] corrected Carla and informed her that FIC-121 was still in MANUAL.

-During the briefing, Carla discussed the applicable Technical Specifications for this failure, but did not mention all applicable TS. [REDACTED] reminded Carla to review additional TS that she had not discussed during the brief.

-At time 08:53:27, Carla ended the brief.

-At time 08:53:50, the next event failure was initiated (PT-508 slowly failing high).

-At time 08:53:50, [REDACTED] stated, "failure of feedwater pump control, performing immediate operator actions," and placed feedwater pump speed control to MANUAL.

-At time 08:54:10, [REDACTED] informed Carla that "immediate operator actions are complete."

-At time 08:54:21, Carla directed [REDACTED] to place FIC-121 to AUTO.

-Placing FIC-121 to AUTO caused the valve to rapidly close, and also caused REGEN HX LTND HI TEMP, RCP SEAL INJ LO FLOW, and other alarms to annunciate due to the rapidly lowering charging flow.

-At time 08:55:52, [REDACTED] informed Carla that FIC-121 had failed closed.

-[REDACTED] returned FIC-121 to MANUAL and began to re-open the valve.

-[REDACTED] began to increase seal flow using that controller in manual.

-While both operators were manipulating the control system, there was no guidance from Carla and no communications between the team members.

#### B. EXAMINER EVALUATION AND COMMENTS

The examiner classified the root cause deficiency for this event as 1.c. due to Carla's mis-understanding of the effects of "saturation" on the FIC-121 controller. The controller was in MANUAL for approximately 18 minutes with a level deviation signal building in. By giving the direction to return the controller to AUTO, the SRO was evidently satisfied that the saturation issue had been resolved. This demonstrated her mis-understanding of the timing aspects of how the controller functions.

There are also aspects of this event that relate to oversight and directing shift operation, competency 5. A PT-508 failure had just occurred moments before Carla's direction to return FIC-121 to AUTO. Why did the SRO give the direction to return FIC-121 to AUTO even before formally entering the procedure for the PT-508 failure? The mis-timed direction to place FIC-121 to AUTO caused an unnecessary transient on the CVCS system that required the crew's immediate response.

In the applicant's appeal to the examiner comment on page 18 of 32 on the 303 forms, she states:

However applicant could not make adjustment with additional failures in progress as this would result in the SRO addressing simultaneous conditions that could lead to a potential human performance error.

Carla's direction during this event, which caused both board operators to take immediate actions to restore charging and RCP seal flows in a simultaneous fashion, is therefore recognized as creating an error-likely situation.

Additional errors related to this event in communications and Technical Specifications are documented in the 303 forms.

2  
08:07:49

J-C-J: ↑ 3 Steps

(NRC Loop 1 Trip Failure)

Make

09:08

C-WCC: Informs Mem of Failure, Need F/c & CR... X: 18001-C, Sect-B  
↳ Also need SM permission to place rods to Auto → Permission granted.

11:19

J-C-J: ↑ 3 Steps

14:01

J-C-J: PIC-121 Back to Auto

14:53

J-C-J: ↑ 3 Steps (Now at 228 Steps ARO)

Not sure they really needed to worry about that to begin with

3

22:15

Alms

J-C: Step Change on RE-006 & No alarms on condensation monitors

25:02

R-Chemistry: Features of RE-006 → need you to determine rad levels/Rad/Mints  
↳ Would this be Chem or HP?

28:28

C-R. Chem: De-activate RE-006

4

31:27

J-C: PZR L ↓

C-R: Check 3/6

R-C: 65% & ↳ Did not mention P.

32:14

Alm PZR to Level Deviation Alarm

33:00

C-R: Go ahead and perform I/O A's

R-C: No IMITS exist

33:11

C: X 18001-C, Section D

34:33

J-C: LI-459 Failed low

35:57

C-J: MANI control of PIC-121 now ARP

(Auto seemed a little uncertain, but appeared uncertain)

40:16

C-CNT: Notices of Failure, CR, WO, F/c, & APX & Permission to go back to auto  
↳ Permission to auto granted

46:32

BRIEF She stated PIC-121 was in Auto, but Jimmie corrected her mis-communication

TECH SPEC F/U  
She did not mention TS 3.3.4

COMM S

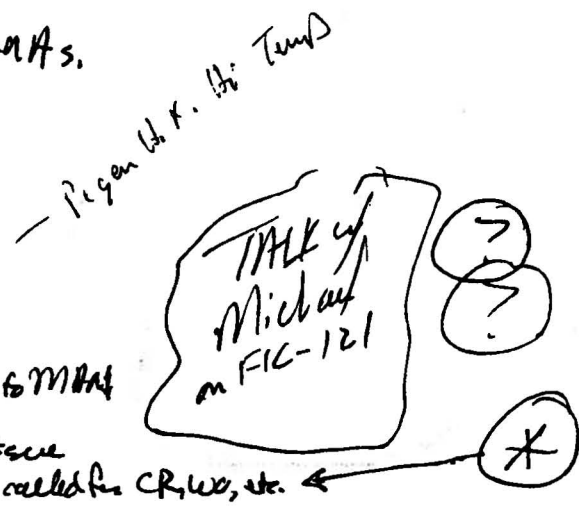


→ Informed her of PAM TS that she did not mention.



4  
28: 53:49  
54:10  
54:21  
55:52  
57:38  
58:40  
19: 08:32  
10/ 09:28  
09:40  
11:38  
13:10  
4:23  
15:08  
20:22  
23:35  
24:00  
25:29  
26:22  
28:28  
30:39

R-C: Failure of FW Pp Control. IMAs.  
R-C: IMAs clear  
C-S: Place PIC-121 in Auto  
R-C: Alms PIC-121 Failed Closed  
C: X 18016-C Section E  
C-R-C: Main FW Pp Master Control was taken to MMR  
C-WCC: Notices of PIC-121 Control Issue  
Alms She called it a failure and called for CR, WCC, etc.  
C-R: Pull ATRP  
R-Go: Look at Vibes on FPS. on B' W1  
R-C: LP Reg 8, 9 mils \* HP Reg @ 6.5 mils  
A-R: B' MFP W1 locally 6.5 mils on HP \* 9 mils on LP Reg \* Physical Vibe  
C: X 18013-C  
C: Notifications - going to 70%  
C-R: Turbine load at limit of 60 MWe limit  
C-R: Turbine load  
R begins limiting turbine load using the limiter.  
S-C-S: Starts operation.  
C-R: target is 854 MWe @ ~70%  
C-S: Take Manual Control of Pads \* & up to 5 Steps at a time  
↳ They are monitoring different pts.  
↳ recommends monitoring \* only go to Manual if they do not move when required.  
↳ Carla agrees with that suggestion.  
They are monitoring UTO496 Tref \* & T0420 (Temp)  
S-C: Goes to Manual w/ Pads \* & 5 Steps



(X)  
(X)  
(X)



**Appendix D**

**Required Operator Actions**

**Form ES-D-2**

**Op-Test No.: 2012-301**

**Scenario No.: 6**

**Event No.: 4**

**Event Description: PRZR level channel LT-459 will slowly fall low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.**

Time	Position	Applicant's Action or Behavior
	OATC	<p>Diagnose PRZR LT-459 is slowly failing low affecting charging flow:</p> <p>Symptoms / alarms:</p> <p>ALB11-D01 PRZR LO LEVEL DEVIATION</p> <p>ALB08-F06 RCP SEAL WATER INJ LO FLOW (may come in after swapping controlling PRZR LT channels)</p> <p>Indications:</p> <ul style="list-style-type: none"> <li>• PRZR LT-459 drifting low over time.</li> <li>• Charging flow FIC-0121 rising to maximum as indicated PRZR program level is high relative to LT-459.</li> <li>• PRZR level on other 2 channels rising.</li> </ul>
✓	SS	<p>Enters AOP 18001-C, Section D, FAILURE OF PRZR LEVEL INSTRUMENTATION.</p>
08 33 51	OATC UO	<p>D1. Initiate the Continuous Actions Page.</p>

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Time	Position	Applicant's Action or Behavior
	OATC	<p>D2. Check PRZR level – TRENDING TO PROGRAM LEVEL. (NO) <span style="float: right;">(circled)</span></p> <p>RNO <span style="margin-left: 100px;">57% ↗</span></p> <p>D2. IF PRZR level instrument fails high,                      THEN perform the following as necessary:</p> <p style="margin-left: 40px;">__ Adjust charging to prevent letdown from flashing.</p> <p style="margin-left: 40px;">-OR-</p> <p style="margin-left: 40px;">__ Isolate letdown.</p> <p>IF PRZR level instrument fails low,                      THEN maintain charging flow approximately 10 gpm greater than total seal injection flow.</p> <p><b>Note to examiner:</b> If the crew blindly follows the step for maintaining charging flow ~ 10 gpm greater than total seal injection flow, they will probably flash letdown. The crew will need to manually control charging flow to control PRZR level.</p>
083715	OATC	<p><del>D3.</del> Maintain Seal Injection flow to all RCPs – 8 TO 13 GPM.  <span style="margin-left: 150px;">10 gpm on all RCPs</span></p>
083736	OATC	<p><del>D4.</del> Select an unaffected channel on LS-459D PRZR LVL CNTL SELECT. (selects 461 / 460) <span style="float: right;">(circled)</span></p>
083800	OATC	<p><del>D5.</del> Select same channel on LS-459E PRZR LVL REC SEL as selected on LS-459D. (selects 461) <span style="float: right;">(circled)</span></p>

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Form ES-D-2

Op-Test No.: 2012-301

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Event No.: 4

**Event Description:** PRZR level channel LT-459 will slowly fail low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.

Time	Position	Applicant's Action or Behavior
✓	OATC	D6. Restore letdown flow by initiating 13006, CHEMICAL AND VOLUME CONTROL SYSTEM, if required. (N/A)
✓	OATC	D7. Check if PRZR heaters should be restored to service. (NO)  PRZR level controlling channel – FAILED LOW.  RNO  D7. Go to Step D9.  <b>Note to examiner:</b> The channel fails low over 10 minutes, the crew will have plenty of time to adjust charging and defeat the failed channel prior to letdown isolation. Swapping channels in time will prevent the letdown isolation.
	OATC	D9. Return PRZR level control to AUTO.  <b>Cue to Simbooth:</b> IF asked, the Shift Manager has given permission to place the PRZR level control system in auto. ✓
	OATC	D10. Check PRZR level is maintained at program by auto control.  RNO  D10. Maintain PRZR level at program using manual control.
	SS	D11. Notify I & C to initiate repairs.

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 4

**Event Description:** PRZR level channel LT-459 will slowly fall low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.

Time	Position	Applicant's Action or Behavior
	SS	<p>D12. Bypass the affected instrument channel using 13509-C, BYPASS TEST INSTRUMENTATION (BTI) PANEL OPERATION, if desired.</p> <p><b>Note to examiner:</b> The SS will <u>not</u> BTI the channel at this time. I &amp; C will request to leave the channel in the normal state until they have an opportunity to troubleshoot.</p>
	OATC	<p>D13. Trip affected channel bistable and place associated MASTER TEST switch in TEST position per TABLE D1 within 72 hours. (TS 3.3.1)</p>
	UO	<p style="text-align: center;">TABLE D1</p> <p><b><u>CAUTIONS</u></b></p> <ul style="list-style-type: none"> <li>• Only one channel should be tripped.</li> <li>• The bistable input is placed in the tripped state by positioning the selector switch on the specified test card to TEST.</li> <li>• The bistable input identified by the switch number should agree with the location specified by CAB, CARD, and B/S before tripping a bistable input. If a discrepancy exists, CAB-CARD-B/S should be used, not switch number.</li> <li>• Bypassing another channel for Surveillance Testing with a channel inoperable is permitted provided the inoperable channel is in the tripped condition and the channel being tested is not bypassed for more than 12 hours.</li> </ul>

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Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 4

**Event Description: PRZR level channel LT-459 will slowly fall low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.**

Time	Position	Applicant's Action or Behavior																												
	UO	<table border="1"> <tr> <td>SSPS INPUT</td> <td>CAB</td> <td>FRAME /CARD</td> <td>B/S</td> <td>SWITCH</td> </tr> <tr> <td>LT-459 Failure (Channel 1)</td> <td>1</td> <td>8/47</td> <td>1</td> <td>LS-459A</td> </tr> <tr> <td>High Level Reactor Trip</td> <td></td> <td>8/73</td> <td></td> <td>7</td> </tr> <tr> <td>MASTER TEST SWITCH</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	SSPS INPUT	CAB	FRAME /CARD	B/S	SWITCH	LT-459 Failure (Channel 1)	1	8/47	1	LS-459A	High Level Reactor Trip		8/73		7	MASTER TEST SWITCH					END OF TABLE D1							
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	SS	D14. Initiate the applicable actions of Technical Specification 3.3.1.																												
	SS	Tech Spec 3.3.1 ✓ <table border="1"> <thead> <tr> <th>FUNCTION</th> <th>APPLICABLE MODES</th> <th>REQUIRED CHANNELS</th> <th>CONDITIONS</th> </tr> </thead> <tbody> <tr> <td>8. Pressurizer Water Level - High</td> <td>1(f)</td> <td>3</td> <td>M ✓</td> </tr> </tbody> </table> (f) Above the P-7 (Low Power Reactor Trips Block) interlock.  Table 3.3.4-1 (Page 1 of 1) Remote Shutdown System Instrumentation and Controls Tech Spec 3.3.4 <table border="1"> <thead> <tr> <th>FUNCTION / INSTRUMENT OR CONTROL PARAMETER</th> <th>REQUIRED NUMBER OF CHANNELS</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>MONITORING INSTRUMENTATION</b></td> </tr> <tr> <td>8. Pressurizer Level</td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One or more required Function inoperable.</td> <td>A.1 Restore required Function to OPERABLE status.</td> <td>30 days.</td> </tr> <tr> <td rowspan="2">B. Required Action and associated Completion Time not met.</td> <td>B.1 Be in MODE 3</td> <td>6 hours</td> </tr> <tr> <td>AND B.2 Be in MODE 4</td> <td>12 hours</td> </tr> </tbody> </table>				FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	8. Pressurizer Water Level - High	1(f)	3	M ✓	FUNCTION / INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF CHANNELS	<b>MONITORING INSTRUMENTATION</b>		8. Pressurizer Level		CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One or more required Function inoperable.	A.1 Restore required Function to OPERABLE status.	30 days.	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3	6 hours	AND B.2 Be in MODE 4	12 hours
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TS

7

*She got only a few pumped.*  
*she missed during brief.*

7

**Appendix D**

**Required Operator Actions**

**Form ES-D-2**

**Op-Test No.: 2012-301**

**Scenario No.: 6**

**Event No.: 4**

**Event Description: PRZR level channel LT-459 will slowly fail low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.**

Time	Position	Applicant's Action or Behavior						
	SS	<p style="text-align: center;">Table 3.3.3-1 (page 1 of 1)            Post Accident Monitoring Instrumentation</p> <p>Tech Spec 3.3.3</p> <table border="1" data-bbox="472 653 1435 802"> <thead> <tr> <th data-bbox="472 653 795 726">FUNCTION</th> <th data-bbox="795 653 1114 726">REQUIRED CHANNELS</th> <th data-bbox="1114 653 1435 726">CONDITIONS</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 726 795 802">6. Pressurizer Level</td> <td data-bbox="795 726 1114 802">2</td> <td data-bbox="1114 726 1435 802">B, G, H, J</td> </tr> </tbody> </table> <p>Note to examiner: Tech Spec 3.3.3 Function 6 is an INFO LCO.</p>	FUNCTION	REQUIRED CHANNELS	CONDITIONS	6. Pressurizer Level	2	B, G, H, J
FUNCTION	REQUIRED CHANNELS	CONDITIONS						
6. Pressurizer Level	2	B, G, H, J						
	SS	<p>D15. Check repairs and surveillances – COMPLETE.</p> <p>RNO</p> <p>D15. Perform the following:</p> <ul style="list-style-type: none"> <li>a. WHEN repairs and surveillances are complete, THEN perform step D16.</li> <li>b. Return to procedure and step in effect.</li> </ul>						
		<p><b>END OF EVENT 4, proceed to EVENT 5.</b></p>						

Wlecks

→ procedure error?



**Appendix D**                                      **Required Operator Actions**                                      **Form ES-D-2**

**Op-Test No.: 2012-301**                                      **Scenario No.: 6**

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Time	Position	Applicant's Action or Behavior
	OATC	Diagnose PRZR LT-459 is slowly failing low affecting charging flow:  Symptoms / alarms:  ALB11-D01 PRZR LO LEVEL DEVIATION ALB08-F06 RCP SEAL WATER INJ LO FLOW (may come in after swapping controlling PRZR LT channels)  Indications: <ul style="list-style-type: none"> <li>• PRZR LT-459 drifting low over time.</li> <li>• Charging flow FIC-0121 rising to maximum as indicated PRZR program level is high relative to LT-459.</li> <li>• PRZR level on other 2 channels rising.</li> </ul>
	SS	Enters AOP 18001-C, Section D, FAILURE OF PRZR LEVEL INSTRUMENTATION.
33(54)	OATC UO	<del>D1.</del> Initiate the Continuous Actions Page.

29(56) fault in

31(10) end brief (RE-006 failure)

31(27) LPR ↓ (OATC ↑) pressure is ↑

- SS: perform, IOAs -
- [redacted] determined LPR inst failure → saved team -

- what indications did you have?
- what did you think was happening?

what ↓ saw, trend DPC LPR ↓  
PZR ↑, showed [redacted] if leak, same  
way, [redacted] saw one channel  
if RCS leak, LPR & PZR both ↓

LPR ↑ PZR ↓

Appendix D

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 4

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Time	Position	Applicant's Action or Behavior
	OATC	<p><input checked="" type="radio"/> D2. Check PRZR level – TRENDING TO PROGRAM LEVEL. (NO)                      RNO <i>57% ↑s (NO)</i></p> <p><input checked="" type="radio"/> D2. IF PRZR level instrument fails high, THEN perform the following as necessary:</p> <p>___ Adjust charging to prevent letdown from flashing.</p> <p>-OR-</p> <p>___ Isolate letdown.</p> <p><input type="radio"/> IF PRZR level instrument fails low, THEN maintain charging flow approximately 10 gpm greater than total seal injection flow.</p> <p><b>Note to examiner:</b> If the crew blindly follows the step for maintaining charging flow ~ 10 gpm greater than total seal injection flow, they will probably flash letdown. The crew will need to manually control charging flow to control PRZR level.</p>
	OATC	D3. Maintain Seal Injection flow to all RCPs – 8 TO 13 GPM.
<i>37/44</i>	OATC	<input checked="" type="radio"/> D4. Select an unaffected channel on LS-459D PRZR LVL CNTL SELECT. (selects 461 / 460)
<i>38/08</i>	OATC	<input checked="" type="radio"/> D5. Select same channel on LS-459E PRZR LVL REC SEL as selected on LS-459D. (selects 461)

36(37)

FIC-121 → MAN

Libs [redacted] said, 17% will  
affect 4%

restore 13006 -

Appendix D

Required Operator Actions

Form ES-D-2

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Event No.: 4

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Time	Position	Applicant's Action or Behavior
	OATC	D6. Restore letdown flow by initiating 13006, CHEMICAL AND VOLUME CONTROL SYSTEM, if required. (N/A)
39/29	OATC	<p>D7. Check if PRZR heaters should be restored to service. (NO)</p> <p>PRZR level controlling channel – FAILED LOW.</p> <p>RNO</p> <p>D7. Go to Step D9.</p> <p><b>Note to examiner:</b> The channel fails low over 10 minutes, the crew will have plenty of time to adjust charging and defeat the failed channel prior to letdown isolation. Swapping channels in time will prevent the letdown isolation.</p>
	OATC	<p>D9. Return PRZR level control to AUTO.</p> <p><b>Cue to Simbooth:</b> IF asked, the Shift Manager has given permission to place the PRZR level control system in auto.</p>
	OATC	<p>D10. Check PRZR level is maintained at program by auto control.</p> <p>RNO</p> <p>D10. Maintain PRZR level at program using manual control.</p>
	SS	D11. Notify I & C to initiate repairs.

Appendix D

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 5

Event Description: FW flow transmitter FT-508 fails slowly high over time. This will result in MFPT speed lowering and FW flow less than steam flow. The UO will have to take manual control of MFPT Master Speed controller to control FW flow.

*Pressure*

Time	Position	Applicant's Action or Behavior
	UO	Diagnose PT-508 failing high:  Symptoms / alarms:  ALB13-A06 STM GEN 1 HI/LO LVL DEVIATION ALB13-B06 STM GEN 2 HI/LO LVL DEVIATION ALB13-C06 STM GEN 3 HI/LO LVL DEVIATION ALB13-D06 STM GEN 4 HI/LO LVL DEVIATION ALB06-F01 CSFST TROUBLE  Indications: <ul style="list-style-type: none"> <li>• PT-508 pressure slowly rising.</li> <li>• MFPT speeds slowly lowering.</li> <li>• Steam flow / feed flow mismatches on all SGs.</li> </ul>
	OATC	<u><b>IMMEDIATE OPERATOR ACTIONS</b></u>  E1. Check steam and feed flows – MATCHED ON ALL SGs. (NO)  RNO  E1. Take manual control of the following as necessary to restore NR level between 60% and 70%. <ul style="list-style-type: none"> <li>• SG feed flow valves. (Note: Not expected to use valves)</li> <li>• MFP(s) speed. (Note: Expected to raise MFPT speed)</li> </ul>
	SS	Enters 18016-C CONDENSATE AND FEEDWATER MALFUNCTION Section E, FAILURE OF MFP SPEED CONTROL.

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Time	Position	Applicant's Action or Behavior						
	SS	<p style="text-align: center;">Table 3.3.3-1 (page 1 of 1)                      Post Accident Monitoring Instrumentation</p> <p>Tech Spec 3.3.3</p> <table border="1" data-bbox="495 674 1458 825"> <thead> <tr> <th data-bbox="495 674 816 747">FUNCTION</th> <th data-bbox="816 674 1138 747">REQUIRED CHANNELS</th> <th data-bbox="1138 674 1458 747">CONDITIONS</th> </tr> </thead> <tbody> <tr> <td data-bbox="495 747 816 825">6. Pressurizer Level</td> <td data-bbox="816 747 1138 825">2</td> <td data-bbox="1138 747 1458 825">B, G, H, J</td> </tr> </tbody> </table> <p>Note to examiner: Tech Spec 3.3.3 Function 6 is an INFO LCO.</p>	FUNCTION	REQUIRED CHANNELS	CONDITIONS	6. Pressurizer Level	2	B, G, H, J
FUNCTION	REQUIRED CHANNELS	CONDITIONS						
6. Pressurizer Level	2	B, G, H, J						
	SS	<p>D15. Check repairs and surveillances – COMPLETE.</p> <p>RNO</p> <p>D15. Perform the following:</p> <ul style="list-style-type: none"> <li>a. WHEN repairs and surveillances are complete, THEN perform step D16.</li> <li>b. Return to procedure and step in effect.</li> </ul>						
		<p><b>END OF EVENT 4, proceed to EVENT 5.</b></p>						



Appendix D

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 4

**Event Description: PRZR level channel LT-459 will slowly fall low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.**

Time	Position	Applicant's Action or Behavior
	SS	<p>D12. Bypass the affected instrument channel using 13509-C, BYPASS TEST INSTRUMENTATION (BTI) PANEL OPERATION, if desired.</p> <p><b>Note to examiner:</b> The SS will <u>not</u> BTI the channel at this time. I &amp; C will request to leave the channel in the normal state until they have an opportunity to troubleshoot.</p>
	OATC	<p>D13. Trip affected channel bistable and place associated MASTER TEST switch in TEST position per TABLE D1 within 72 hours. (TS 3.3.1)</p>
	UO	<p style="text-align: center;">TABLE D1</p> <p><b><u>CAUTIONS</u></b></p> <ul style="list-style-type: none"> <li>• Only one channel should be tripped.</li> <li>• The bistable input is placed in the tripped state by positioning the selector switch on the specified test card to TEST.</li> <li>• The bistable input identified by the switch number should agree with the location specified by CAB, CARD, and B/S before tripping a bistable input. If a discrepancy exists, CAB-CARD-B/S should be used, not switch number.</li> <li>• Bypassing another channel for Surveillance Testing with a channel inoperable is permitted provided the inoperable channel is in the tripped condition and the channel being tested is not bypassed for more than 12 hours.</li> </ul>

Appendix D

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 4

**Event Description: PRZR level channel LT-459 will slowly fail low over ~ 10 minutes. The OATC will take manual control of FIC-0121 to stabilize charging flow and PRZR level, swap control channels, return charging flow to automatic.**

Time	Position	Applicant's Action or Behavior																													
	UO	SSPS INPUT	CAB	FRAME /CARD	B/S	SWITCH																									
		LT-459 Failure (Channel 1) High Level Reactor Trip MASTER TEST SWITCH	1	8/47 8/73	1	LS-459A 7																									
END OF TABLE D1																															
	SS	D14. Initiate the applicable actions of Technical Specification 3.3.1.																													
	SS	Tech Spec 3.3.1 <table border="1"> <thead> <tr> <th>FUNCTION</th> <th>APPLICABLE MODES</th> <th>REQUIRED CHANNELS</th> <th>CONDITIONS</th> </tr> </thead> <tbody> <tr> <td>9. Pressurizer Water Level - High</td> <td>1 (f)</td> <td>3</td> <td>M</td> </tr> </tbody> </table> <p>(f) Above the P-7 (Low Power Reactor Trips Block) interlock.</p> <p style="text-align: center;">Table 3.3.4-1 (Page 1 of 1) Remote Shutdown System Instrumentation and Controls</p> Tech Spec 3.3.4 <table border="1"> <thead> <tr> <th>FUNCTION / INSTRUMENT OR CONTROL PARAMETER</th> <th>REQUIRED NUMBER OF CHANNELS</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;"><u>MONITORING INSTRUMENTATION</u></td> </tr> <tr> <td>8. Pressurizer Level</td> <td style="text-align: center;">2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One or more required Function inoperable.</td> <td>A.1 Restore required Function to OPERABLE status.</td> <td>30 days.</td> </tr> <tr> <td rowspan="2">B. Required Action and associated Completion Time not met.</td> <td>B.1 Be in MODE 3</td> <td>6 hours</td> </tr> <tr> <td>AND B.2 Be in MODE 4</td> <td>12 hours</td> </tr> </tbody> </table>					FUNCTION	APPLICABLE MODES	REQUIRED CHANNELS	CONDITIONS	9. Pressurizer Water Level - High	1 (f)	3	M	FUNCTION / INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF CHANNELS	<u>MONITORING INSTRUMENTATION</u>		8. Pressurizer Level	2	CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One or more required Function inoperable.	A.1 Restore required Function to OPERABLE status.	30 days.	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3	6 hours	AND B.2 Be in MODE 4	12 hours
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	AND B.2 Be in MODE 4	12 hours																													

53(27) end of brief (L-459 fail)

53(50) fault in

⊕ 54(28) FIC-121 automatic → REGEN Hx  
LTAN H TEMP (flashing)?

121 went fully closed

lost charging  
OATC went back to 121 → man

█ ↑ RCP seal flow  
no coordination OATC-00 (silent)  
no guidance SS

← what walk procedure through guidance? what happened?

**Appendix D**

**Required Operator Actions**

**Form ES-D-2**

**Op-Test No.: 2012-301**

**Scenario No.: 6**

**Event No.: 5**

**Event Description: FW flow transmitter FT-508 fails slowly high over time. This will result in MFPT speed lowering and FW flow less than steam flow. The UO will have to take manual control of MFPT Master Speed controller to control FW flow.**

Time	Position	Applicant's Action or Behavior
	UO OATC	E2. Initiate the Continuous Actions Page.
<i>59(10)</i>	UO	<del>E3</del> Maintain SG NR levels – GREATER THAN 41% and LESS THAN 79%. <b>(YES)</b>
	UO	E4. Check SIC-509A, B, and C MFPT SPEED CONTROL – OPERATING PROPERLY. <ul style="list-style-type: none"> <li>• ALB15-C05 MFPT LOSS OF FW SIGNAL – EXTINGUISHED.</li> <li>• Controller(s) maintaining stable MFPT speed. <b>(NO)</b></li> <li>• Controller(s) maintaining MFP discharge pressure/SG pressure differential – BETWEEN 100 AND 225 PSI. <b>(NO)</b></li> </ul> RNO

LPZR is program matched,  
demand 60-75% to 25%, drove CHG  
is seal flow ↓  
took ARP actions to FIC-121 → man  
and raise CHG is RCP seal in  
concern: flashing in 4Δ lines, might  
have had to enter AOP to  
isolate 4Δ  
ALB08-F06 RCP seal in Lo Flow

Appendix D

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 6

Event No.: 5

**Event Description: FW flow transmitter FT-508 fails slowly high over time. This will result in MFPT speed lowering and FW flow less than steam flow. The UO will have to take manual control of MFPT Master Speed controller to control FW flow.**

Time	Position	Applicant's Action or Behavior
	UO	E4 RNO continued.  E4. Perform one of the following:  <input type="checkbox"/> Adjust MFPT speed as necessary to maintain MFP discharge pressure/SG pressure differential between 100 and 225 psi.  -OR-  Transfer control to the GE Pot by performing the following:  <input type="checkbox"/> a. Adjust SC-3151(3152) MFPT A(B) SPEED CHANGER to obtain zero deviation on SI-3153 (3154).  <input type="checkbox"/> b. Transfer control by placing MFPT-A(B) MOTOR SPEED CHANGER HS-3151 (3152) in MANUAL.  <input type="checkbox"/> c. Adjust SC-3151(3152) to maintain MFP discharge pressure /SG pressure differential between 100 and 225 psig.
<i>02/30</i>	UO	<input checked="" type="checkbox"/> E5. Check PT-507 – OPERATING PROPERLY. (YES)
	UO	<input checked="" type="checkbox"/> E6. Notify I & C to initiate repairs.
	UO	<input checked="" type="checkbox"/> E7. Return feed flow controls to AUTO as necessary. (NO)

**Appendix D**

**Required Operator Actions**

**Form ES-D-2**

**Op-Test No.: 2012-301**

**Scenario No.: 6**

**Event No.: 5**

**Event Description: FW flow transmitter FT-508 fails slowly high over time. This will result in MFPT speed lowering and FW flow less than steam flow. The UO will have to take manual control of MFPT Master Speed controller to control FW flow.**

Time	Position	Applicant's Action or Behavior
	SS	<p>E8. Check repairs and surveillances – COMPLETE. (NO) RNO</p> <p>E8. Perform the following:</p> <ul style="list-style-type: none"> <li>a. WHEN repairs and surveillances are complete, THEN perform Step E9.</li> <li>b. Return to procedure and step in effect.</li> </ul>
		<p><b>END OF EVENT 5, proceed to EVENT 6.</b></p>



**Appendix D Required Operator Actions Form ES-D-2**

**Op-Test No.: 2012-301 Scenario No.: 6**

**Event No.: 5**

**Event Description:** *press* **FW flow transmitter (PT-508 fails slowly high over time. This will result in MFPT speed lowering and FW flow less than steam flow. The UO will have to take manual control of MFPT Master Speed controller to control FW flow.**

Time	Position	Applicant's Action or Behavior
	UO	Diagnose PT-508 failing high:  Symptoms / alarms:  ALB13-A06 STM GEN 1 HI/LO LVL DEVIATION ALB13-B06 STM GEN 2 HI/LO LVL DEVIATION ALB13-C06 STM GEN 3 HI/LO LVL DEVIATION ALB13-D06 STM GEN 4 HI/LO LVL DEVIATION ALB06-F01 CSFST TROUBLE  Indications: <ul style="list-style-type: none"> <li>• PT-508 pressure slowly rising.</li> <li>• MFPT speeds slowly lowering.</li> <li>• Steam flow / feed flow mismatches on all SGs.</li> </ul>
	OATC	<b><u>IMMEDIATE OPERATOR ACTIONS</u></b>  E1. Check steam and feed flows – MATCHED ON ALL SGs. (NO)  RNO  E1. Take manual control of the following as necessary to restore NR level between 60% and 70%. <ul style="list-style-type: none"> <li>• SG feed flow valves. (Note: Not expected to use valves)</li> <li>• MFP(s) speed. (Note: Expected to raise MFPT speed)</li> </ul>
	SS <i>0857</i>	✓ Enters 18016-C CONDENSATE AND FEEDWATER MALFUNCTION Section E, FAILURE OF MFP SPEED CONTROL.

*0854 S → 6 TRC 121 to ALTO (SM input?) why did she do that then?*  
 19  
*121 ALTO 04  
 not manual causing per 101 + Sol flow per 101  
 01 Re-26 to Man*