

C. Smith Complaint is that while the FIC 121 controller was being returned to automatic the exam team attempt to complicate and distract the crew by placing the next failure in. They administered the scenario differently than the other crews

The NRC Staff contend that C. Smith created the confusion because she returned the component to auto after the immediate operator actions for the next failure was completed.

Lets analyze the actions that occurred based on the simulator data

This presentation will lay the information out to make it easier to understand what is expected to happen

CCS-054, PAGE 84 – Mark Bates notes during FIC121 return to auto and PT 508 failure

At 08:53:44 Failure of the PT 508(FW PUMP CONTROL) occurred p. 2

4 continued

- 08:53:44 R-C: Failure of FW Pp Control. IMA's,
- 54:10 R-C: IMA's done
- 54:21 C-S: Place FIC121 in Auto
- 55:52 R-C: Alms FIC-121 Failed Closed
- 57:38 C-X 18016-C Section E
- 58:40 C-R-C: Main FW Pp Master Control was taken to MHA
- 08:32 C-ucc: Notices of PIC-121 level Control Issue
She called it a failure and called for CR, WX, etc.
- 09:28 Alms
- 09:40 C-R: Pull ARP

TALK w/ Michael on FIC-121

(7)
(3)
(X)

At 08:54:10 immediate Operator Actions (IMA) done
Actions are below, operator is expected to raise Main feed
pump speed

CCS-054, PAGE 24

OATC	<u>IMMEDIATE OPERATOR ACTIONS</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"> • SG feed flow valves. (Note: Not expected to use valves) • MFP(s) speed. (Note: Expected to raise MFPT speed)

Based on the Previous slide PT 508 actions occurred:

08:53:44 Failure Occurred

08:54:10 Immediate Operator Actions were performed

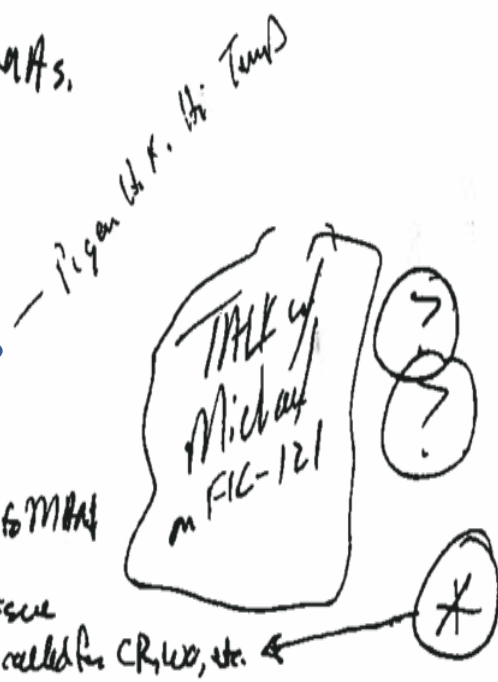
Lets now determine the FIC 121 actions based on Mark Bates Notes CCS-054, PAGE 84

08:54:21 C. Smith tells Operator to place FIC 121 in auto (it will take about 10 – 15 seconds to take it to auto)

Pg. 3

4 continued

- 08:53:44 R-C: Failure of Fw Sp Control. IMAs.
- 54:10 R-C: IMAs clear
- 54:21 C-S: Place FIC 121 in Auto
- 55:52 R-C: Alarms FIC-121 Failed Closed
- 57:38 C: X 18016-C Section E
- 58:40 C-R-C: Main Fw Sp Master Control was taken to MHA
- 08:32 C-WCC: Notification of FIC-121 and Section Issue She called it a failure and called for CR, WCC, etc.
- 09:28 Alarms
- 09:40 C-R: Pull ARP



08:55:52 Alarms come in and FIC 121 closed

Based on Mark Bates Notes, this is the timeline

PT 508 actions occurred:

08:53:44 Failure Occurred

08:54:10 Immediate Operator Actions were performed

11 Seconds later

FIC 121 actions occurred

08:54:21 – FIC 121 directed to be placed in auto

08:55:52 – FIC 121 starts to close(failed close)

08:57:38 – entered 18016-C (meaning the previous action took approximately 1.5 minutes to address)

Based on this, all actions with FIC 121 occurred after PT 508 failed and PT 508 speed increase WAS COMPLETE (immediate operator actions).

08:55:52

- 08:54:21

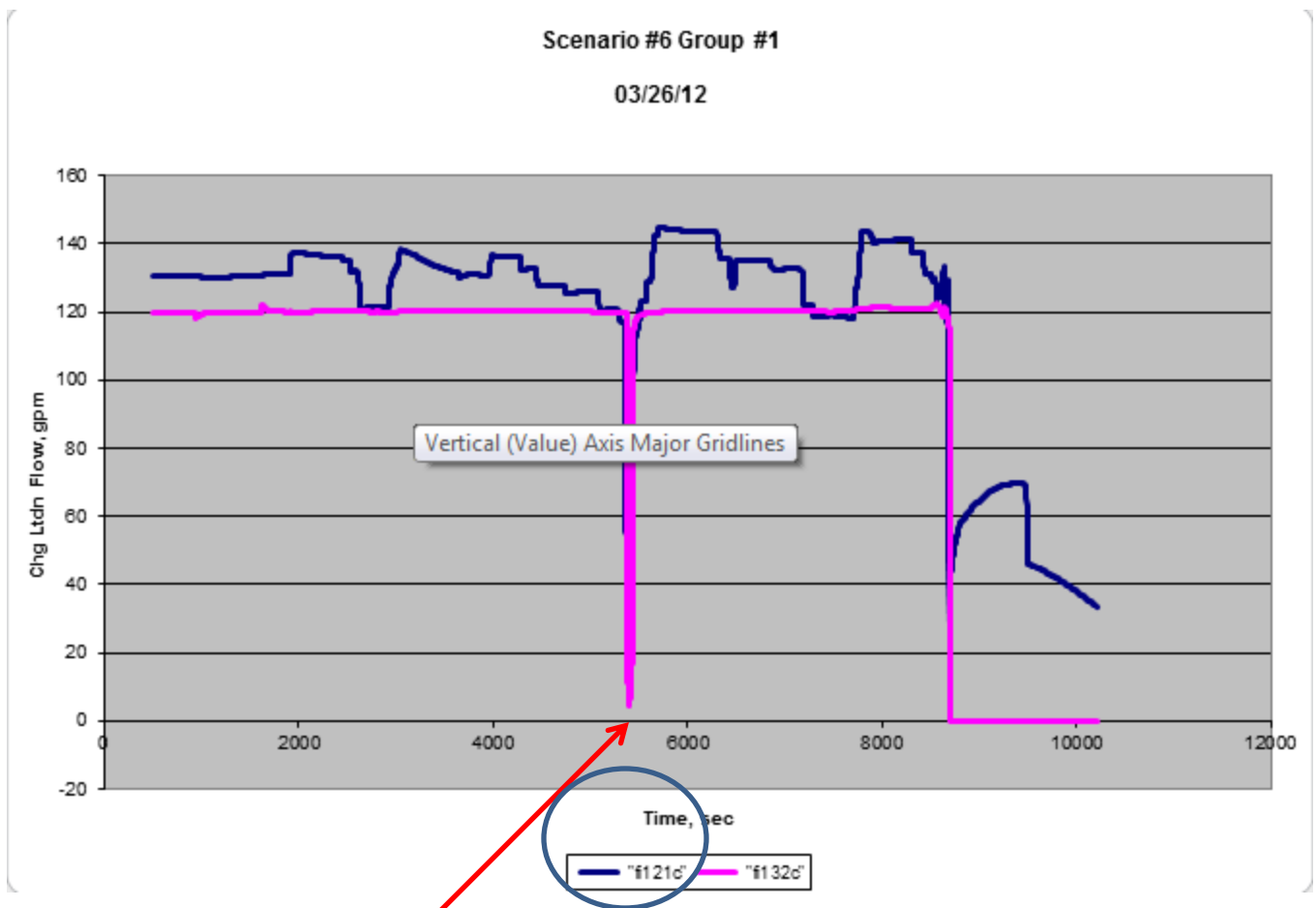
1:31

60 sec+ 31sec

= 91 seconds

If the times for FIC 121 are subtracted, it shows that after FIC 121 was taken to automatic it took 1 minute and 31 seconds for the valves to close/alarms come it. Convert minutes to seconds will equal approx 91 second to close once directed to take to auto.

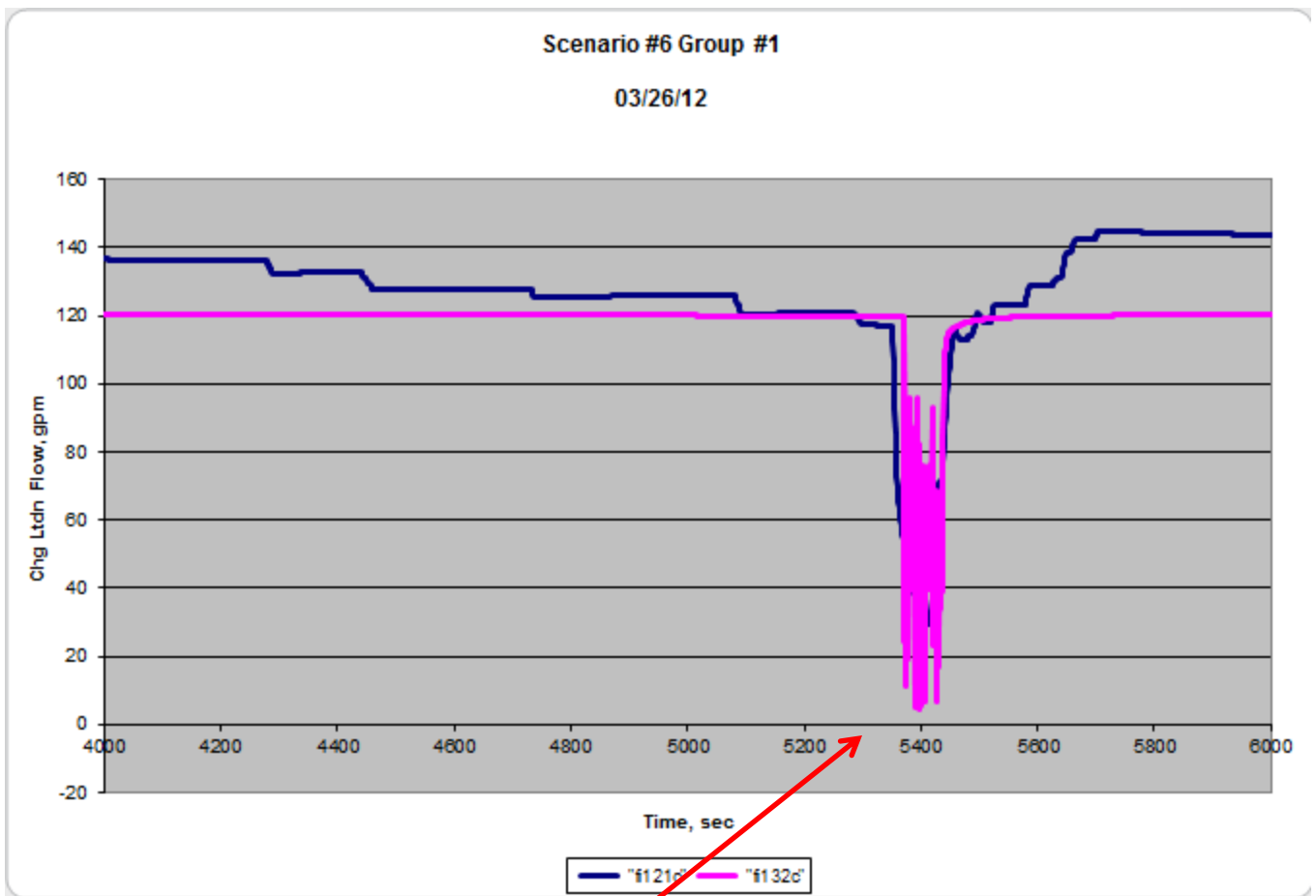
This is a chart generated by Region II and obtained through FOIA 0242



- This large drop is due to the FIC 121 closing
- FIC 121 is in blue and circled
- Look at the chart to see the approx timeframe that all the actions were occurring with FIC 121 and PT 508 (4000-6000)
- Based on the timeline the time frame from the start of the PT 508 failure to the closing of FIC 121 took approx 2 minutes, which is 120 second – so the actions should be within 120 seconds after the Main Feed Pump Speed is recovered

This is a chart generated by C. Smith using Excel to change the scale of Region II's chart

Zoom in

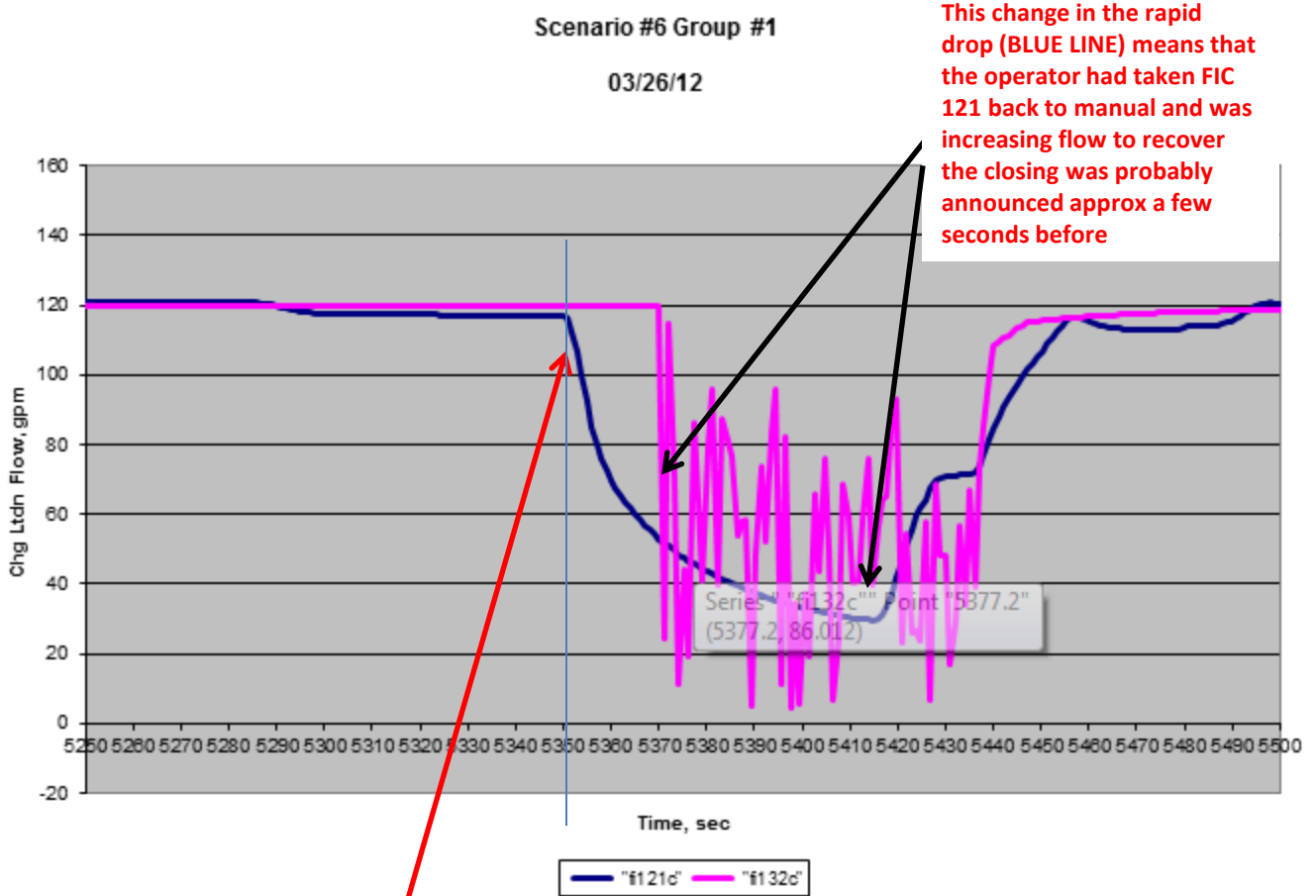


C. Smith has changed the scale to zoom the image in close to make a comparison. This is zoomed in to see between 4000 and 6000 seconds into the scenario

The FIC 121 Closing occurs between 5200 seconds and 5500 seconds (this is a band of 300 seconds so our PT508 failure should have occurred in the same band)

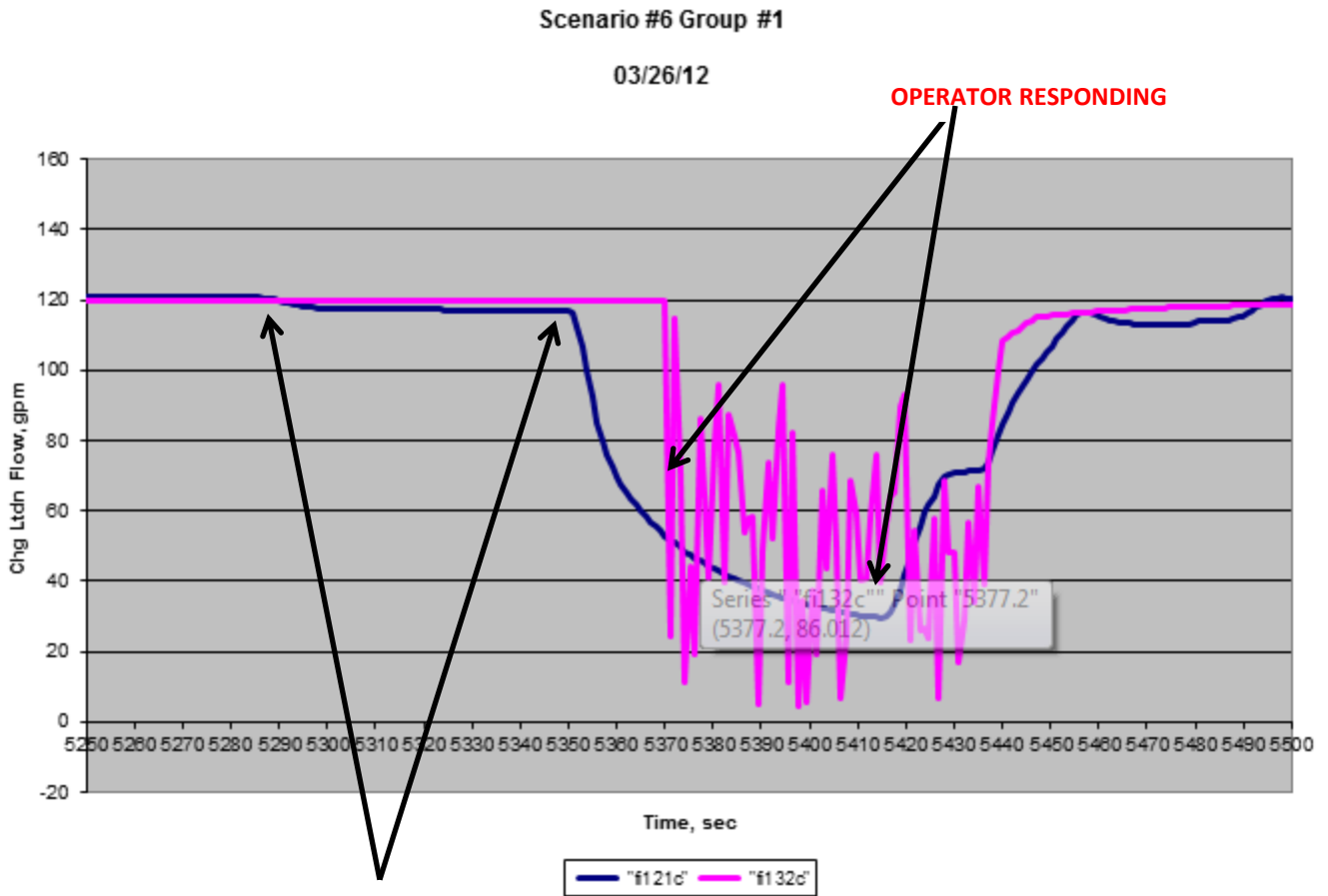
This is a chart generated by C. Smith using Excel to change the scale of Region II's chart

Zoom in more



- Recall that FIC 121 started closing but it took approx 91 seconds after taking it to AUTO to close, this drop off indicates the moment that FIC 121 closed (closing starts at approx 5350 seconds)
- If we go back approx 90 seconds we can see the approx time that the direction to AUTO occurred
- C. Smith has changed the scale to zoom the image in close to make a comparison. This is zoomed in to see between 5250 and 5500 seconds into the scenario

This is a chart generated by C. Smith using Excel to change the scale of Region II's chart



- **After the crew took FIC 121 to AUTO, the component did not immediately close . So if the operator is responding at approx 5380 seconds then the direction occurred approx 90 seconds before ...the direction was between 5290 – 5330 seconds**
- **Either way, if you subtract 90 seconds from the middle of the drop in flow for FIC 121, it still estimates the time the direction to AUTO occurring at approx 5300 seconds**

Now lets look at the PT 508 Failure

There is not a data point collected for PT 508 in the simulator data – but PT 508 has a direct impact on the speed of the Main Feed Pump when is collected by the simulator data. See below the event description for Event #5 (FT 508) PT 508. It says that the **transmitter failure will cause the Main Feed Pump speed to lower.**

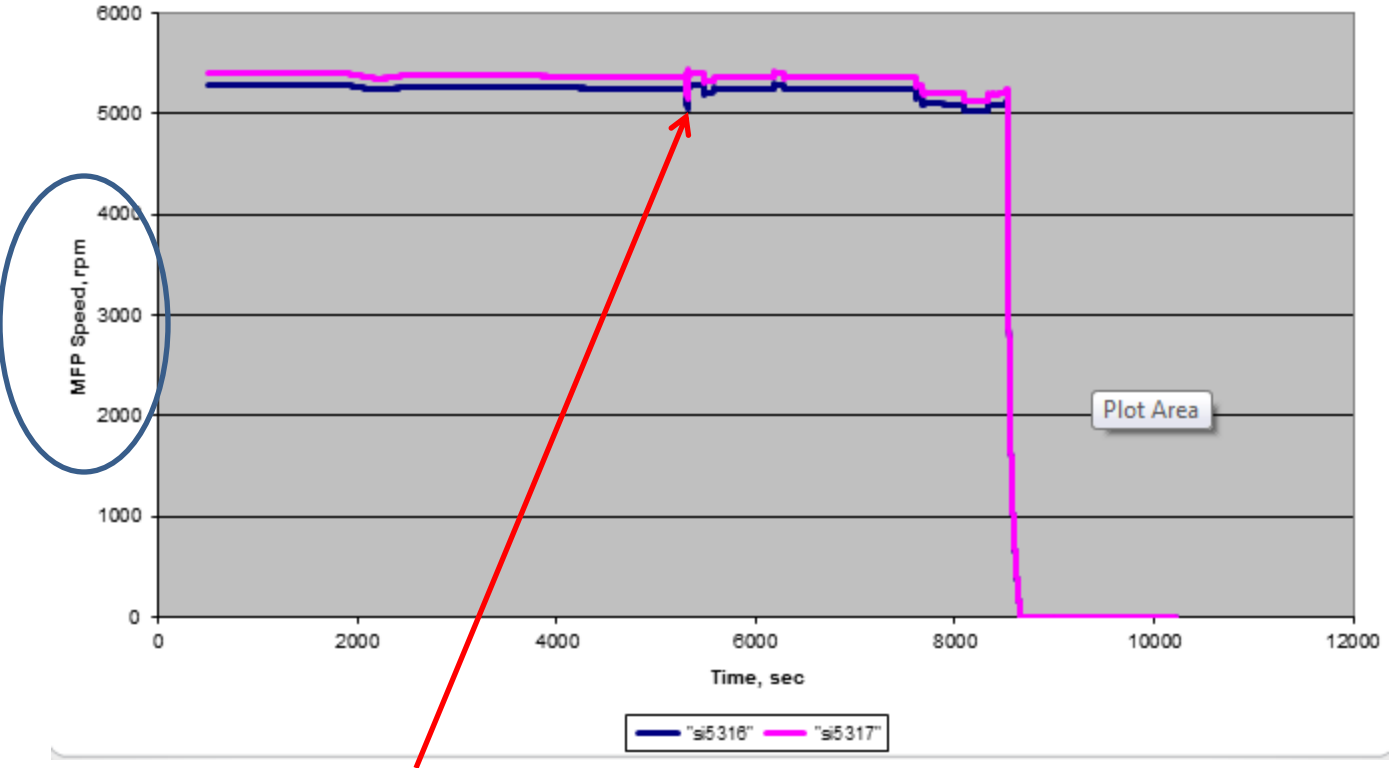
From CCS-054, PAGE 24

Appendix D	Required Operator Actions	Form ES-D-2
Op-Test No.: <u>2012-301</u>	Scenario No.: 6	
Event No.: 5		
Event Description: FW flow transmitter <u>FT-508</u> <u>falls</u> <u>slowly</u> <u>high</u> 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.		

This is a chart generated by the Region II and obtained through FOIA 0242

Scenario #6 Group #1

03/26/12



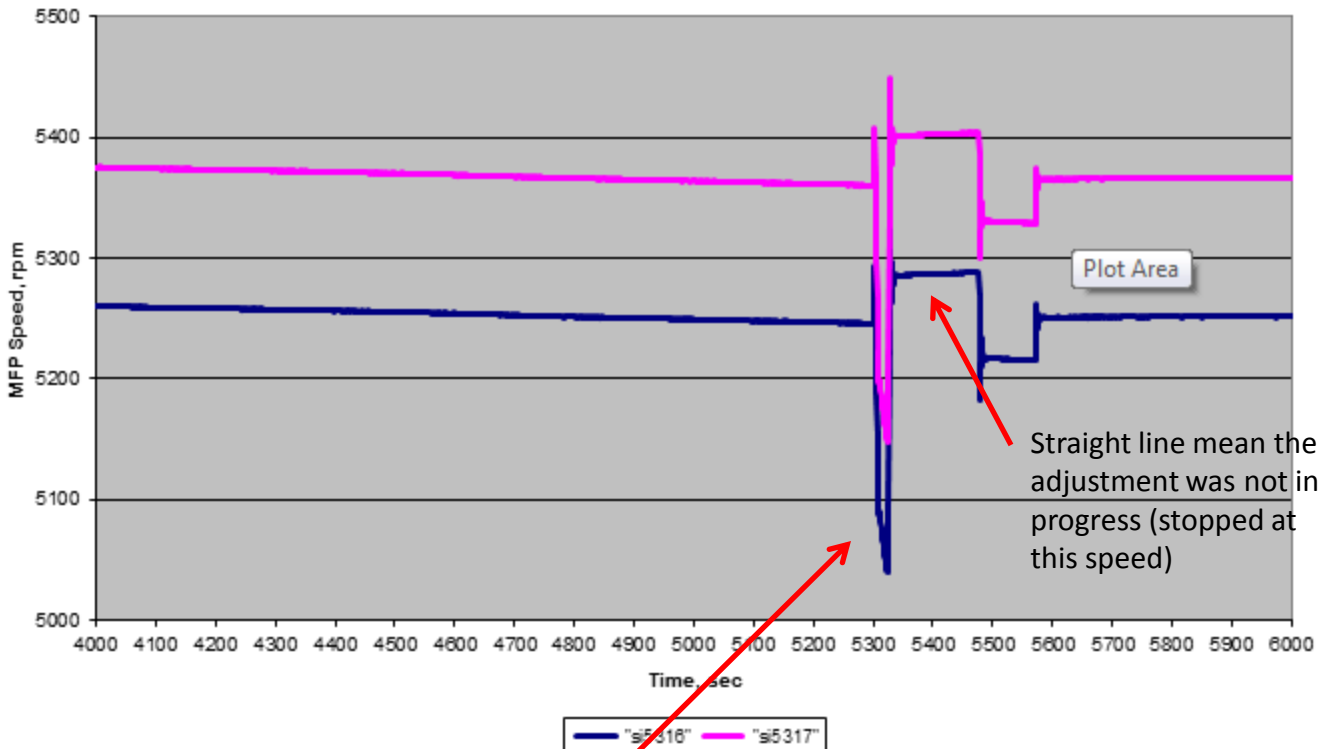
- This dip is due to the PT 508 failure**

This is a chart generated by C. Smith using Excel to change the scale of Region II's chart

Zoom in

Scenario #6 Group #1

03/26/12



C. Smith has changed the scale to zoom the image in close to make a comparison. This is zoomed in to see between 4000 and 6000 seconds into the scenario

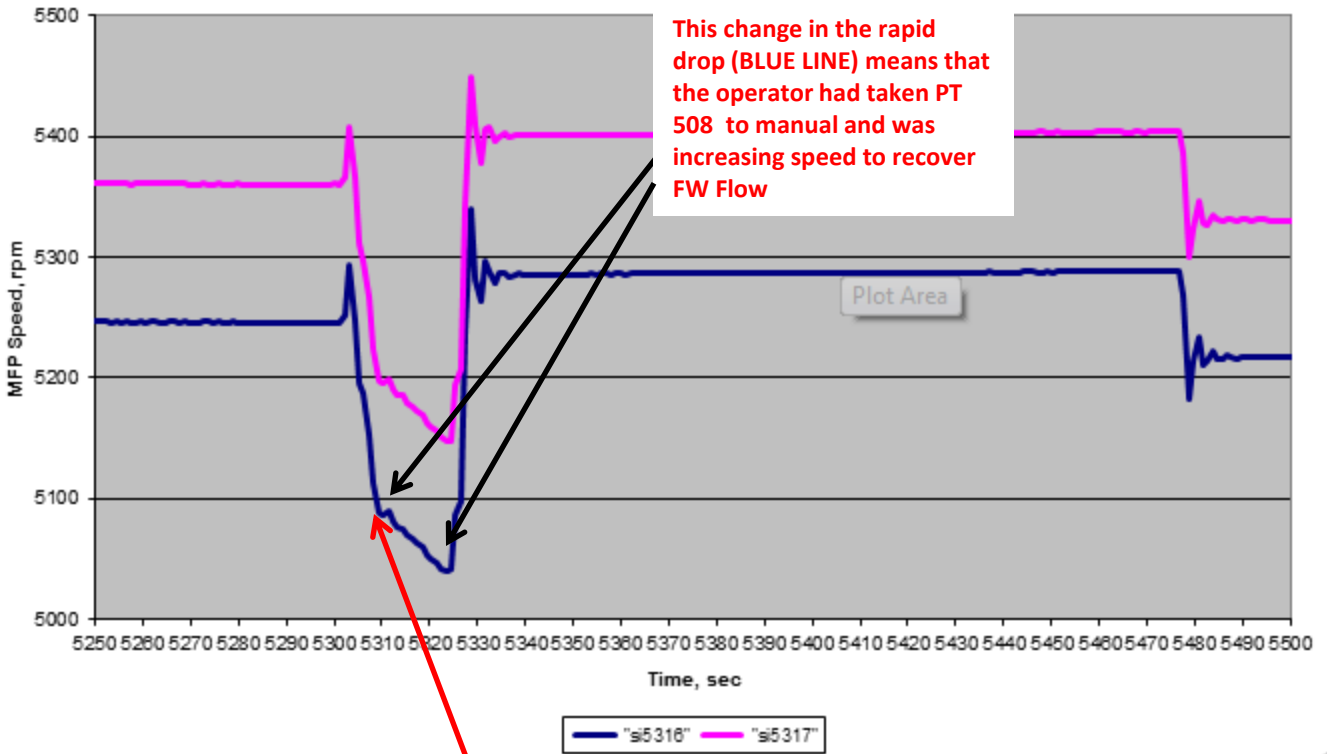
The PT 508 Closing occurs between 5200 seconds and 5500 seconds (this is a band of 300 seconds so our PT508 failure should have occurred in the same band)

This is a chart generated by C. Smith using Excel to change the scale of Region II's chart

Zoom in more

Scenario #6 Group #1

03/26/12

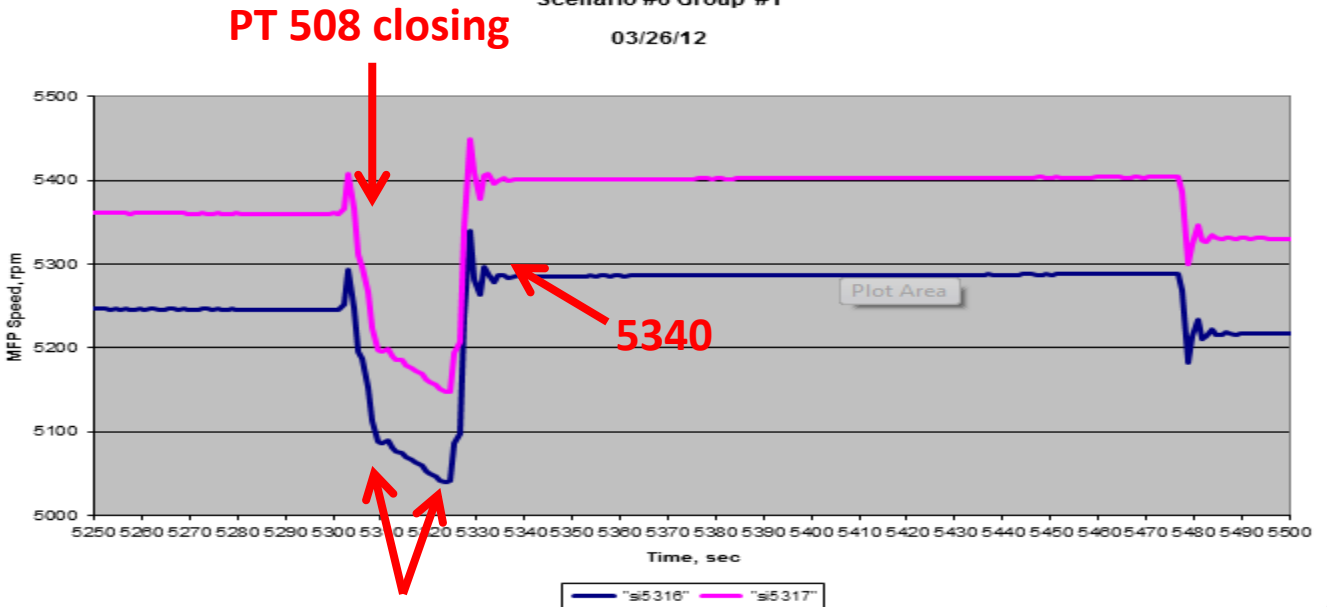


C. Smith has changed the scale to zoom the image in close to make a comparison. This is zoomed in to see between 5250seconds and 5500 seconds into the scenario

The PT 508 response and recover occurs between 5300 seconds and 5340 seconds

Side by Side Comparison

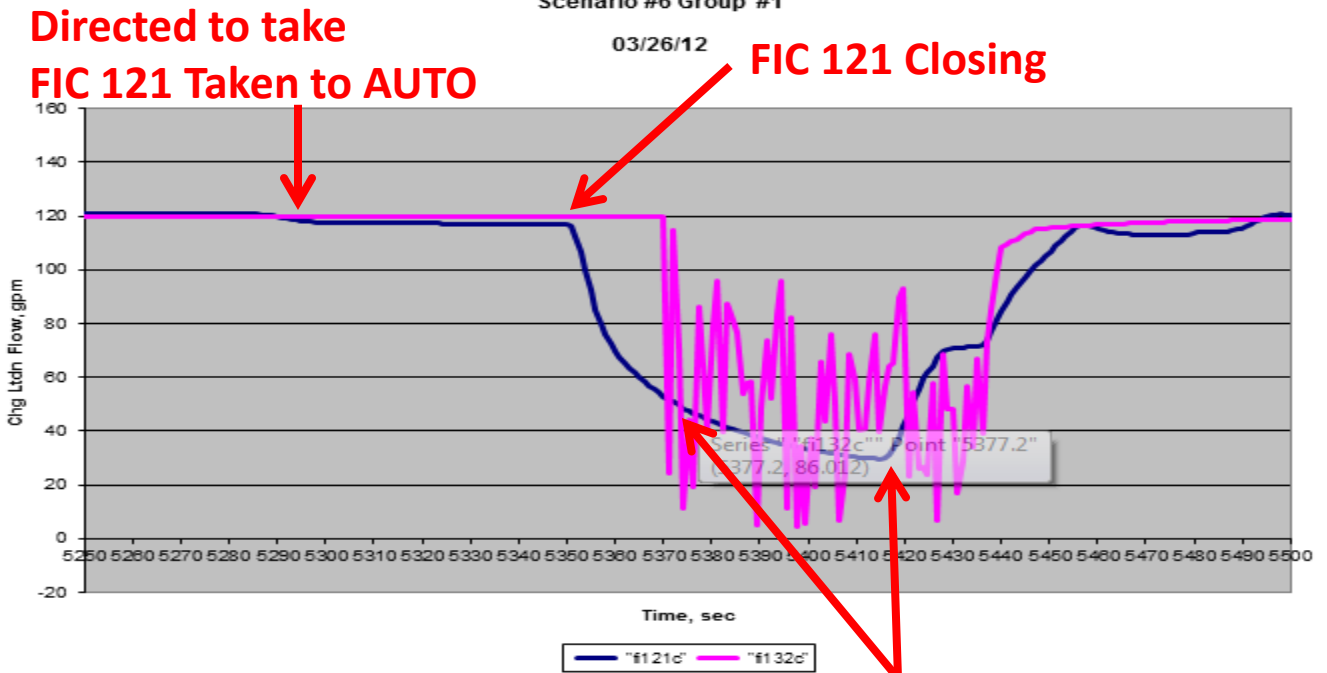
Scenario #6 Group #1
03/26/12



PT 508 recovering
MFP speed

According to Mark Bates, FIC was directed to auto 11 seconds after the actions for PT 508 were complete. Then 91 seconds after the direction to place in auto, FIC 121 started closing. ~1.5 minutes later the actions were complete.....This does not match the timeline here.

Scenario #6 Group #1
03/26/12



Consolidated info

We determined earlier the timeline, based on Mark Bates notes :

PT 508 actions occurred:

08:53:44 Failure Occurred

08:54:10 Immediate Operator Actions were performed

FIC 121 actions occurred

08:54:21 – FIC 121 directed to be placed in auto

08:55:52 – 90 seconds later - FIC 121 starts to close(failed close)

08:57:38 – entered 18016-C (meaning the previous action took approximately 1.5 minutes to address)

This says the direction to take FIC 121 to AUTO occurred after the PT508 failure

Simulator Data

- **FIC 121 estimated the time to AUTO at approximately 5300 seconds based on simulator data**
- **FIC 121 starts closing at approximately 5350 seconds based on the simulator data**
- **The PT 508 response and recover occurs between 5300 seconds and 5340 seconds based on the simulator data**

Based on this information PT 508 and FIC 121 events were going on at the same time, as described in C. Smith notes. She gave direction to take FIC 121 to AUTO and received a simultaneous failure of PT 508, The crew responded to the PT 508 and upon completion the FIC 121 valve started to close.

The examiner notes has the PT 508 failure occurring 2 minutes before the FIC 121 valve closes

Simulator data does not support the notes

From CCS-054, PAGE 23

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>Table 3.3.3-1 (page 1 of 1) Post Accident Monitoring Instrumentation</p> <p>Tech Spec 3.3.3</p> <table border="1"> <thead> <tr> <th>FUNCTION</th> <th>REQUIRED CHANNELS</th> <th>CONDITIONS</th> </tr> </thead> <tbody> <tr> <td>6. Pressurizer Level</td> <td>2</td> <td>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> <ol style="list-style-type: none"> a. WHEN repairs and surveillances are complete, THEN perform step D16. b. Return to procedure and step in effect. 						
		<p>END OF EVENT 4, proceed to EVENT 5.</p>						

If Event #4 was not complete then why did we go to Event # 5?