

Exelon Nuclear

ILT 14-1 NRC Exam

**Scenario Number:
NRC Exam Scenario 1**

Revision Number: 0

Date: 10/01/14

Developed By:	_____	_____
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Approved By:	_____	_____
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Appendix D

Scenario Outline

Form ES-D-1

Facility: Clinton Power Station Scenario No.: 1 Operating Test No.: 2015-301

Examiners: _____ Operators: _____

Initial Conditions:

- Mode 1 Rx Power at 22%. Reactor startup is in progress.
- Thunderstorms are expected in the area within the next hour.
- Turbine Driven Reactor Feed Pump (TDRFP) 'B' is out of service for minor maintenance. Restoration is expected prior to transferring RR Pumps 'A' and 'B' to fast speed.

Turnover:

- Priorities:
 - 1 - Cross-tie 480V Buses 1L & 1M with 1L supplying per CPS 3502.01 480 VAC Distribution.
 - 2 – Continue reactor startup by withdrawing control rods in sequence beginning with control rod 16-41 in individual drive mode. Raise reactor power to 29% in preparation for Reactor Recirculation (RR) pump shift to fast speed.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N-BOP/SRO	Cross-tie 480V Buses 1L & 1M with 1L supplying
2	N/A	R-ATC/SRO	Raise power with rods to 29%
3	ROD1641TFIA5	C-ATC TS-SRO	Uncoupled Rod
4	YAFWPPLB_15	C-ATC/SRO	TDRFP 'A' High Bearing Temperature
5	YFFWPPSS_13	C-BOP/SRO	MC Pump 1B coupling failure
6	A11_A05_S40_2 ON A11_A02_07_4_TVM 2 A_11_A08_DS30_1 OFF	TS-SRO	Loss of Control Power to Suppression Pool Dump Valve 1SM001A
7	A11_A02_03_7_TVM 2	C-BOP/SRO	Low Flow CW Bearing Seal Water
8	YP_XMFTB_5082	M- BOP/SRO/ATC	PC-12 RPV Ref Leg Leak In Gas Control Boundary
9	CAM1PR006(A/B/C/D)TV _VALUE1 = 21-24 mr A11_A03_01_4_TVM 4 A11_A03_02_3_TVM 4 A18_A03_S11 = 1 A18_A03_S10 = 1 A12_A01_07_6_TVM 2 A12_A02_07_6_TVM 2	C-BOP/SRO	Radiation Monitor fails to isolate VF/Startup VG

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

Scenario No.: 1Operating Test No.: 2015-301

Narrative Summary

Event #	Description
1.	<p>Cross-tie 480V Buses 1L & 1M with 1L supplying Following shift turnover, the SRO will direct the BOP Operator to cross-tie 480V Buses 1L & 1M with 1L supplying per CPS 3502.01 480 VAC Distribution section 8.1.4 Transferring a 480V Bus: Paralleling Method.</p>
2.	<p>Raise power with rods to 29% The crew will raise Reactor power with Control Rods to achieve ~29% Reactor Power IAW CPS 3004.01 TURBINE STARTUP AND GENERATOR SYNCHRONIZATION in preparation for transferring RR pumps to FAST speed.</p>
3.	<p>Uncoupled rod When the first in-sequence control rod reaches position 48, the ATC will perform a coupling check IAW CPS 3304.02 Rod Control And Information System (RC&IS) section 8.1.10 Coupling Check by applying a continuous withdraw to the rod at position 48. Annunciator 5006-5G Rod Overtravel will be received, indicating that the control rod has become uncoupled from its drive mechanism. The operating crew will attempt to recouple the control rod IAW the annunciator response procedure. The SRO will evaluate and enter ITS 3.1.3 Condition C until the control rod is successfully recoupled.</p>
4.	<p>TDRFP 'A' High Bearing Temperature Annunciator 5002-2C HIGH TEMP RFPT 1A BRG comes in due to a failed bearing in the 'A' RFPT. With the 'B' TDRFP tagged out, the crew will start the MDRFP and secure the 'A' TDRFP IAW CPS 3103.01 Feedwater (FW) section 8.3.6 High Temperature TDRFP Bearings.</p>
5.	<p>MC Pump 1B coupling failure Annunciator LOW PRESS MAKE-UP COND XFER PUMPS DISCH HDR (5014-2C) comes in due to the Make-Up Condensate Transfer Pump 1B (0MC01PB) shaft shear. The BOP Operator will dispatch an Equipment operator to investigate. Upon the report of a shaft shear, the BOP operator will stop the failed pump and start the standby pump per CPS 3208.01 Cycled/Makeup Condensate Section 8.1.1 (or 8.2.2).</p>
6.	<p>Loss of Control Power to Suppression Pool Dump Valve (1SM001A) Annunciator NOT AVAILABLE SM SYSTEM DIVISION 1 (5041-7D) comes in due to a blown control power fuse deenergizing relay 74-SM1A (1SM001A Bkr Overload relay). The BOP operator will dispatch a Equipment operator to investigate. Technical Specification LCO 3.6.2.4, Action C.1 will be evaluated requiring the restoration of the SPMU subsystem to operable status within 7 days.</p>
7.	<p>Low Flow CW Bearing Seal Water Annunciator 5041-3G LOW FLOW CW PUMP 1C BRG SEAL WATER comes in due to CW Pump 'C' seal water flow less than the setpoint (15 gpm). The BOP operator will dispatch an Equipment Operator to investigate. Seal water flow to Circulating Water (CW) Pump 1C cannot be restored requiring the BOP operator to trip CW Pump 1C and start CW Pump 1A.</p>
8.	<p>RPV Instrument Line leak An RPV instrument line will break resulting in a partial loss of RPV instrumentation, a steam leak in the secondary containment and EOP-8 entry. Two areas in secondary containment will exceed Maximum Safe temperature requiring blowdown. The crew may Anticipate Blowdown using bypass valves prior to two areas reaching max safe.</p>
9.	<p>Radiation Monitor fails to isolate VF/Startup VG Due to the RPV instrument line leak in the secondary containment, the VF exhaust radiation monitors trend up to the trip isolation set point but fail to actuate VF system isolation and start of VG requiring BOP to manually perform.</p>

EOP
8, 1, 3

Critical tasks:

- SC-1.1 ATC inserts a manual Scram before area temperature reaches max safe in any one area.
- SC-1.2 SRO enters EOP-3 and performs a blowdown when 2 or more areas are above the max safe value of the same parameter (Table T, U, W), and a Primary System is discharging into the Secondary Containment, which cannot be isolated. If the crew Anticipates Blowdown using bypass valves, and in doing so two areas do not reach a max safe condition, then this critical task is considered to be met. (PRA)
- Crew takes manual action to start at least one Standby Gas (VG) train and isolate VF when high rad initiation signals are received but automatic actions fail to occur.

Shift Turnover Information

▷ Day of week and shift

“ Today Day Shift.

▷ Weather conditions

“ Thunderstorms are expected in the area within the next hour.

▷ (Plant power level)

“ Mode 1 at ~ 22%	“ RR Pumps A & B are in slow speed with FCVs at 90% / 90% (locked out)
“ 760 MWt	“ CPS 3004.01 at step 8.4.11
“ 181 MWe	
“ 29.9 Mlbm/hr CORE FLOW	

▷ Thermal Limit Problems/Power Evolutions

“ Power ascension to 29% per CPS 3004.01 Turbine Startup and Generator Synchronization	“ Control Rod Move Sheet: Step 30, Rod 16-41 in Gang 7E is at Position 16. All other rods in gang 7E (40-41, 40-17, and 16-17) are at position 12.
“ At ~30% reactor power transfer RR pumps to fast speed per CPS 3004.01	“ RE and Rod Verifier are available on request

▷ Existing LCOs, date of next surveillance

“ None

▷ Surveillances or major maintenance

“ None

▷ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment

“ Turbine Driven Reactor Feed Pump TDRFP ‘B’ is out of service for minor maintenance. Restoration is expected prior to transferring RR Pumps ‘A’ and ‘B’ to fast speed.

▷ Comments, evolutions, problems, etc.

“ Online Risk is Green	“ Power ascension is in progress.
“ MDRFP is in STANDBY (prestart checks complete).	“ Continue power ascension to 29% in preparation for transfer of RR pumps to fast speed.
“ Cross-tie 480V MCCs 1L & 1M with 1L supplying per CPS 3502.01 480 VAC Distribution.	“ Protected Equipment: FC ‘B’, Div 1 and 2 VX
“	“
“	“

Operator Actions

Event No.(s): 1		Page 1 of 1
Description: Cross-tie 480V Buses 1L & 1M with 1L supplying		
Initiation: Following shift turnover and when directed by the Lead Examiner		
Cues: Directed by SRO		
Time	Position	Applicant's Actions or Behavior
<p style="text-align: center;"><u>General Note on Requirements for "Expected Annunciator Response" – OP-AA-103-102</u></p> <p>If this evolution was pre-briefed and "Expected Alarms" were reviewed, the following expectations apply:</p> <ul style="list-style-type: none"> · "Expected alarms" will be flagged · When the annunciator comes in the operator will announce "Expected Alarm" · The annunciator response procedure (ARP) need not be entered since it has already been reviewed in the pre-brief. <p>If a pre-brief was not conducted the operator should perform the following:</p> <ul style="list-style-type: none"> · When an annunciator comes in the ARP should be referred to. · The annunciator may then be identified as an "Expected Alarm", flagged, and from that point on the ARP need not be referred to. 		
<p><u>Key Parameter Response:</u> None</p> <p><u>Expected Annunciators:</u> None</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. <p>Per CPS 3502.01, 480V Distribution, Step 8.1.4:</p> <ul style="list-style-type: none"> · Closes the 480V Unit Sub 1L to 1M Tie Breaker 1AP24E. · Opens the 480V Unit Sub 1M Main Breaker 1AP25E. (May refer to CPS 3502.01 Att. 1 for circuit breaker EINs)
	SRO	<ul style="list-style-type: none"> · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures.
Terminus: Unit Subs 1L & 1M are cross tied with the Unit Sub 1M main feeder open.		

NOTES:

· Solid bullets are required actions
○ Hollow bullets are actions that may or may not be performed

Operator Actions

Event No.(s):		2	Page	1	of	1
Description: Raise power with rods to 29%						
Initiation: Following Event 1 and upon direction of the SRO						
Cues: None						
Time	Position	Applicant's Actions or Behavior				
<p><u>Key Parameter Response:</u> Reactor power, Rod drive parameters (flow, dP), control rod position, Generator load</p> <p><u>Expected Annunciators:</u> None</p> <p><u>Automatic Actions:</u> None</p>						
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. Per CPS 3004.01 Turbine Startup and Generator Synchronization, NF-CL-721-F-2 Control Rod Move Sheets and CPS 3304.02 RCIS: <ul style="list-style-type: none"> · Withdraws control rods (beginning with 16-41 from position 24) per the control rod sequence to raise power. · Monitors nuclear instruments during rod movement. <ul style="list-style-type: none"> ○ Monitors the Power to Flow Map during power ascension. · Performs a Coupling Check for any control rod(s) withdrawn to position 48. 				
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. <ul style="list-style-type: none"> ○ Monitors the Power to Flow Map during power ascension. 				
	SRO	<ul style="list-style-type: none"> · Directs ATC to raise power to 29%. · Maintains oversight during control rod movement; positioned in proximity to the ATC (typically from the SRO desk). · Acknowledges reports from ATC/BOP. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. 				
Terminus: Clearly observable plant response from change in power level; reactor power < 25% to support execution of event 4.						

NOTES:

Operator Actions

Event No.(s): 3		Page 1 of 1
Description: Uncoupled rod		
Initiation: Initiated when 16-41 is withdrawn to position 48		
Cues: Annunciator, 5006-5G Rod Overtravel		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> Rod position, rod uncoupled light on P680 OCM for control rod 16-41</p> <p><u>Expected Annunciators:</u> 5006-5G, Rod Overtravel</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. <p>Per CPS 3304.02 Rod Control And Information System, section 8.1.10 Coupling Check:</p> <ul style="list-style-type: none"> · After 16-41 is withdrawn to position 48, applies a continuous withdraw signal to verify rod coupling. · Observes 5006-3G Rod Overtravel is received. · Observes red full-out light for 16-41 goes out. · Determines control rod 16-41 is uncoupled by pressing the ROD UNCOUPLED button on the P680 OCM. · Informs SRO that 16-41 is uncoupled and to refer to ITS 3.1.3. <p>Per CPS 3304.02 Rod Control And Information System, step 8.2.6.1</p> <ul style="list-style-type: none"> · Verifies that the INDIVID DRIVE light is energized on the OCM. If not, selects individual drive by depressing DRIVE MODE push-button. · Inserts the drive 1 or 2 notches in an attempt to recouple the rod. · Determines if the rod has recoupled by fully withdrawing the drive. · Performs the coupling check and determines that the rod is recoupled. ○ Initiates an Issue Report and contacts the Reactor Engineer regarding the uncoupled rod event.
	BOP	<ul style="list-style-type: none"> · Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. ○ Initiates an Issue Report and contacts the Reactor Engineer regarding the uncoupled rod event.
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. · Verifies / directs ATC to attempt to recouple rod 16-41. · Enters ITS 3.1.3 Action C.1 and C.2 to fully insert control rod 16-41 within 3 hours and disarm 16-41 within 4 hours. · Exits ITS 3.1.3 Action C.1 and C.2 when 16-41 is successfully recoupled. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures.
Terminus: Rod 16-41 recoupled and returned to position 48		

NOTES:

Operator Actions

Event No.(s): 4		Page 1 of 1
Description: TDRFP 'A' High Bearing Temperature		
Initiation: Following Event 3 and upon direction of the Lead Examiner, insert REMOTE 1 .		
Cues: Annunciator, 5002-2C High Temp RFPT 1A Brg		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> TDRFP A graphics screen to determine alarming bearing		
<u>Expected Annunciators:</u> 5002-2C High Temp RFPT 1A Brg		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. Per CPS 5002-2C, High Temp RFPT 1A Brg: <ul style="list-style-type: none"> · Reports issue to SRO · Observes TDRFP A graphics screen to determine the alarming bearing. · Verifies lube oil pressure to turbine bearing > 12 psig and to pump bearing > 20 psig. · Verifies lube oil cooler outlet temperature is 100°F to 120°F (may be performed by BOP). ○ Increases cooling water flow and/or reduces RFP 1A speed to clear bearing alarm. · Refers to CPS 3103.01, FEEDWATER (FW) High Temperature RFPT Bearings abnormal section for further operating guidance. Per CPS 3103.01, FEEDWATER (FW): <ul style="list-style-type: none"> · When it is determined that the 'A' TDRFP high bearing temperature alarm cannot be cleared: <ul style="list-style-type: none"> · Starts the MDRFP per section 8.1.3. · Stops TDRFP 'A' per section 8.1.10.
	BOP	<ul style="list-style-type: none"> ○ Dispatches an Equipment Operator to monitor operation of the 'A' TDRFP. ○ Dispatches an Equipment Operator to perform MDRFP prestart checks. · Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	<ul style="list-style-type: none"> · Directs ATC to place the MDRFP in service and remove RFP 1A from service. ○ Enters and executes CPS 4002.01, Abnormal RPV Level Loss of Feed Water at Power (only if RPV high/low level alarms are received). · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures. ○ Contacts Shift Manager and recommends notifications.
Terminus: Transfer of RPV Level Control from TDRFP 'A' to the MDRFP in progress.		

NOTES:

Operator Actions

Event No.(s): 5		Page 1 of 1
Description: MC Pump 1B coupling failure		
Initiation: Following Event 4 and upon direction of the Lead Examiner, insert REMOTE 2		
Cues: Annunciator 5014-2C, Low Pressure Make-Up Cond Xfer Pumps Disch Hdr		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> MU Cond Xfer Pmp Disch Pressure		
<u>Expected Annunciators:</u> 5014-2C, Low Pressure Make-Up Cond Xfer Pumps Disch Hdr		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. · Dispatches Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> · Reports issue to SRO. · Reviews ARP 5014-2C. · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches Equipment Operator to investigate. <p>Per CPS 3208.01 MC/CY, STEP 8.2.2 (or 8.1.1.1):</p> <ul style="list-style-type: none"> · Directs Equipment Operator to shut discharge valve 1MC006A (if section 8.1.1.1 is used). · Starts MC Pump 1A · Directs Equipment Operator to open discharge valve 1MC006A (if section 8.1.1.1 is used) · Secures MC Pump 1B (may place pump CS in PTL)
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate and repair MC pump 1B.
Terminus: Standby Pump started and shutdown of the failed pump		

NOTES:

Operator Actions

Event No.(s): 6		Page 1 of 1
Description: Loss of Control Power to Suppression Pool Dump Valve (1SM001A)		
Initiation: Following Event 5 and upon direction of the Lead Examiner, insert REMOTE 3		
Cues: Annunciator 5041-7D, Not Avail SM Sys Division 1		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> None		
<u>Expected Annunciators:</u> 5041-7D, Not Avail SM Sys Division 1		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Directs Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> · Reports loss of power to 1SM001A to SRO. · Refers to ARP 5041-7D. ○ Directs Equipment Operator to investigate.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. ○ Contacts Maintenance to investigate. · Evaluates and enters Technical Specification LCO 3.6.2.4 C.1 (requires the SPMU subsystem must be restored to OPERABLE within 7 days). · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ May direct one time control power fuse replacement for 1SM001A breaker. ○ Informs Shift Manager. ○ Conducts a brief.
Terminus: ITS 3.6.2.4 evaluated for loss of control power to Suppression Pool Dump Valve		

NOTES:

Operator Actions

Event No.(s): 7		Page 1 of 1
Description: Low Flow CW Bearing Seal Water		
Initiation: Following Event 6 and upon direction of the Lead Examiner, insert REMOTE 4		
Cues: Annunciator 5041-3G, Low Flow CW Pump 1C Brg Seal Water		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> None</p> <p><u>Expected Annunciators:</u> 5041-3G, Low Flow CW Pump 1C Brg Seal Water</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Performs Plant Announcements. ○ Dispatches Equipment Operator to investigate CW Pump 1C Bearing Seal Water flow issue. ○ Monitors CW pump bearing temperatures (computer points CW-BA027, CW-BA028, and CW-BA029) (may be performed by BOP). ○ Dispatches Equipment Operator to investigate RPS Inverter 'A' Trouble alarm (received when CW Pump 1A is started). ○ Directs an Equipment Operator to reset the trouble alarm on RPS Inverter 'A'.
	BOP	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARP 5041-3G. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Performs Plant Announcements. ○ Dispatches Equipment Operator to investigate CW Pump 1C Bearing Seal Water flow issue. <p>Per 5041-3G, Low Flow CW Pump 1C Brg Seal Water:</p> <ul style="list-style-type: none"> · Directs Equipment Operator to flush CW Pump 1C TW supply strainer 1TW01MC. ○ Monitors CW pump bearing temperatures (computer points CW-BA027, CW-BA028, and CW-BA029) (may be performed by ATC). · Trips 1C CW Pump. · Starts standby (1A) CW Pump. ○ Dispatches Equipment Operator to investigate RPS Inverter 'A' Trouble alarm (received when CW Pump 1A is started). ○ Directs an Equipment Operator to reset the trouble alarm on RPS Inverter 'A'. ○ Notifies chemistry of CW pump shift.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ May enter CPS 4004.02, Loss of Vacuum. (Vacuum should not substantially change) ○ Contacts Maintenance to investigate. ○ Informs Shift Manager. ○ Conducts a brief.
Terminus: CW Pump 1C has been tripped, CW Pump 1A is started.		

NOTES:

Operator Actions

Event No.(s): 8		Page 1 of 2
Description: RPV Instrument Line leak		
Initiation: Following Event 7 and upon direction of the Lead Examiner, insert REMOTE 5		
Cues: Annunciator, 5065-6F Sec. Cnmt. Area High Temp.		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> Rising temperature on 1TR-CM 327 Secondary Containment Temperature Recorder Point 14 (Aux Bldg Gas Cont Boundary).</p> <p><u>Expected Annunciators:</u> 5065-6F Sec. Cnmt. Area High Temp.</p> <p><u>Automatic Actions:</u> None</p>		
[CT]	ATC	<ul style="list-style-type: none"> o Reports EOP-8 entry on secondary containment area temperature above max normal. • Initiates a manual reactor scram when directed by SRO (before the first max safe temperature). • Carries out Scram Choreography by reporting the following: <ul style="list-style-type: none"> - Mode Switch in shutdown, power is... - Rod status is... - Reactor power is ... and trend - Reactor pressure is ... and trend - Reactor water level is ... and trend - Any EOPs with entry conditions (no values required). • Performs EOP actions as directed by the SRO. o Coordinates with BOP to monitor and control RPV level and pressure. o If directed by SRO, Anticipates Blowdown per EOP-1 by fully opening all six Turbine Bypass Valves.
[CT]	BOP	<ul style="list-style-type: none"> o Reports EOP-8 entry on secondary containment area temperature above max normal. o Makes plant announcement to evacuate Fuel/Aux Buildings. o Monitors secondary containment temperatures on 1H13-P678 recorders 1TR-CM326 and 327. o Reports secondary containment temperature parameters with trends at SRO direction. o Reports to SRO when one area is above Max Safe temperature. • Performs scram choreography actions. <ul style="list-style-type: none"> • Announces: <ul style="list-style-type: none"> § Reactor Scram § Motor Driven Reactor Feed Pump may start § Evacuate the RCIC room § Evacuate the Containment • Determines rod status and reports shutdown criteria met to SRO. o Reports to SRO when two areas are above Max Safe temperatures. o Verifies operation of area coolers. o Verifies operation of VF. o Evacuates affected areas of Secondary Containment. • Initiates ADS (Blowdown) if/when directed by the SRO. o If initiated, verifies ADS actuation using the following indications: <ul style="list-style-type: none"> o SPDS o DCS Display 122 (2H) [Acoustic Monitor Input] o DCS Display 186 (7B) ['A' Solenoid Input] o 1H13-P601/P642 Solenoid Indicator Lights o 1H13-P866, Valve Flow Monitor Control Panel o 1H13-P614, ADS Safety Valve Temperature recorder 1B21-R614 o Indirect indication via changes in RPV pressure, RPV level, MSL flows & suppression pool temperatures. o Coordinates with ATC to monitor and control RPV level and pressure.

Event No.(s): 8		Page 2 of 2
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. ○ Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. · Enters and executes EOP-8 Secondary Containment Control. · Directs a reactor scram before the first max safe temperature is exceeded (140° F on points 13 or 14 of 1TR-CM327). · Enters and executes EOP-1 RPV Control. ○ Anticipates Blowdown per EOP-1 OR · If 2 or more areas reach Max Safe temperature values of the same parameter (Table T, U, W), and a primary system is discharging into Secondary Containment, which cannot be isolated, enters and executes EOP-3 Blowdown.
[CT]		
[CT]		
<p>Terminus: The scenario can be terminated when either a blowdown has been initiated and RPV level is being maintained between Level 3 and Level 8 or when Secondary Containment temperatures are lowering and all rods are inserted.</p>		

NOTES:

Operator Actions

Event No.(s): 9		Page 1 of 1
Description: Radiation Monitor fails to isolate VF/Startup VG		
Initiation: Triggered by RPV Instrument Line leak (Event 8)		
Cues: Annunciators 5050-7F, 5052-7F and AR/PR 1RIX-PR006A-D monitor alarms		
Time	Position	Applicant's Actions or Behavior
<p>Key Parameter Response: 1RIX-PR006A-D Fuel Bldg Exhaust Rad Monitors</p> <p>Expected Annunciators: 5050-7F / 5052-7F High Rad Initiation SGTS Div 1 / 2</p> <p>Automatic Actions: None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Reports EOP-8 entry condition.
[CT] [CT]	BOP	<p>Performs actions directed by SRO and CPS 5050-7F, 5052-7F, Hi Rad Initiation VG:</p> <ul style="list-style-type: none"> · Verifies alarming condition of 1RIX-PR006A-D. ○ Reports EOP-8 entry condition. ○ Performs shutdown and isolation of VF IAW CPS 3404.01, Fuel Building Ventilation, step 8.3. · Isolates Fuel Building Ventilation (VF) by closing 1VF04Y/9Y AND 1VF06Y/7Y. · Performs startup of at least one Standby Gas (VG) train. <p>Note: Steps can be done in any order.</p>
[CT]	SRO	<ul style="list-style-type: none"> · Acknowledges report from ATC/BOP. · When Fuel Building exhaust is above 10 mrem/hr ensures Fuel Building Ventilation (VF) is isolated and Standby Gas (VG) is started. <ul style="list-style-type: none"> ○ Directs isolation of VF and startup of VG. <p>General:</p> <ul style="list-style-type: none"> · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager.
Terminus: Failed automatic isolation and actuation (VF/VG) manually performed and upon approval of lead examiner		

NOTES:

Simulator Operator Instructions

Initial Setup

1. Fill out plant status and have Turnover Sheet ready for the crew.
2. Verify daily lamp test completed.
3. Reset to IC-201 (PW 91632) @ 22% Power. If this is the first reset after swapping simulator loads, reset the IC twice.
4. Load the lesson plan for this scenario.
5. Verify the following commands are active:
 - **ROD1641TFIA5** (Rod 16-41 Uncoupled)
6. Place simulator in RUN.
7. Turn on and advance recorders.
8. Verify RCIC Flow Controller is set at 620 gpm.
9. Verify the AR/PR server is running and stabilize AR/PR.
10. Verify Rod Drive pressure is in the expected range of 235-265 psid.
11. Provide pull sheets: Step 30 is in progress – Rod 16-41 of Gang 7E is at Position 16. All other rods in Gang 7E (40-41, 40-17, and 16-17 are at position 12.
12. Make sure Sequence A is selected.
13. Make sure Individual Drive Mode is selected on the OCM.
14. Remove EST Tags from the following control switches:
 - 1H13-P877-5014 - MC Pump 'B'
 - 1H13-P877-5016 - 1TD004A RFPT 1A HP Stop Vlv Before SDV
 - 1H13-P877-5019 - 1B21-BSFV-1 Aux Stm to MSR 1B Inlet Vlv
 - 1H13-P877-5019 - 1GS02CB SPE Blower 1B2
 - 1H13-P800-5042 - 0VQ03CC DW Prg Low Flow Exh Fan
 - 1H13-P801-5050 - 1VY03C RHR Hx Rm A Sply Fan
 - 1H13-P801-5050 - 1VY04C RCIC Pmp Rm Sply Fan
 - 1H13-P801-5050 - 0VC69Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P801-5052 - 0VC70Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P601-5064 - 1SX011A Div 1 Cross Tie Valve
 - 1H13-P601-5065 - 1SX011B Div 2 Cross Tie Valve
 - 1H13-P601-5067 - 1B21-F067B MSL B Outbd MSIV Before Seat Drain Vlv
15. Procedures that are expected to be used during this scenario are:
 - CPS 3004.01 Turbine Startup and Generator Synchronization
 - CPS 3502.01 480 VAC Distribution
 - CPS 5050.01 Alarm Panel 5050 Annunciators – Row 1
 - ITS 3.5.1 ECCS and RCIC System / ECCS-Operating
 - CPS 5014.02 Alarm Panel 5014 Annunciators – Row 2
 - CPS 3208.01 Cycled / Makeup Condensate (CY/MC)
 - CPS 5041.07 Alarm Panel 5041 Annunciators – Row 7
 - ITS 3.6.2.4 Suppression Pool Makeup (SPMU) System
 - ORM 2.5.1 Containment Penetration Conductor Overcurrent Protective Devices
 - CPS 5041.03 Alarm Panel 5041 Annunciators – Row 3
 - CPS 5006.05 Alarm Panel 5006 Annunciators – Row 5
 - ITS 3.1.3 Control Rod Operability
 - CPS 5002.02 Alarm Panel 5002 Annunciators – Row 2
 - CPS 3103.01 Feedwater (FW)
 - CPS 5065.06 Alarm Panel 5065 Annunciators – Row 6
 - CPS 5050.07 Alarm Panel 5050 Annunciators – Row 7
 - CPS 5052.07 Alarm Panel 5052 Annunciators – Row 7

- EOP-8 Secondary Containment Control
- EOP-3 Emergency RPV Depressurization

16. Hang OOS tags on: RFPT 1B
17. Identify T/S issues associated with OOS and turnover: None
18. Operating Equipment: None
19. Marked up copies: NA
20. Verify simulator conditions match the turnover.

Event Triggers and Role Play

Event #

1. **Cross tie Unit Sub 1L & 1M with 1L supplying**
 - a. Event Trigger – None
 - b. Role play – None

2. **Raise power with rods to 29%**
 - a. Event Trigger - None
 - b. Role play - None

3. **Uncoupled rod**
 - a. Event Trigger - None.
 - b. Role play
 - (1) Booth Operator - When control rod 16-41 is inserted, verify **Delete ROD1641TFIA5** is inserted (Delete Rod 16-41 Malfunction).

4. **TDRFP 'A' High Bearing Temperature**
 - a. Event Trigger - Following Event 3 and when directed by the Lead Examiner, **Activate Remote 1** and verify the following command(s):
 - (1) **YAFWPPLB_15** (Annunciator, 5002-2C High Temp RFPT 1A Brg).
 - b. Role play
 - (1) EO (when directed to check operation of the 'A' TDRFP) – acknowledge the order and tell the MCR that you're on your way to RP for a brief. Wait 5 minutes and report, "It smells like something is overheating in the 'A' TDRFP room. There is no indication of a fire in the room. I cannot precisely locate the overheating component."
 - (2) EO (when directed to check 1FWPRV1A is providing 12-15 psig to the turbine bearings) – "1FWPRV1A is set at 14 psig".
 - (3) EO (when directed to check 1FWPRV2A is providing at least 12 psig to the turbine bearings) – "1FWPRV2A is set at 15 psig".
 - (4) EO (when directed to perform prestart checks of the MDRFP) – "Prestart checks were completed when I performed my area tour".
 - (5) EO (when directed to check for proper operation of the MDRFP) – "The MDRFP is operating normally".

5. **MC Pump 1B coupling failure**
 - a. Event Trigger – Following Event 4 and when directed by the Lead Examiner, **Activate Remote 2** and verify the following command(s):
 - (1) **YFFWPPSS_13** (MU Cond Xfer Pmp Disch Pressure lowers)
 - b. Role play
 - (1) EO (when directed to report status of MC Pump 'B'): report, "The coupling has failed on MC Pump 'B'".
 - (2) EO (when directed to shut the discharge valve on MC Pump 'A' – "The discharge valve for MC Pump 'A' is shut."
 - (3) EO (when directed to open the discharge valve on MC Pump 'A' – "The discharge valve for MC Pump 'A' is open."

6. **Loss of Control Power to Suppression Pool Dump Valve (1SM001A)**
 - a. Event Trigger – Following Event 5 and when directed by the Lead Examiner, **Activate Remote 3** and verify the following command(s):
 - (1) **A11_A05_S40_2 ON** (SM Div 1 MOV NOT AVAIL Status Light On).
 - (2) **A11_A02_07_4_TVM2** (Annunciator 5041-7D, Not Avail SM Sys Division 1).
 - (3) **A11_A08_DS30_1** (1SM001A Green Light Off)
 - b. Role play

- (1) EO (when directed to investigate): report “No abnormalities noted locally. The breaker for 1SM001A is not tripped.”

7. Low Flow CW Bearing Seal Water

- a. Event Trigger - Following Event 6 and when directed by the Lead Examiner, **Activate Remote 4** and verify the following command(s):
 - (1) **A11_A02_03_7_TVM2**. (Annunciator 5041-3G, Low Flow CW Pump 1C Brg Seal Water)
- b. Role play
 - (1) EO (when directed to):
 - a) Check CW Pump 1C Seal Water Flow locally – report “CW Pump 1C Seal Water flow is 0 gpm locally.”
 - b) Check CW Pump 1A and/or 1B Seal Water Flow locally – report “Seal water flow is normal”.
 - c) Flush the CW Pump 1C TW Supply Strainer 1TW 01MC using 1TW605C Strainer Flush Valve – report “I have completed flushing 1TW01MC. CW Pump 1C Seal Water flow is still 0 gpm locally.”
 - d) Check operation of the Filtered Water Pumps – report “Filtered Water Pumps are operating normally.”
 - e) Stop CW Pump Discharge Header – SI Injection {Carrier Water} by performing 3209.01 section 8.2.2 – acknowledge the order.
 - f) Stop CW Pump Suction Bay – NaOCl Injection by performing 3209.01 section 8.2.1 – acknowledge the order.
 - g) Verify CW Pump 1C Discharge Valve limit switch position locally – report “1CW001C is closed.”
 - h) Verify CW Pump 1C shaft has stopped rotating – report “CW Pump 1C shaft is not rotating.”
 - i) Align [SI] and NaOCl Injection to CW Pump 1A – acknowledge the order.
 - j) Check RPS Solenoid Inverter ‘A’ trouble – “RPS ‘A’ has a “Loss of Sync” LED lit. RPS ‘A’ AC Output Frequency is 60 Hz and AC Voltage is 120 VAC.
 - k) Reset RPS Solenoid Inverter ‘A’ trouble – acknowledge report and then release YP_XREMT_35 = RESET in the simulator lesson plan.

8. RPV Instrument Line leak

- a. Event Trigger - Following Event 7 and when directed by the Lead Examiner, **Activate Remote 5** and verify the following command(s):
 - (1) **YP_XMFTB_5082 0.08%**. (indication of leak into the Gas Control Boundary)
- b. Role play:
 - (1) Maintenance (after 2 minutes from scram announcement) – report to the MCR as IMD.
 - (2) WEC (if asked to determine which FP XL-3 points in alarm) – report, “Multiple AB 737E and 762E points are in alarm.”

9. Radiation Monitor fails to isolate VF/Startup VG

- a. Event Trigger – During Event 9 verify the following command(s):
 - (1) **CAM1PR006(A/B/C/D)TV_VALUE1=20 mr** (PR006A/B/C/D = 20 mr)
 - (2) **A12_A01_07_6_TVM2** (Annunciator 5050-7F, Hi Rad Initiation SGTS Div 1)
 - (3) **A12_A02_07_6_TVM2** (Annunciator 5052-7F, Hi Rad Initiation SGTS Div 2)
- b. Role play
 - (1) EO (If directed to S/D VF locally):
 - a) Wait 3 minutes then release – ‘Shutdown VF locally’.
 - b) Report “VF is shutdown locally”.

Turnover

1. The plant is in Mode 1, operating at ~ 22% power.
 - CPS 3004.01 Turbine Startup and Generator Synchronization is in progress. Section 5.0 Prerequisites are complete. Steps 8.1.1 – 8.4.11 are complete.
 - Control rods - Step 30 / Rod 16-41 in Gang 7E is at position 16. Remaining rods in Gang 7E (40-41, 40-17, and 16-17) are at position 12.
 - Plans for the shift are to transfer 480V Unit Subs 1L & 1M with 1L supplying per CPS 3502.01 480 VAC Distribution section 8.1.4 Transferring a 480V Bus: Paralleling Method. When complete, continue with power ascension to 29% per REMA A15-001 step 1.
 - MDRFP is in STANDBY (prestart checks complete).
 - TDRFP 'A' is in auto on the MLC with 1FW010A RFP 1A Min Flow Valve in manual at 100% open to maintain TDRFP 'A' speed > 3000 RPM.
2. Status of Tagged Out Equipment
 - Turbine Driven Reactor Feed Pump TDRFP 'B' is out of service for minor maintenance. Restoration is expected prior to transferring RR Pumps 'A' and 'B' to fast speed (expected next shift).
3. Today Day Shift
4. Weather Conditions
 - Thunderstorms are expected in the area within the next hour.
5. Thermal Limit Problems or concerns
 - Power ascension to 29% in progress per CPS 3004.01 Turbine Startup and Generator Synchronization.
 - The RE has requested that individual drive mode be used when withdrawing rods in gangs 7E, 7F, and 7G to allow close monitoring of thermal limits.
 - RE is stationed in the MCR to monitor power ascension.
 - Rod Verifier is available when requested.
6. LCO's in effect
 - None
7. Surveillances in progress
 - None
8. Previous Shift Evolutions completed
 - None
9. Evolutions planned for the shift
 - Cross-tie 480V MCCs 1L & 1M with 1L supplying per CPS 3502.01 480 VAC Distribution
10. Risk Levels
 - Green
 - Protected Equipment – FC Pump 'B', Div 1 and Div 2 VX
11. Dose equivalent Iodine 131 is reading 1.5 E-6 rcuries per gram.

Exelon Nuclear

ILT 14-1 NRC Exam

**Scenario Number:
NRC Exam Scenario 2**

Revision Number: 1

Date: 11/07/14

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Approved By:	_____	_____
	Training Department	Date

Appendix D

Scenario Outline

Form ES-D-1

Facility: Clinton Power Station Scenario No.: 2 Operating Test No.: 2015-301

Examiners: _____ Operators: _____

Initial Conditions:

- Mode 1 Rx Power at 97%.
- Thunderstorms are expected in the area within the next hour.
- Control Rod 12-25 is stuck at position 48 and has been hydraulically disarmed IAW CPS 3304.01 Control Rod Hydraulic and Control (RD) section 8.2.5.1 Hydraulically Disarming Stuck Withdrawn Control Rod.

Turnover:

- Perform CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test.
- On the previous shift, the Drywell was vented per CPS 3316.01 Containment Combustible Gas Control (HG) to support performance of CPS 9064.01.
- Maintain Rx Power at 97%.

Event No.	Malf. No.	Event Type*	Event Description
1	A06_S12_1 Press	N-BOP TS-SRO	Drywell Vacuum Breaker Test
2	A01_A01_02_5_TVM=2	C-ATC/SRO	'B' RWCU pump seal plate temperature high
3	YP_XMFTB_5010	C-BOP TS-SRO	Train A Control Room Supply Fan (0VC03CA) trips
4	A02_A05_01_7_TVM=2	C-ATC/SRO	CRD high temperature
5	N/A	R-ATC/SRO	EPR for Grid Load Reduction
6	YP_XMFTB_4102	I-BOP/SRO	Spurious HPCS auto initiation
7	YPXMALSE_252 YPCTHOLE 25% A02_A12_S01 Run	M- SRO/ATC/BOP	MSL 'D' Rupture in the Drywell/Drywell Failure / ATWS (Manual Scram PBs Successful) / Fig N Blowdown
8	RH0VCE12F028AFP=0	C-BOP/SRO	Div 1 Containment Spray Manual Initiation failure

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

Narrative Summary

Event #	Description
1. Drywell Vacuum Breaker Test	Following shift turnover, the SRO will direct the BOP Operator to perform CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test. When the BOP depresses the test pushbutton for 1HG010D it will open but fail to reclose. The SRO will enter ITS 3.6.5.6 Drywell Post-LOCA Vacuum Relief System Action A.1 requiring 1HG010D to be reclosed within 4 hours.
2. 'B' RWCU pump seal plate temperature high	Annunciator CLEANUP PUMP SEAL GLAND PLATE TEMP HI (5000-2E) comes in due to RWCU Recirc Pump B (1G33-C001B) developing excessive seal leak requiring its removal from service. The ATC Operator will dispatch a Equipment operator and coordinate/perform operations per CPS 3303.01 Reactor Water Cleanup (RT) Sections 8.1.3 System/Filter Demin Flow Control and 8.1.4 Removing RWCU Pump(s) From Service.
3. Train A Control Room Supply Fan (0VC03CA) trips	Annunciator AUTO TRIP PUMP/FAN DIVISION 1 (5050-1A) comes in due to the Train A Control Room Supply Fan (0VC03CA) tripping. The BOP Operator will coordinate with the Equipment operator to shift Control Room HVAC (VC) to Train B per CPS 3402.01 Section 8.1.7 Shifting Ventilation Trains. Technical Specification LCO 3.7.3 Actions A.1 will be evaluated requiring restoration of control room ventilation subsystem to an operable status within 7 days. Technical Specification LCO 3.7.4 Actions A.1 will also be evaluated requiring restoration of control room AC subsystem to an operable status within 30 days.
4. CRD high temperature	Annunciator CRD HYDR TEMP HI (5006-1G) is received. The ATC operator will dispatch a Equipment operator to the local recorder on 1H22-P007 to determine rod 52-25 is alarming. The ATC operator will note that rod 52-25 is currently at position 48 and IAW CPS 3304.01 CONTROL ROD HYDRAULIC & CONTROL (RD) perform an extended coupling check. The annunciator will clear for ~ 30 seconds and then alarm again. The ATC operator will then insert rod 52-25 to position 46 which will clear the high temperature condition.
5. EPR for Grid Load Reduction	The Transmission System Operator (TSO) will call the MCR and direct CPS to lower Generator output by 80 MWe to mitigate degraded grid conditions. IAW OP-CL-108-107-1002 Degraded Grid Actions, the SRO will direct performance of an Emergency Power Reduction. The ATC will lower power by 80 MWe within 15 minutes of the TSO request.
6. Spurious HPCS auto initiation	High Pressure Core Spray (HPCS) initiates with no operator action. IAW CPS 3309.01 HIGH PRESSURE CORE SPRAY (HPCS), the crew will verify by at least <u>two</u> independent indications that misoperation in automatic is confirmed or adequate core cooling is assured. Once confirmed, the SRO will direct the BOP operator to secure HPCS. Technical Specification LCO 3.5.1 Actions B.1 and B.2 will be evaluated requiring verification by administrative means that the RCIC system is operable when required AND the HPCS system is restored to operable status within 14 days.
7. MSL break in the Drywell / ATWS (Manual Scram PBs successful) / Fig N Blowdown	The 'D' Main Steam Line will rupture inside the Drywell causing DW pressure to rise. The SRO will enter CPS 4100.01 Coolant Leakage off-normal and direct the reactor to be scrammed. When the ATC places the mode switch in shutdown, the reactor will fail to scram. The ATC will arm and depress the Manual Scram Pushbuttons and initiate ARI to successfully insert all control rods. The crew will evacuate the containment. The SRO will enter EOP-1A ATWS RPV Control. The SRO will enter EOP-6 Primary Containment Control and will direct the BOP operator to initiate containment spray when Containment pressure reaches the OK to Spray region of EOP-6 Figure O Containment Spray Initiation Limit. When Containment Pressure exceeds EOP-6 Figure N Pressure Suppression Pressure limit, the SRO will direct the crew to perform a reactor blowdown per EOP-3 Emergency Depressurization (Blowdown).
8. Div 1 Containment Spray arm & depress failure	When the BOP operator arms & depresses the manual pushbutton for CNMT SPRAY A MANUAL INITIATION, 1E12-F028A RHR 'A' To CNMT Spray 'A' Shutoff Vlv will fail to open, requiring the BOP to manually align 1E12-F028A using the MCR control switch.

EOP
1, 6, 3

Critical tasks:

- RPV-6.1 BOP/ATC inserts control rods and/or start Standby Liquid Control Pumps to shutdown the reactor.
- PC-7.1 Within 10 minutes of exceeding Figure N and containment pressure continuing to rise, the SRO will enter EOP-3 Emergency RPV Depressurization. If the crew Anticipates Blowdown using bypass valves, and in doing so Figure N is not exceeded, then this critical task is considered to be met. (PRA)

Shift Turnover Information

▷ Day of week and shift

.. Today Day Shift.

▷ Weather conditions

.. Thunderstorms are expected in the area within the next hour.

▷ (Plant power level)

.. Mode 1 at ~ 97% .. Step 32, Gang 14A is at Position 02.

.. ..

.. ..

▷ Thermal Limit Problems/Power Evolutions

.. None ..

.. ..

▷ Existing LCOs, date of next surveillance

.. ITS 3.1.3 – Control Rod 12-25 is stuck at position 48 (A.1, A.2, and A.3 actions are complete)

▷ Surveillances or major maintenance

.. None

▷ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment

Perform CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test.

▷ Comments, evolutions, problems, etc.

.. Online Risk is Green .. Maintain power at 97% throughout the shift.

.. Protected Equipment: FC 'B', Div 1 and 2 VX .. On the previous shift, the Drywell was vented per CPS 3316.01 Containment Combustible Gas Control (HG) to support performance of CPS 9064.01.

.. ..

.. ..

.. ..

Operator Actions

Event No.(s): 1		Page 1 of 1
Description: Drywell Vacuum Breaker Test		
Initiation: Following shift turnover and when directed by the Lead Examiner		
Cues: Directed by SRO		
Time	Position	Applicant's Actions or Behavior
<p align="center"><u>General Note on Requirements for "Expected Annunciator Response" – OP-AA-103-102</u></p> <p>If this evolution was pre-briefed and "Expected Alarms" were reviewed, the following expectations apply:</p> <ul style="list-style-type: none"> · "Expected alarms" will be flagged · When the annunciator comes in the operator will announce "Expected Alarm" · The annunciator response procedure (ARP) need not be entered since it has already been reviewed in the pre-brief. <p>If a pre-brief was not conducted the operator should perform the following:</p> <ul style="list-style-type: none"> · When an annunciator comes in the ARP should be referred to. · The annunciator may then be identified as an "Expected Alarm", flagged, and from that point on the ARP need not be referred to. 		
<p><u>Key Parameter Response:</u> 1HG010D indicating lights</p> <p><u>Expected Annunciators:</u> None</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. ○ Dispatches an Equipment Operator to determine the position of 1HG010D.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. <p>Per CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test, tests 1HG010A-D & 1HG011A-C one at a time:</p> <ul style="list-style-type: none"> · During testing verifies each vacuum breaker fully opens (Red light on – green light off) and then fully recloses (Green light on – red light off). · Tests 1HG010D and recognizes that the valve fails to close (red light stays on). · Reports failure to SRO. ○ Dispatches an Equipment Operator to determine the position of 1HG010D. · Does NOT test 1HG011D.
	SRO	<ul style="list-style-type: none"> · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures. · References ITS 3.6.5.6. ○ References ORM 2.4.6 and determines ORM 2.4.6 DW Vac Breaker Position Ind is met. · Enters ITS 3.6.5.6 Action A.1 Close the post-LOCA vacuum relief subsystem within 4 hours (determines the action met with 1HG011D shut). · Does NOT test 1HG011D. ○ Contacts the Shift Manager and maintenance to report failure of 1HG010D and entry into ITS 3.6.5.6 A.1.
Terminus: Testing of 1HG010A, 11A, 10B, 11B, 10C, 11C, and 10D performed and Technical Specifications evaluated.		

NOTES:
· Solid bullets are required actions
○ Hollow bullets are actions that may or may not be performed

Operator Actions

Event No.(s): 2		Page 1 of 1
Description: 'B' RWCU pump seal plate temperature high		
Initiation: Following Event 1 and upon direction of the Lead Examiner, insert REMOTE 1		
Cues: Annunciator 5000-2E, Cleanup Pump Seal Gland Plate Temp Hi		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> None</p> <p><u>Expected Annunciators:</u> 5000-2E, Cleanup Pump Seal Gland Plate Temp Hi</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. · Reports issue to SRO. · Refers to ARP 5000-2E. ○ Dispatches an Equipment Operator to investigate/support RWCU operation. <p>Per CPS 3303.01, RWCU step 8.1.4 and 8.1.3:</p> <ul style="list-style-type: none"> · Directs Equipment Operator to remove all Filter demins from service. · Throttles open the F/D bypass valve (1G33-F044) to maintain RT system flow 150 – 300 gpm. · Secures RWCU pump 'B'. Throttles 1G33-F044) to maintain RT system flow ~ 150 gpm. ○ Places one F/D in service while monitoring RT system flow. ○ Shuts the F/D bypass valve (1G33-F044).
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment operator to investigate/support RWCU operation.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate.
Terminus: RWCU pump 1B has been shutdown IAW CPS 3303.01.		

NOTES:

Operator Actions

Event No.(s): 3		Page 1 of 1
Description: Train A Control Room Supply Fan (0VC03CA) trips		
Initiation: Following Event 2 and upon direction of the Lead Examiner, insert REMOTE 2		
Cues: Annunciator CPS 5050-1A, Auto Trip Pump / Fan Division 1 <u>and</u> 0VC03CA amber light lit.		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> 0VC03CA amber light lit</p> <p><u>Expected Annunciators:</u> 5050-1A, Auto Trip Pump / Fan Division 1</p> <p><u>Automatic Actions:</u> Control Room Rtrn Fan (0VC04CA), HVAC Heating Coil (0VC01AA), Chiller (0VC13CA), Ch Wtr Pmp (0VC08PA) trip.</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate/prepare to shift VC trains.
	BOP	<ul style="list-style-type: none"> · Reports issue to the SRO. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate/prepare to shift VC trains. <p>Per 3402.01P001, VC Train Shifting</p> <ul style="list-style-type: none"> · Directs Equipment Operator to perform local operations. · Shuts Locker Room EXH Fan ISOL DMPR 0VC69Y. · Shuts Locker Room EXH Fan ISOL DMPR 0VC70Y. · Stops Cont Rm Trn A Supply Fan 0VC03CA. · Verifies VC System Dampers reposition. · Starts Cont Rm Trn B Supply Fan 0VC03CB. · Verifies VC System Dampers reposition. · Opens Locker Room EXH Fan ISOL DMPR 0VC69Y. · Opens Locker Room EXH Fan ISOL DMPR 0VC70Y. · Direct Equipment Operator to perform VC Chiller 'B' Startup.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. ○ Directs actions listed above. · Evaluates and enters TS 3.7.3 Action A.1 and TS 3.7.4 Action A.1. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate and repair VC Fan.
Terminus: VC train B is running and Technical Specifications evaluated		

NOTES:

Operator Actions

Event No.(s): 4		Page 1 of 1
Description: CRD high temperature		
Initiation: Following Event 3 and upon direction of the Lead Examiner, insert REMOTE 3		
Cues: Annunciator 5006-1G, CRD Hydr Temp Hi		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> CRD 52-25 operating temperature</p> <p><u>Expected Annunciators:</u> 5006-1G, CRD Hydr Temp Hi</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARP 5006-1G. ○ Directs Equipment Operator to investigate and determine which control rod has high temperature. · Monitors reactor to ensure operations remain within established bands. <p>Per 3304.01, Control Rod Hydraulic & Control (RD):</p> <ul style="list-style-type: none"> ○ Determines CRD 52-25 is alarming. · Performs extended coupling check of rod 52-25 (10-15 seconds). · Inserts control rod 52-25 to position 46.
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Monitors reactor to ensure operations remain within established bands. ○ Directs an Equipment Operator to investigate.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from ATC. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Contacts Maintenance to investigate. ○ Conducts a brief.
Terminus: Control rod 52-25 at position 46; Annunciator 5006-1G clear		

NOTES:

Operator Actions

Event No.(s): 5		Page 1 of 1
Description: EPR for Grid Load Reduction		
Initiation: Following Event 4 and upon direction of the Lead Examiner		
Cues: Contact MCR as Transmission System Operator and direct CPS to lower Generator output by 80 Mwe.		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> Reactor Power, Generator MWe, RR Flow		
<u>Expected Annunciators:</u> None		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. CPS 3005.01 Unit Power Changes, Section 8.2: <ul style="list-style-type: none"> ○ Makes an announcement that the plant is performing an Emergency Power Reduction at the request of the Transmission System Operator. · Lowers Reactor Power ~ 80 MWe by reducing Reactor Recirc flow and/or rods. ○ Monitors Generator output. · Monitors for core instabilities. ○ Reports when Generator output has been lowered by ~ 80 MWe.
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Makes an announcement that the plant is performing an Emergency Power Reduction at the request of the Transmission System Operator. ○ Monitors Generator output. ○ Reports when Generator output has been lowered by ~ 80 MWe.
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. · Directs ATC to perform an Emergency Power Reduction of 80 MWe per CPS 3005.01 Unit Power Changes Section 8.2. · Supervises the Emergency Power Reduction. ○ Reports to TSO when Emergency Power Reduction is complete. ○ Contacts RE, SM, MISO, Power Team, and RP of the power reduction.
Terminus: Clearly observable plant response from change in power level		

NOTES:

Operator Actions

Event No.(s): 6		Page 1 of 1
Description: Spurious HPCS auto initiation		
Initiation: Following Event 5 and upon direction of the Lead Examiner, insert REMOTE 4		
Cues: Annunciator 5062-4E, HPCS Pump Auto Start		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> None</p> <p><u>Expected Annunciators:</u> Multiple annunciators</p> <p><u>Automatic Actions:</u> DG 1C Auto Starts, HPCS To CNMT Outbd Isln Valve (1E22-F004) OPEN</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Performs Plant Announcements. ○ Dispatches an Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARPs. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Performs Plant Announcements. ○ Dispatches an Equipment Operator to investigate. <p>Per CPS 3309.01 High Pressure Core Spray (HPCS):</p> <ul style="list-style-type: none"> · Verifies by at least <u>two</u> independent indications that: <ul style="list-style-type: none"> · Misoperation in automatic is confirmed, <u>or</u> · Adequate core cooling is assured. · Performs shutdown of HPCS (Initiation Signal Present): <ul style="list-style-type: none"> · Shuts 1E22-F004 HPCS To CNMT Outbd Isln Valve. · Stops HPCS Pump, 1E22-C001. ○ Verifies 1E22-F012, HPCS Min Flow To Suppr Pool shuts. ○ Verifies HPCS Pmp Rm Sply Fan, 1VY08CA stops. ○ Verifies HPCS Pmp Rm Sply Fan, 1VY08CB stops.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. ○ Establishes reactor water level as a critical parameter and directs ATC to scram the reactor if RPV water level reaches 48 inches and rising. · Evaluates and enters TS 3.5.1 Action B.1 and B.2. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Contacts Maintenance to investigate. ○ Informs Shift Manager. ○ Conducts a brief.
Terminus: HPCS is secured and Technical Specifications evaluated		

NOTES:

Operator Actions

Event No.(s): 7, 8		Page 1 of 3
Description: MSL break in the Drywell/Fig N Blowdown / Div 1 Containment Spray arm & depress failure		
Initiation: Following Event 6 and upon direction of the Lead Examiner, insert REMOTE 5		
Cues: Annunciator 5068-3A Drywell Ambient Temp High		
Time	Position	Applicant's Actions or Behavior
Key Parameter Response: Rising DW Pressure (multiple points), rising MSL 'D' temperature on recorder E31-R608 (P632)		
Expected Annunciators: Multiple		
Automatic Actions: RR FCVs lockout at 1.08 psig; ECCS and DGs actuate at 1.68 psig DW Pressure		
[CT]	ATC	<ul style="list-style-type: none"> ○ Reports DW Pressure rising. ○ Evacuates the Containment. <ul style="list-style-type: none"> ▪ Monitors leakage using available LD monitoring systems. ○ Attempts to locate and isolate the leakage (MSL 'D'). <ul style="list-style-type: none"> ▪ Places the Mode Switch in S/D. ▪ Carries out ATWS Scram Choreography by reporting: <ul style="list-style-type: none"> - Mode Switch in Shutdown... - Reactor Power is... and trend ▪ Determines Shutdown Criteria is not met. ▪ Arms and depresses Manual Scram Pushbuttons. ▪ Initiates ARI. ▪ Determines Shutdown Criteria is met ▪ Reports: <ul style="list-style-type: none"> - Shutdown Criteria is met - Reactor Power is... and trend - Reactor pressure is... and trend - Reactor water level is... and trend - Any EOPs with entry conditions (EOP-1, 6) (EOP-6 only if DW pressure is ≥ 1.68 psig) ▪ <u>IF</u> RPV level is rising with 2 feed pumps operating, <u>THEN</u> Secures/verifies secured 1 Feed Pump and controls RPV water level between Level 3 and Level 8. ○ Verifies Turbine and Generator trip when required. <ul style="list-style-type: none"> ▪ Secures both RR Pumps within one minute of DW pressure exceeding 1.68 psig. ▪ Performs EOP actions as directed by SRO.

Event No.(s):	7, 8	Page 2 of 3
[CT]	BOP	<ul style="list-style-type: none"> ○ Reports DW Pressure rising. ○ Evacuates the Containment. <ul style="list-style-type: none"> ▪ Monitors leakage using available LD monitoring systems. ▪ Attempts to locate and isolate the leakage (MSL 'D'). <p>Carries out ATWS Scram Choreography by:</p> <ul style="list-style-type: none"> ▪ Announcing: <ul style="list-style-type: none"> - Reactor Scram with Failure to Scram - Motor Driven Reactor Feed Pump may start - Evacuate the RCIC room - Evacuate the Containment ▪ Determines Rod status and reports shutdown criteria met to SRO. <p>Per EOP-6 Primary Containment Control:</p> <ul style="list-style-type: none"> ▪ Starts Drywell Mixers, as directed by the SRO. ▪ Monitors the start of the ECCS Systems on High Drywell Pressure. ▪ Starts Containment Spray, as directed by the SRO. ▪ Determines failure of 1E12-F028A RHR A To CNMT Spray Shutoff Vlv to automatically open (failure of Containment Spray Loop 'A' to initiate) and manually opens 1E12-F028A. ▪ Operates ECCS Systems as needed to control RPV Water Level between Level 3 and Level 8. <p>Per EOP-3 Emergency RPV Depressurization (Blowdown):</p> <ul style="list-style-type: none"> ▪ Sounds the Containment Evacuation Alarm. ▪ Terminates and prevents LPCS and LPCI injection when directed by the SRO. ▪ Initiates ADS when directed by the SRO. ▪ Verifies 7 ADS valves open.

Event No.(s):	7, 8	Page 3 of 3
[CT]	SRO	<ul style="list-style-type: none"> • Acknowledges reports from ATC/BOP. ○ Directs ATC/BOP to perform a manual Group 1 Isolation. <p>Enters and executes 4001.01 Reactor Coolant Leakage:</p> <ul style="list-style-type: none"> • Directs ATC/BOP to attempt to locate the source of the leakage. <p>Enters CPS 4100.01 Reactor Scram:</p> <ul style="list-style-type: none"> • Directs ATC to scram the reactor if DW Pressure reaches 1.3 psig and rising • Carries out Scram Choreography by performing an Update: <ul style="list-style-type: none"> • Update • Entering EOP-1 and 6 • Transitioning to EOP-1A • Entering the Scram Off-Normal • End of Update <p>Enters EOP-1A, ATWS RPV Control, and directs the following:</p> <ul style="list-style-type: none"> ○ Inhibit ADS. • Determines Shutdown Criteria is met when Manual Scram pushbuttons have been armed and depressed and transitions from EOP-1A back to EOP-1. <p>Enters EOP-1 RPV Control, and directs the following:</p> <ul style="list-style-type: none"> • Stabilize RPV pressure between 800 to 1065 psig with Bypass Valves or SRVs. • Control RPV water level between Level 3 to Level 8 by using Preferred Injection Systems. <p>Enters EOP-6, Primary Containment Control, and directs the following:</p> <ul style="list-style-type: none"> • Start DW Mixing Compressors. • Initiate Containment Spray when Containment Pressure reaches the OK TO Spray Region of Fig. O Containment Spray Initiation Limit curve. <p>Enters EOP-3, Emergency RPV Depressurization, when EOP-6 Figure N Pressure Suppression Pressure limit is exceeded:</p> <ul style="list-style-type: none"> ○ Directs BOP to terminate LPCS and LPCI injection not needed for core cooling • Directs initiation of ADS. ○ Directs the isolation of RT and/or RR. • Ensures operations are conducted IAW Operations standards and approved procedures.
<p>Terminus: 7 SRVs open. RPV level maintained between Level 3 and Level 8.</p>		

NOTES:

Simulator Operator Instructions**Initial Setup**

1. Fill out plant status and have Turnover Sheet ready for the crew.
2. Verify daily lamp test completed.
3. Reset to **IC-202** (PW 91632) @ **97% Power**. If this is the first reset after swapping simulator loads, reset the IC twice.
4. Load the lesson plan for this scenario.
5. Verify the following commands are active:
 - ROD1225TFIA6 Rod 1225 Accumulator Trouble
 - ROD 1225 TFIA4 Rod 1225 Is Stuck At Present Location
 - RH0VCE12F028AFP E12F028A (immediate) Fail-To Position
6. Place simulator in RUN.
7. Turn on and advance recorders.
8. Verify RCIC Flow Controller is set at 620 gpm.
9. Verify the AR/PR server is running and stabilize AR/PR.
10. Verify Rod Drive pressure is in the expected range of 235-265 psid.
11. Provide pull sheets: **Step 32** is in progress - **Gang 14A** is at **Position 02**.
12. Make sure Sequence A is selected.
13. Make sure Individual Drive Mode is selected on the OCM.
14. Remove EST Tags from the following control switches:
 - 1H13-P877-5014 - MC Pump 'B'
 - 1H13-P877-5016 - 1TD004A RFPT 1A HP Stop Vlv Before SDV
 - 1H13-P877-5019 - 1B21-BSFV-1 Aux Stm to MSR 1B Inlet Vlv
 - 1H13-P877-5019 - 1GS02CB SPE Blower 1B2
 - 1H13-P800-5042 - 0VQ03CC DW Prg Low Flow Exh Fan
 - 1H13-P801-5050 - 1VY03C RHR Hx Rm A Sply Fan
 - 1H13-P801-5050 - 1VY04C RCIC Pmp Rm Sply Fan
 - 1H13-P801-5050 - 0VC69Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P801-5052 - 0VC70Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P601-5064 - 1SX011A Div 1 Cross Tie Valve
 - 1H13-P601-5065 - 1SX011B Div 2 Cross Tie Valve
 - 1H13-P601-5067 - 1B21-F067B MSL B Outbd MSIV Before Seat Drain Vlv
15. Procedures that are expected to be used during this scenario are:
 - CPS 3005.01 Unit Power Changes
 - CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test
 - ITS 3.6.5.6 Drywell Post-LOCA Vacuum Relief System
 - ORM 2.4.6 Drywell Post-LOCA Vacuum Relief Valves
 - CPS 5000.02 Alarm Panel 5000 Annunciators – Row 2
 - CPS 3303.01 Reactor Water Cleanup (RT)
 - CPS 5050.01 Alarm Panel 5050 Annunciators – Row 1
 - CPS 3402.01P001 Control Room HVAC (VC) Train Shifting
 - ITS 3.7.3 Control Room Ventilation System
 - ITS 3.7.4 Control Room Air Conditioning (AC) System
 - CPS 5006.01 Alarm Panel 5006 Annunciators – Row 1
 - CPS 3304.01 Control Rod Hydraulic & Control (RD)
 - CPS 5062.04 Alarm Panel 5062 Annunciators – Row 4
 - CPS 5062.02 Alarm Panel 5062 Annunciators – Row 3
 - CPS 5064.01 Alarm Panel 5064 Annunciators – Row 1
 - CPS 5064.04 Alarm Panel 5064 Annunciators – Row 4
 - CPS 5042.02 Alarm Panel 5042 Annunciators – Row 2
 - CPS 5042.03 Alarm Panel 5042 Annunciators – Row 3
 - CPS 5130.01 Alarm Panel 5130 Annunciators – Row 1
 - CPS 5002.02 Alarm Panel 5002 Annunciators – Row 2
 - CPS 3009.01 High Pressure Core Spray (HPCS)

- ITS 3.5.1 ECCS – Operating
 - CPS 4100.01 Reactor Scram
 - EOP-1 RPV Control
 - EOP-1A ATWS RPV Control
 - EOP-6 Primary Containment Control
 - EOP-3 Emergency RPV Depressurization
16. Hang OOS tags on: N/A
 17. Identify T/S issues associated with OOS and turnover: None
 18. Operating Equipment: None
 19. Marked up copies: NA
 20. Verify simulator conditions match the turnover.

Event Triggers and Role Play

Event #

1. Drywell Vacuum Breaker Test

- a. Event Trigger – When 1HG010D is opened, verify the following command(s):
 - (1) H_A06_S12_1 Press (HG010D Test Pushbutton remains depressed after PB released)
- b. Role play
 - (1) Independent Verifier (IV) - as necessary (do NOT cue the examinee)
 - (2) EO (when directed to determine the position of 1HG010D) – Wait 3 minutes and report, “1HG010D is fully open”.

2. ‘B’ RWCU pump seal plate temperature high

- a. Event Trigger - Following Event 1 and when directed by the Lead Examiner, **Activate Remote 1** and verify the following command(s):
 - (1) **A01_A01_02_5_TMV=2** (Annunciator 5000-2E, Cleanup Pump Seal Gland Plate Temp Hi)
- b. Role Play
 - (1) EO (if requested):
 - a) To check RT pump seal temperatures locally – report, “‘B’ RT pump seal temperature is 285 degrees and rising slowly”.
 - b) Verify CCW lineup/‘A’ RT pump status – report, “CCW is lined up to the RT pumps and the ‘A’ RT pump is at 175 degrees and stable”
 - c) To check for steam in the RT pump room – report, “there is no steam in the room.”
 - d) To perform local actions to isolate and vent ‘B’ RT pump - respond that you will go to RP to obtain a Hi Rad Brief.
 - (2) Chemistry:
 - a) When informed of RT F/D removal from service – acknowledge the report.
 - b) If/When asked on preference on final F/D alignment – report, “Chemistry has no preference on which F/D to restore to service.
 - (3) Booth Operator (when requested):
 - a) To remove RT F/D ‘A’ from service, **Release - Remove RT F/D ‘A’ from service**
 - b) To remove RT F/D ‘B’ from service, **Release - Remove RT F/D ‘B’ from service**
 - c) To place RT F/D ‘A’ in service, **Release - Place RT F/D ‘A’ back in service**
 - d) To place RT F/D ‘B’ in service, **Release - Place RT F/D ‘B’ back in service**

3. Train A Control Room Supply Fan (0VC03CA) trips

- a. Event Trigger – Following Event 2 and when directed by the Lead Examiner, **Activate Remote 2** and verify the following command(s):
 - (1) **YP_XMFTB_5010** (Trip 0VC03CA)
- b. Role Play
 - (1) EO – (when directed to investigate the trip of 0VC03CA ‘A’ MCR HVAC Supply Fan), acknowledge the order and report that the breaker for 0VC03CA has tripped on overcurrent.
 - (2) EO – when directed to perform the following actions from CPS 3402.01P001:
 - a) Section 8.1.7.1 Humidification Line Up For Shifting VC Trains - wait 1 minute and report, “CPS 3402.01P001 section 8.1.7.1 is complete.”
 - b) Section 8.1.7.2 Removing Sidestream Filter Skid From Service - wait 1 minute and report, “CPS 3402.01P001 section 8.1.7.2 is complete.”
 - c) Section 8.1.7.3 ‘A’ VC Chiller Shutdown:
 - (1) **Release Event 3 Secure VC Chiller ‘A’** and verify remote function **VC10VC_CHILLERATCC OFF**, and then report, “3402.01P001 section 8.1.7.3 is complete. ‘A’ VC Chiller has been secured.”

- d) Step 8.1.7.4.1 Place Control Room Heating Coil A control switch 0HS-VC032 in OFF – wait one minute and report, “Control Room Heating Coil A control switch 0HS-VC032 has been placed in OFF.”
- e) Steps 8.1.7.5.1 - 8.1.7.5.6 (Local operations for ventilation train startup), wait 2 minutes and report, “Steps 8.1.7.5.1 - 8.1.7.5.6 are complete.”
- f) Step 8.1.7.5.9 Place Control Room Heating Coil B control switch 0HS-VC132 in ON, wait 1 minute and report, “The Control Room Heating Coil B control switch 0HS-VC132 has been placed in ON.”
- g) Step 8.1.7.5.15 Back Draft Damper Position Verification – wait one minute and report, “VC Train ‘A’ Back Draft Dampers (OVC22YA, 25YA, 28YA, 31YA, 34YA, 37YA, and 40YA) have been verified shut.”
- h) Section 8.1.7.6 ‘B’ VC Chiller Startup:
 - (1) At step 8.1.7.6.6, request the MCR verify 0VC06AB, Cont Rm Ch Wtr Coil Drain Valve control switch is in the FILL position.
 - (2) **Release Event 3 Start VC Chiller ‘B’** and verify the following command **Insert VC10C_CHILLERBTCC On**, then wait five minutes and report, “3402.01P001 section 8.1.7.6 is complete. VC Chiller ‘B’ is fully loaded and is operating normally. Chemistry has requested that I place the VC B Sidestream Filter Skid in-service per section 8.1.7.7. I have notified Chemistry that the VC Trains have been shifted and that monthly sampling may be required IAW 3402.01P001 step 8.1.7.6.25.”
 - (3) 3402.01P001 Appendix A: VC Chiller Start-up Data Log is complete. All VC Chiller ‘B’ parameters are within specifications.
- i) Section 8.1.7.7 Placing 1VC01FB In-Service – wait one minute and report, “Section 8.1.7.7 is complete. The VC ‘B’ Sidestream Filter has been placed in service.”
- j) Section 8.1.7.8 Humidification Lineup After VC Ventilation Train Shift – wait one minute and report, “Section 8.1.7.8 is complete. The VC Humidification Lineup is complete for VC ‘B’.”
- (3) Maintenance (when directed to investigate the trip of the ‘A’ VC Supply fan) - acknowledge the report and inform the SRO that maintenance technicians will be dispatched to investigate.
 - a) Maintenance (if asked whether maintenance requires the control switch for 0VC03CA to remain in auto after start for troubleshooting) – inform the MCR that the control switch for 0VC03CA can be positioned as desired without adversely affecting troubleshooting.

4. **CRD high temperature**

- a. Event Trigger – Following Event 3 and when directed by the Lead Examiner, **Activate Remote 3** and verify the following command(s):
 - (1) **A02_A05_01_7_TVM=2** (Annunciator 5006-1G CRD Hydr Temp Hi).
- b. Role play – None.
 - (1) EO (if requested):
 - a) Report, “CRD 52-25 is alarming at 255°F. All other CRD temperatures appear to be normal”
 - b) After rod 52-25 has been repositioned to position 46, report “CRD 52-25 temperature is 225°F and slowly lowering.
 - (2) RE (when informed of high CRD temperature / insertion of 52-25 to 46) – report, “No thermal limits will be approached by inserting rod 52-25 to position 46.”

5. **EPR for Grid Load Reduction**

- a. Event Trigger – Following event 4 and when directed by the Lead Examiner, contact the MCR as the Transmission System Operator and direct CPS to lower Generator output by 80 MWE to mitigate grid emergency conditions.
- b. Role play – None.

6. **Spurious HPCS auto initiation**

- a. Event Trigger - Following Event 5 and when directed by the Lead Examiner, **Activate Remote 4** and verify the following command(s):
 - (1) **YP_XMFTB_4102** (HPCS Spurious Automatic Initiation)
 - b. Role play
 - (1) Maintenance (if requested) – respond as dispatching personnel to investigate.
 - (2) EO (when requested to check Div 3 DG and/or SX for proper operation) – wait 5 minutes and report that requested equipment is operating normally.
7. **MSL break in the Drywell/Fig N Blowdown**
- a. Event Trigger - Following Event 6 and when directed by the Lead Examiner, **Activate Remote 5** and verify the following command(s):
 - (1) **YPXFALSE_252 0.1% Ramp=00:10:00** (MSL D Rupture in DW to 0.1% over 10 min)
 - (2) **YPXFALSE_252 0.1% to 1.25% Ramp=00:20:00** (MSL D Rupture in DW to 1.25% over 20 min) – inserted automatically after Mode Switch placed in shutdown.
 - (3) **YPCTHOLE 20%** (Leak between Drywell and Containment) – inserted automatically after Mode Switch placed in shutdown.
 - b. Role play
 - (1) Maintenance (after 2 minutes from scram announcement) – report to the MCR as IMD
 - (2) IMD (when requested to defeat VP-WO interlocks per 4410.00C006) – acknowledge the order and then **release 4410.00C006 Defeat VP-WO Intlks**. Wait 6 minutes and then report that CPS 4410.00C006 steps 3.1 – 3.6 are complete.
8. **Div 1 Containment Spray arm & depress failure**
- a. Event Trigger – None
 - b. Role play – None

Turnover

1. The plant is in Mode 1, operating at ~ 97% power.
 - a. Control rods - Step 32 / Gang 14A @ position 02.

2. Status of Tagged Out Equipment
 - Control Rod 12-25 is stuck at position 48 and has been hydraulically disarmed IAW CPS 3304.01 Control Rod Hydraulic and Control (RD) section 8.2.5.1 Hydraulically Disarming Stuck Withdrawn Control Rod.

3. Today Day Shift

4. Weather Conditions
 - Thunderstorms are expected in the area within the next hour.

5. Thermal Limit Problems or concerns
 - Maintain power at 97%.
 - RE and Rod Verifier are available on request.

6. LCO's in effect
 - ITS 3.1.3 (Control Rod 12-25 is stuck at position 48 - A.1, A.2, and A.3 actions are complete)

7. Surveillances in progress
 - None

8. Previous Shift Evolutions completed
 - The Drywell was vented per CPS 3316.01 Containment Combustible Gas Control (HG) to support performance of CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test.

9. Evolutions planned for the shift
 - Perform CPS 9064.01 Drywell Post-LOCA Vacuum Breaker Verification Test.

10. Risk Levels
 - Green
 - Protected Equipment: FC 'B', Div 1 and 2 VX

11. Dose equivalent Iodine 131 is reading 1.5 E-6 mcuries per gram.

Exelon Nuclear

ILT 14-1 NRC Exam

**Scenario Number:
NRC Exam Scenario 3**

Revision Number: 0

Date: 10/03/14

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Approved By:	_____	_____
	Training Department	Date

Appendix D

Scenario Outline

Form ES-D-1

Facility: Clinton Power Station Scenario No.: 3 Operating Test No.: 2015-301

Examiners: _____ Operators: _____
 _____ _____
 _____ _____

Initial Conditions:

- Mode 1 Rx Power at 97%.
- Thunderstorms are expected in the area within the next hour.
- MC Pump 'A' (0MC01PA) is OOS for maintenance. Not expected back this shift.

Turnover:

- Main EHC pump 1B is in service. Shift hydraulic pumps IAW CPS 3105.02 MAIN EHC HYDRAULIC POWER UNIT (EH) to support hanging a clearance order.
- Maintain Rx Power at 97%.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N-BOP/SRO	Shift Main EHC Pumps to support clearance order
2	A11_A01_06_6_TVM 2	TS-SRO	Inoperable ADS Accumulator Low Pressure Alarm
3	A04_A18_A02_4 Manual A04_A18_A02_7 Press	C-BOP/SRO	EHC Temperature Controller Failure
4	YPXMALSE_18 3% (ramped over 3 minutes)	R-ATC/SRO	Loss of Main Generator H ₂ requiring power reduction
5	S_K603A 2 CLOSE SLOW	C-ATC/SRO	'A' RR Flow Control Valve drifts shut
6	GS0ASLVALVE05 (100% over 1 min)	C-BOP/SRO	Hi Pressure on the Steam Seal Header
7	ROD4413TFIA6	TS-SRO	CRD HCU Accumulator Trouble (Rod 44-13)
8	YPXMALSE_528 YPXMALSE_529	C-ATC/SRO	RR Pump 'A' Seal Failure / Emergency Loop Shutdown and Isolation
9	YP_XMFTB_4063	M- BOP/SRO/ ATC	Generator Trip/ATWS
10	YP_XREMT_737	C-BOP/SRO	Reactor Water Cleanup System fails to isolate on SLC Pump start

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

Scenario No.: 3Operating Test No.: 2015-301

Narrative Summary

Event #	Description
1. Shift Main EHC Pumps	Following shift turnover, the SRO will direct the BOP operator to shift Main EHC Pumps IAW CPS 3105.02 MAIN EHC HYDRAULIC POWER UNIT (EH) section 8.1.2 Shifting Hydraulic Pumps to support hanging a clearance order.
2. Inoperable ADS Accumulator Low Pressure Alarm	Annunciator HIGH/LOW PRESS ADS IA SUPPLY DIV 1 OR 2 (5040-6F) comes in. BOP notes that Div 1/Div 2 ADS Instrument Air Hdr Press readings are normal. The SRO will evaluate Technical Specification ORM 2.2.13, Action 3.2.13.1 a) requiring verification that the ADS accumulator pressures are ≥ 140 psig at least once per 12 hours and 3.2.13.1 b) instrumentation channels are restored to OPERABLE status within 30 days and, if unsuccessful initiate a Condition Report.
3. EHC Temperature Controller Failure	Annunciator TROUBLE EHC FLUID (5017-3B) comes in due to low temperature caused by a failure in the auto portion of the EHC FLUID CLG WTR CONTROL controller. The BOP operator will diagnose the problem with the controller, place the controller in MANUAL, stabilize and restore EHC Fluid Temperature.
4. Loss of Main Generator H₂ requiring power reduction	Annunciator TROUBLE GC SYSTEM LOCAL PNL 1PL10J (5018-2A) comes in and an Equipment Operator (EO) is dispatched to investigate. If looked at, Main Generator H ₂ pressure will be slowly lowering. EO will report that Annunciators MACH GAS PRESSURE HIGH LOW (5021-1A) and DIFF'L SEAL OIL PRESS LOW (due to a malfunction of the Delta Pressure Reg Valve/ H ₂ leak). The BOP will coordinate with the EO to bypass the Delta Pressure Reg Valve IAW CPS 3109.01 GENERATOR SEAL OIL (SO), stopping the leak. The loss of H ₂ pressure will also require the ATC to lower reactor power within the limits of CPS 3111.01 GENERATOR GAS (HY, CO) Appendix A GENERATOR ESTIMATED CAPABILITY CURVES.
5. 'A' RR Flow Control Valve (FCV) Drifts Shut	The 'A' RR Flow Control Valve slowly drifts shut causing reactor power to lower, and requiring the ATC to perform an emergency shutdown of the 'A' RR Hydraulic Power Unit to stop further RR FCV movement. The crew will enter and execute CPS 4008.01 Abnormal Reactor Coolant Flow. The crew will evaluate core thermal limits by demanding a 3D Monicore Case to ensure core thermal limits are within TS limits. The crew will also evaluate RR loop flow mismatch to ensure operation within ITS 3.4.1 Recirculation Loops Operating limits.
6. Hi Pressure on the Steam Seal Header	Annunciator 5019-3D High/Low Press Stm Seal Hdr is received due to failure of valve 1GS-SSFV Stm Seal Hdr Press Control Vlv. The BOP will throttle open 1GS-S2 Stm Seal Supply Bypass Vlv and shut 1GS-S1 Stm Seal Supply Vlv to isolate the failed pressure control valve and restore GS Seal Header pressure to ~ 4 psig (2.2 psig – 4.3 psig).
7. CRD HCU Accumulator Trouble	Annunciator ACCUMULATOR TROUBLE (5006-1H) is received. The ATC will determine which accumulator is alarming by depressing the ACCUM FAULT button. The ATC will then acknowledge the accumulator fault to clear the annunciator so another fault will cause an alarm. An Equipment Operator (EO) will be dispatched into the containment to determine the cause of the alarm (high level or low pressure). The EO will report that the accumulator for rod 44-13 is at 1540 psig. IAW 5006-1H, the SRO will declare the accumulator inoperable and will enter TS 3.1.5 Action A.1 or A.2. The SRO will consult with the RE to determine the number of control rods that are slow (0). The ATC/BOP will direct the Equipment Operator (EO) to recharge the accumulator for control rod 44-13.
8. RR Pump 'A' Seal Failure / Emergency Loop Shutdown and Isolation	The inner and outer seals will partially fail on the 'A' RR Pump requiring the MCR crew to perform an Emergency Loop Shutdown and Isolation of the 'A' RR Loop.
9. Generator Trip/ATWS	Due to an unknown fault, the Main Generator trips. No control rod movement is observed when the ATC Operator places the mode switch in SHUTDOWN. The SRO will enter ATWS RPV Control (EOP-1A) and direct the actions of the ATC Operator and BOP Operator.

10. Reactor Water Cleanup (RWCU) System fails to isolate on SLC Pump start

The RWCU system fails to automatically isolate when SLC is initiated in event 8 and the BOP will take manual actions to trip the RWCU Pumps and close 1G33-F001 and F004.

EOP
1, 1A

Critical tasks:

- RPV-6.1 ATC/BOP inserts control rods and/or starts Standby Liquid Control Pumps to shutdown the reactor.
- RPV-6.2 (Conditional) BOP Inhibits ADS (only if level challenges Level 1)
- RPV-6.3 ATC/BOP terminates and prevents injection IAW Detail F1 to lower level to reduce subcooling or to lower level to decrease reactor power.
- RPV-6.3 BOP terminates and prevents injection from HPCS.
- RPV-6.4 ATC controls RPV level between TAF and -60" (PRA).
- BOP trips RWCU pumps following SLC initiation.

Shift Turnover Information

▷ Day of week and shift

.. Today Day Shift.

▷ Weather conditions

.. Thunderstorms are expected in the area within the next hour.

▷ (Plant power level)

.. Mode 1 at ~ 97%	.. Step 32, Gang 14A is at Position 02.
..	..
..	..

▷ Thermal Limit Problems/Power Evolutions

.. None	..
..	..

▷ Existing LCOs, date of next surveillance

.. None

▷ Surveillances or major maintenance

.. None

▷ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment

.. Shift hydraulic pumps IAW CPS 3105.02 MAIN EHC HYDRAULIC POWER UNIT (EH) to support hanging a clearance order.	.. MC Pump 'A' (0MC01PA) is OOS for maintenance. Not expected back this shift.
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▷ Comments, evolutions, problems, etc.

.. Online Risk is Green	.. Maintain power at 97% throughout the shift.
.. Protected Equipment: FC 'B', Div 1 and 2 VX	..
..	..
..	..
..	..

Operator Actions

Event No.(s): 1		Page 1 of 1
Description: Shift Main EHC Pumps		
Initiation: Following shift turnover and when directed by the Lead Examiner		
Cues: Directed by SRO		
Time	Position	Applicant's Actions or Behavior
<p style="text-align: center;"><u>General Note on Requirements for "Expected Annunciator Response" – OP-AA-103-102</u></p> <p>If this evolution was pre-briefed and "Expected Alarms" were reviewed, the following expectations apply:</p> <ul style="list-style-type: none"> · "Expected alarms" will be flagged · When the annunciator comes in the operator will announce "Expected Alarm" · The annunciator response procedure (ARP) need not be entered since it has already been reviewed in the pre-brief. <p>If a pre-brief was not conducted the operator should perform the following:</p> <ul style="list-style-type: none"> · When an annunciator comes in the ARP should be referred to. · The annunciator may then be identified as an "Expected Alarm", flagged, and from that point on the ARP need not be referred to. 		
<p><u>Key Parameter Response:</u> None</p> <p><u>Expected Annunciators:</u> None</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. <p>Per CPS 3105.02, Main EHC Hydraulic Pump Unit (EH), Step 8.1.2:</p> <ul style="list-style-type: none"> · Starts EHC Pump 1A. ○ Ensures EHC Pump 1A discharge pressure ~ 1600 psig. · Allows EHC Pump 1A to run for at least 30 seconds. · Stops EHC Pump 1B. · Directs Equipment Operator to press the HFPM-B Test push-button. · Verifies EHC Pump 1B starts and its discharge pressure builds up to ~ 1600 psig. · Secures EHC Pump 1B by rotating its control switch counter clockwise to the stop position and then releasing the control switch to the AUTO position.
	SRO	<ul style="list-style-type: none"> · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures.
Terminus: EHC Pump 1A running, EHC Pump 1B secured		

NOTES:

- | |
|---|
| <ul style="list-style-type: none"> · Solid bullets are required actions |
| <ul style="list-style-type: none"> ○ Hollow bullets are actions that may or may not be performed |

Operator Actions

Event No.(s): 2		Page 1 of 1
Description: Inoperable ADS Accumulator Low Pressure Alarm		
Initiation: Following Event 1 and upon direction of the Lead Examiner, insert REMOTE 1		
Cues: Annunciator 5040-6F, High/Low Press ADS IA Supply Div 1 Or 2		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> None		
<u>Expected Annunciators:</u> 5040-6F, High/Low Press ADS IA Supply Div 1 Or 2		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. · Responds to annunciator 5040-6F High/Low Press ADS IA Supply Div 1 or 2. · Reports Div 1/Div 2 ADS Instrument Air Hdr Press readings are normal. ○ Dispatches an Equipment Operator to investigate.
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. · Evaluates and enters ORM 2.2.13 Action 3.2.13.1a requiring verification that the ADS accumulator pressures are ≥ 140 psig at least once per 12 hours and 3.2.13.1b instrumentation channels are restored to OPERABLE status within 30 days and, if unsuccessful initiates a Condition Report. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate.
Terminus: ORM 2.2.13 evaluated for inoperable ADS accumulator low pressure alarm		

NOTES:

Operator Actions

Event No.(s): 3		Page 1 of 1
Description: EHC Temperature Controller Failure		
Initiation: Following Event 2 and upon direction of the Lead Examiner, insert REMOTE 2		
Cues: Annunciator 5017-3B, Trouble EHC Fluid		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> EHC Reservoir temperature		
<u>Expected Annunciators:</u> 5017-3B, Trouble EHC Fluid		
<u>Automatic Actions:</u> Hydraulic Pwr Unit Heaters & Fans, 1EH01SA auto start at 85°F reservoir temperature		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. · Reports issue to SRO. ○ Dispatches an Equipment Operator to investigate. <p>Per CPS 5017-3B, Trouble EHC Fluid:</p> <ul style="list-style-type: none"> · Determines that the Temperature Controller has failed. · Places the EHC FLUID CLG WTR Controller in MANUAL. · Adjusts controller as needed to maintain EHC Reservoir temperature 110°F to 125°F.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate.
Terminus: EHC Fluid Cooling Water Controller in manual and EHC Reservoir temperature stabilized		

NOTES:

Operator Actions

Event No.(s): 4		Page 1 of 1
Description: Loss of Main Generator H ₂ requiring power reduction		
Initiation: Following Event 3 and upon direction of the Lead Examiner, insert REMOTE 3		
Cues: Annunciator 5018-2A, Trouble Generator Cooling System Local Panel 1PL10J		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> Hydrogen Pressure		
<u>Expected Annunciators:</u> 5018-2A, Trouble Generator Cooling System Local Panel 1PL10J		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Per CPS 3111.01 Generator Gas (HY, CO), reviews Generator Estimated Capability Curve and recommends lowering generator load to within the range delineated by the current gas pressure. · Inserts control rods per the control rod sequence and/or lowers Recirc Flow with the Loop Flow Controllers to lower power to within the range delineated by the current gas pressure (~1040 MWe at 55 psig H₂ pressure and 230 MVARs). ○ Directs an Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. · Reports issue to the SRO. · Refers to ARP 5018-2A. · Directs an Equipment Operator to investigate. ○ Per CPS 3111.01 Generator Gas (HY, CO), reviews Generator Estimated Capability Curve and recommends lowering generator load to within the range delineated by the current gas pressure. <p>Per CPS 3109.01, Generator Seal Oil (SO), coordinates with an Equipment Operator to bypass the Delta Press Reg Valve (1SOH19):</p> <ul style="list-style-type: none"> · Throttles OPEN Delta Press Reg Vlv Bypass (1SOH21) and controls seal oil pressure at 6-10 psi greater than hydrogen pressure. · Directs Equipment Operator to shut Delta Press Reg Vlv Inlet (1SOH18). · Directs Equipment Operator to shut Delta Press Reg Vlv Outlet (1SOH19).
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. · Directs actions listed above. · Per CPS 3111.01 Generator Gas (HY, CO), reviews Generator Estimated Capability Curve and directs lowering generator load to within the range delineated by the current gas pressure. · Notifies as soon as practical, but within 15 minutes, TSO/MISO of any change in generator real or reactive load. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Contacts Maintenance to investigate. ○ Conducts a brief.
Terminus: Generator Gas pressure is stable, Observable power decrease has been observed,		

NOTES:

Operator Actions

Event No.(s): 5		Page 1 of 1
Description: 'A' RR Flow Control Valve (FCV) Drifts Shut		
Initiation: Following Event 4 and upon direction of the Lead Examiner, insert REMOTE 4		
Cues: Lowering Reactor Power		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> Lowering Reactor Power, RR 'A' FCV position</p> <p><u>Expected Annunciators:</u> None</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> o Notifies the SRO that Reactor Power is lowering. o Notifies the SRO that the 'A' RR FCV is drifting shut. o Monitors reactor to ensure operations remain within established bands. • Arms and depresses the HPU 'A' Shutdown Switch. • Verifies the 'A' RR FCV stops closing. o Reports RR Loop Flow mismatch. o Verifies operation within Figure 1, CPS Stability Control & Power/Flow Operating Map limits. o Dispatches an Equipment Operator to investigate for abnormalities at the 'A' RR HPU. o Monitors RR Pump 'A' Seal Parameters.
	BOP	<ul style="list-style-type: none"> o Monitors reactor to ensure operations remain within established bands. o Notifies the SRO that the 'A' RR FCV is drifting shut. • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. o Verifies operation within Figure 1, CPS Stability Control & Power/Flow Operating Map limits. o Contacts the Reactor Engineer. o Dispatches an Equipment Operator to investigate for abnormalities at the 'A' RR HPU. o Checks 'A' RR HPU parameters IAW CPS 3302.01 section 8.4.1.2. o Demands a 3D Monicore Case.
	SRO	<ul style="list-style-type: none"> • Acknowledges reports from ATC & BOP operators. • Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures. • Directs actions listed above. • Enters and executes CPS 4008.01 Abnormal Reactor Coolant Flow. • Evaluates ITS 3.4.1 Recirculation Loops Operating and enters ITS 3.4.1 A.1 if loop flow mismatch exceeds 5% of rated core flow (4.225 x 10⁶ lbm/hr). o Informs RE, SM, and TSO o Contacts Maintenance to investigate. o Conducts a brief.
Terminus: RR 'A' FCV motion stopped, CPS 4008.01 Abnormal Reactor Coolant Flow entered		

NOTES:

Operator Actions

Event No.(s): 6		Page 1 of 1
Description: Hi Pressure on the Steam Seal Header		
Initiation: Following Event 5 and upon direction of the Lead Examiner, insert REMOTE 5		
Cues: Annunciator 5019-3D, High/Low Press Stm Seal Hdr Annunciator 5019-1B, High Pressure Stm Packing Exh Suction		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> Steam seal header pressure		
<u>Expected Annunciators:</u> 5019-3D, High/Low Press Stm Seal Hdr, 5019-1B, High Pressure Stm Packing Exh Suction		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Monitors reactor to ensure operations remain within established bands. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate.
	BOP	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARP 5019-3D. ○ Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Dispatches an Equipment Operator to investigate. <p>Per CPS 3107.01 Turbine Gland Seal (GS), section 8.2.3:</p> <ul style="list-style-type: none"> · Opens / throttles Stm Seal Supply Byp Vlv 1GS-S2 as necessary to maintain steam seal header pressure at 2.2 – 4.3 psig. · Shuts 1GS-S1 Stm Seal Supply Vlv.
	SRO	<ul style="list-style-type: none"> · Acknowledges report from BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. ○ Informs Shift Manager. ○ Conducts a brief. ○ Contacts Maintenance to investigate.
Terminus: Steam Seal Header pressure restored to normal band		

NOTES:

Operator Actions

Event No.(s): 7		Page 1 of 1
Description: CRD HCU Accumulator Trouble		
Initiation: Following Event 6 and upon direction of the Lead Examiner, insert REMOTE 6		
Cues: Annunciator, 5006-1H Accumulator Trouble		
Time	Position	Applicant's Actions or Behavior
<p><u>Key Parameter Response:</u> Control rod 44-13 accumulator pressure</p> <p><u>Expected Annunciators:</u> 5006-1H Accumulator Trouble</p> <p><u>Automatic Actions:</u> None</p>		
	ATC	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARP 5006-1H. ○ Monitors reactor to ensure operations remain within established bands. <p>Per 5006-1H Accumulator Trouble:</p> <ul style="list-style-type: none"> · Depresses ACCUM FAULT button to determine which HCU is alarming. · Determines and reports the accumulator fault is on rod 44-13. · Depresses the ACKN ACCUM FAULT button to clear alarm 5006-1H. ○ Dispatches an Equipment Operator to the containment to check CRD HCU accumulator pressure for control rod 44-13. ○ Directs the Equipment Operator to recharge the HCU for control rod 44-13.
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Monitors reactor to ensure operations remain within established bands. ○ Dispatches an Equipment Operator to the containment to check CRD HCU accumulator pressure for control rod 44-13. ○ Monitors CRD system parameters on P601 (charging water header pressure, pump status, etc.) ○ Directs the Equipment Operator to recharge the HCU for control rod 44-13.
	SRO	<ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. · Directs actions listed above. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. · Reviews TS 3.1.5 when the Equipment Operator reports that the accumulator for control rod 44-13 is at 1540 psig. Enters ITS 3.1.5 Action A.1 or A.2. ○ Contacts the Reactor Engineer to determine how many control rods are slow (0). Reviews TS 3.1.4 to determine no additional actions required by Tech Specs. ○ Informs Shift Manager. ○ Conducts a brief.
Terminus: Technical Specifications evaluated		

NOTES:

Operator Actions

Event No.(s): 8		Page 1 of 2
Description: RR Pump 'A' Seal Failure / Emergency Loop Shutdown and Isolation		
Initiation: Following Event 7 and upon direction of the Lead Examiner, insert REMOTE 7		
Cues: Annunciator, 5003-4E Recirc Pmp A Outer Seal Leakage Hi, 5003-1K Recirc Pmp Mtr A or B Temp Hi		
Time	Position	Applicant's Actions or Behavior
<u>Key Parameter Response:</u> Rising RR Pump "A" upper seal pressure, then slightly lowering seal pressure in both cavities.		
<u>Expected Annunciators:</u> 5003-4E Recirc Pmp A Outer Seal Leakage Hi, 5003-1K Recirc Pmp Mtr A or B Temp Hi		
<u>Automatic Actions:</u> None		
	ATC	<ul style="list-style-type: none"> · Reports issue to SRO. · Refers to ARPs 5003-4E and 5003-1K. ○ Monitors reactor to ensure operations remain within established bands. <p>Per 5003-4E Recirc Pmp A Outer Seal Leakage Hi:</p> <ul style="list-style-type: none"> · Determines seal condition from DCS seal pressure display (failure of the inner (lower) seal and partial failure of the outer (upper) seal). ○ Refers to CPS 3302.01 Reactor Recirculation section 8.3 RR Pump Seal Problems – Response Actions. <p>Per 3302.01 Reactor Recirculation (RR) Appendix A: RR Loop/Pump Shutdown and Isolation Hard Card:</p> <ul style="list-style-type: none"> · Determines Emergency Loop Shutdown is required due to high RR seal temperatures. · Lowers RPV water level setpoint to ~ 31 inches. · Trips RR Pump 1A by opening any of the following breakers: <ul style="list-style-type: none"> ○ Bkr 3A, 4A or 5A · Shuts 1B33-F023A, Pmp Suction Vlv. <p>Per CPS 4008.01 Abnormal Reactor Coolant Flow:</p> <ul style="list-style-type: none"> ○ Monitors RR Pump seal pressure for signs of degradation. ○ Checks operation on the Power to Flow map. ○ Notifies SRO if MELLLA limit is being exceeded. ○ Determines if flow transient has resulted in entry into the OPRM Enable Region by observing the status of annunciator 5006-3D. · Scrams the reactor if the restricted zone is entered.
	BOP	<ul style="list-style-type: none"> · Monitors control room panels, notifies the SRO of unusual/unexpected conditions. ○ Monitors reactor to ensure operations remain within established bands. ○ Makes plant announcement. ○ Demands an official 3D Monicore Case.

Event No.(s): 8		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	SRO	<ul style="list-style-type: none"> • Acknowledges report from ATC. • Determines that an Emergency Loop Shutdown of RR Pump 1A is required due to high seal temperatures (3302.01 step 8.3.1.6) and directs the ATC to perform an emergency loop shutdown of RR Pump 1A. • Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. • Reviews and enters Tech Spec 3.4.1 B.1 and C.1. • Enters and executes CPS 4100.02 Core Stability Control and directs ATC to scram the reactor if the restricted zone is entered or if core instabilities are observed. <ul style="list-style-type: none"> ○ Directs lowering power below the Controlled Entry Region and/or MELLLA limit using reverse rod sequence or CRAM Rods within 15 minutes after plant is stable to be in compliance within 2 hours IAW CPS 1005.09M002. ○ Informs Shift Manager. ○ Conducts a brief.
Terminus: RR Pump 1A secured and tech spec review complete.		

NOTES:

Operator Actions

Event No.(s): 9, 10		Page 1 of 2
Description: Generator Trip/ATWS; RWCU System fails to isolate on SLC Pump start		
Initiation: Following Event 8 and upon direction of the Lead Examiner, insert REMOTE 8		
Cues: Main Turbine and Generator Trip annunciators on 1H13-P680		
Time	Position	Applicant's Actions or Behavior
Key Parameter Response: Reactor power, control rod position.		
Expected Annunciators: Multiple annunciators on 1H13-P680 & P601		
Automatic Actions: None		
[CT] [CT] [CT]	ATC	<ul style="list-style-type: none"> ○ Reports generator trip to SRO. • Initiates a reactor scram when failure to scram on a generator trip is observed: • Carries out ATWS Scram Choreography by reporting the following: <ul style="list-style-type: none"> - Mode Switch in shutdown, power is... - Shutdown Criteria is not met... - Reactor Power is ... and trend - Reactor Pressure is ... and trend - Reactor Level is ... and trend - Manual Scram and ARI have been initiated - Any EOPs with entry conditions (EOP-1 on failure to scram) ○ Arms and Depresses manual scram pushbuttons. ○ Initiates ARI. • Inserts Control Rods per CPS 4411.08 & 4410.00C012. • Terminates and prevents injection from Condensate/Feedwater when directed by the SRO. • Controls level in Level Band B or C of EOP-1A (depending on whether BIT Override is met). ○ Reports critical parameters as required. ○ Coordinates with BOP to monitor and control RPV level and pressure.
[CT] [CT] [CT]	BOP	<ul style="list-style-type: none"> ○ Reports generator trip to SRO. • Performs ATWS scram choreography actions. <ul style="list-style-type: none"> • Announces: <ul style="list-style-type: none"> - Reactor Scram with Failure to Scram - Motor Driven Reactor Feed Pump may start - Evacuate the RCIC room - Evacuate the Containment • Determines rod status and reports "Shutdown Criteria is not met" to SRO. • Inhibits ADS when directed by SRO. • Starts SLC and identifies that the RWCU system fails to isolate. Manually secures the RT Pumps and closes 1G33-F001 and F004 using hard cards at P601. • Terminates and prevents injection of HPCS, RCIC (only performed and critical if NOT running), LPCS, & LPCI using hard cards at P601.

Event No.(s): 9, 10		Page 2 of 2
<p>[CT]</p> <p>[CT]</p> <p>[CT]</p> <p>[CT]</p>	<p>SRO</p> <ul style="list-style-type: none"> · Acknowledges reports from ATC/BOP. <p>Enters CPS 4100.01 Reactor Scram</p> <ul style="list-style-type: none"> · Carries out ATWS Scram Choreography by performing an Update: <ul style="list-style-type: none"> · Entering EOP-1 · Transitioning to EOP-1A · Entering the Scram Off-Normal. <p>Enters EOP-1A ATWS RPV Control and directs:</p> <ul style="list-style-type: none"> · Inhibiting ADS · Insertion of control rods per 4411.08 & 4410.00C012. · Initiation of SLC per 4411.10. · Terminate and prevent injection of HPCS, RCIC (only performed and critical if NOT running), LPCS, LPCI & Condensate/Feedwater · Stabilization of RPV pressure 800-1065 psig with Turbine Bypass Valves and SRVs · Lower pressure set to 900 psig to minimize SRV cycling ○ Informs Shift Manager. · Ensures operations are conducted within the bounds of Tech Specs and IAW Operations expectations, standards and approved procedures. 	
<p>Terminus: The scenario can be terminated when Reactor power is below 1%, RPV pressure and level are being maintained per EOP-1A, and when directed by the lead examiner</p>		

NOTES:

Simulator Operator Instructions

Initial Setup

1. Fill out plant status and have Turnover Sheet ready for the crew.
2. Verify daily lamp test completed.
3. Reset to IC-202 (PW 91632) @ 97% Power. If this is the first reset after swapping simulator loads, reset the IC twice.
4. Load the lesson plan for this scenario.
5. Verify the following commands are active:
 - YP_XMFTB_4963 RP01 – Auto & Manual Scram Failure
 - YP_XREMT_737 Defeat RWCU System Isolations
6. Place simulator in RUN.
7. Turn on and advance recorders.
8. Verify RCIC Flow Controller is set at 620 gpm.
9. Verify the AR/PR server is running and stabilize AR/PR.
10. Verify Rod Drive pressure is in the expected range of 235-265 psid.
11. Provide pull sheets: **Step 32** is in progress - **Gang 14A** is at **Position 02**.
12. Make sure Sequence A is selected.
13. Make sure Individual Drive Mode is selected on the OCM.
14. Remove EST Tags from the following control switches:
 - 1H13-P877-5014 - MC Pump 'B'
 - 1H13-P877-5016 - 1TD004A RFPT 1A HP Stop Vlv Before SDV
 - 1H13-P877-5019 - 1B21-BSFV-1 Aux Stm to MSR 1B Inlet Vlv
 - 1H13-P877-5019 - 1GS02CB SPE Blower 1B2
 - 1H13-P800-5042 - 0VQ03CC DW Prg Low Flow Exh Fan
 - 1H13-P801-5050 - 1VY03C RHR Hx Rm A Sply Fan
 - 1H13-P801-5050 - 1VY04C RCIC Pmp Rm Sply Fan
 - 1H13-P801-5050 - 0VC69Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P801-5052 - 0VC70Y Locker Rm Exh Fan 11C Isol Dmpr
 - 1H13-P601-5064 - 1SX011A Div 1 Cross Tie Valve
 - 1H13-P601-5065 - 1SX011B Div 2 Cross Tie Valve
 - 1H13-P601-5067 - 1B21-F067B MSL B Outbd MSIV Before Seat Drain Vlv
15. Procedures that are expected to be used during this scenario are:
 - CPS 3005.01 Unit Power Changes
 - CPS 3105.02 Main EHC Hydraulic Power Unit (EH)
 - CPS 5040.06 Alarm Panel 5040 Annunciators – Row 6
 - ORM 2.2.13 ADS Accumulator Low Pressure Alarm System Instrumentation
 - CPS 5017.03 Alarm Panel 5017 Annunciators – Row 3
 - CPS 5018 Alarm Panel 5018 Annunciators
 - CPS 5201 Alarm Panel 5201 Annunciators At 1PL10J
 - CPS 3111.01 Generator Gas (HY, CO)
 - CPS 3109.01 Generator Seal Oil (SO)
 - CPS 3302.01 Reactor Recirculation (RR)
 - CPS 5019.03 Alarm Panel 5019 Annunciators – Row 3
 - CPS 3107.01 Turbine Gland Seal (GS)
 - CPS 5006.01 Alarm Panel 5006 Annunciators – Row 1
 - ITS 3.1.5 Control Rod Scram Accumulators
 - CPS 5003.04 Alarm Panel 5003 Annunciators – Row 4
 - CPS 5003.01 Alarm Panel 5003 Annunciators – Row 1

- CPS 5067.04 Alarm Panel 5067 Annunciators – Row 4
 - CPS 4100.01 Reactor Scram
 - EOP-1 RPV Control
 - EOP-1A ATWS RPV Control
 - EOP-3 Emergency RPV Depressurization
16. Hang OOS tags on: MC Pump 'A' (0MC01PA) – with pump control switch in 'pull to lock'.
 17. Identify T/S issues associated with OOS and turnover: None
 18. Operating Equipment: None
 19. Marked up copies: NA
 20. Verify simulator conditions match the turnover.

Event Triggers and Role Play

Event #

1. **Shift Main EHC Pumps**
 - a. Event Trigger – None
 - b. Role play
 - (1) EO (when requested): report “EHC Pump 1A discharge pressure is 1600 psig.”
 - (2) EO (when requested to press the HFPM-B Test push-button to test the standby feature on EHC Pump 1B): acknowledge the order and then **release Event 1 – Shift Mn EHC Pumps** and verify commands “A04_A28_S02 Start and A04_A08_03_1_TVM Steady” are active.
 - (3) EO (when requested): report “EHC Pump 1B discharge pressure is 1600 psig.”

2. **Inoperable ADS Accumulator Low Pressure Alarm**
 - a. Event Trigger - Following Event 1 and when directed by the Lead Examiner, **Activate Remote 1** and verify the following command(s): **A11_A01_06_6_TVM Steady**
 - b. Role play
 - (1) EO (if directed to check ADS Instrument Air Header Pressure locally in the containment) – report that Div 1 and Div 2 ADS pressure indicates ~ 165 psig locally.

3. **EHC Temperature Controller Failure**
 - a. Event Trigger – Following Event 2 and when directed by the Lead Examiner, **Activate Remote 2** and verify the following command(s):
 - (1) **A04_A18_A02_4** (EHC Fluid Clg Wtr Control - Manual).
 - (2) **A04_A18_A02_7** (EHC Fluid Clg Wtr Control - Open).
 - b. Role play
 - (1) EO (when directed to check operation of the EHC Temp Control Valve) – report, “The EHC Temperature Control Valve is full open.”

4. **Loss of Main Generator H₂ requiring power reduction**
 - a. Event Trigger – Following Event 3 and when directed by the Lead Examiner, **Activate Remote 3** and verify the following command(s):
 - (1) **YPXMALSE_18** (H2 Leak From Generator).
 - b. Role play
 - (1) EO (when requested to investigate 1PL10J annunciators): wait until Gen H2 pressure is 58# then report “Annunciators 5201-1A MACHINE GAS PRESSURE HIGH LOW and DIFFERENTIAL 5201-2A SEAL OIL PRESS LOW are alarming.”
 - (2) EO (when requested to check Generator Seal Oil pressure): report, “Seal Oil Pressure is 3 psi above hydrogen pressure.”
 - (3) EO (when directed to restore seal oil pressure and after making sure Gen H2 pressure is < 58#):
 - a) Throttle OPEN Delta Press Reg Vlv Bypass (1SOH21) and control seal oil pressure at 6-10 psi greater than hydrogen pressure – report “Delta Press Reg Vlv Bypass (1SOH21) is OPEN and seal oil pressure at 6-10 psi greater than hydrogen pressure.”
 - b) SHUT Delta Press Reg Vlv Inlet (1SOH18) – report “Delta Press Reg Vlv Inlet (1SOH18) is SHUT.”
 - c) SHUT Delta Press Reg Vlv Outlet (1SOH20) – report “Delta Press Reg Vlv Outlet (1SOH20) is SHUT.”
 - d) Open/verify open 1SOH25 – report “1SOH25 is open”.
 - e) Open/verify open 1SOH26 – report “1SOH26 is open”.
 - (4) EO (when directed to restore H2 pressure):
 - a) Obtain CE permission (to ensure reactivity manipulation is complete) and then **release – ‘Generator Hydrogen Fill’**

5. **‘A’ RR Flow Control Valve (FCV) Drifts Shut**

- a. Event Trigger - Following Event 4 and when directed by the Lead Examiner, **Activate Remote 4** and verify the following command(s):
 - (1) **S_K603A 2 CLOSE SLOW** (Recirc Loop Flow Controller B33-K603A).
 - b. Role play
 - (1) RE (when contacted about the FCV failure) – “I am on my way to the MCR.”
 - (2) EO (when dispatched to the RR HPU to investigate) – “The ‘A’ RR HPU looks normal locally. There are no oil leaks on the skid.”
 - (3) Booth Operator (if FANUC LEDs are checked) – “The LEDs are normal”.
 - (4) Booth Operator (if the MCR requests the ‘A’ RR HPU restarted) :
 - a) Release – ‘Restart RR HPU A’ and then report that the ‘A’ RR HPU has been restarted.
- 6. Hi Pressure on the Steam Seal Header**
- a. Event Trigger - Following Event 4 and when directed by the Lead Examiner, **Activate Remote 5** and verify the following command(s):
 - (1) **GS0ASLVALVE05** (GSSSFV Seat Leakage).
 - b. Role play:
 - (1) EO (when requested to investigate high steam seal header pressure): report “no indications locally that would explain the failure”.
- 7. CRD HCU Accumulator Trouble**
- a. Event Trigger - Following Event 6 and when directed by the Lead Examiner, **Activate Remote 6** and verify the following command(s):
 - (1) **ROD4413TFIA6** (Rod 44-13 Accumulator Trouble)
 - b. Role play:
 - (1) EO (when asked to check accumulator for rod 44-13): “The accumulator pressure for control rod 44-13 is 1540 psig.”
 - (2) EO (when directed to recharge accumulator for control rod 44-13): “Recharge accumulator for control rod 44-13”.
 - a) Release – ‘Recharge 44-13 Accumulator’, wait 5 minutes and then report “the accumulator for control rod 44-13 has been recharged to 1,750 psig”.
 - (3) RE (when asked how many slow control rods exist): “There are no (zero) slow control rods”.
- 8. RR Pump ‘A’ Seal Failure / Emergency Loop Shutdown and Isolation**
- a. Event Trigger - Following Event 7 and when directed by the Lead Examiner, **Activate Remote 7** and verify the following command(s):
 - (1) **YPXMALSE_528** (RR Pump A Seal A1 Failure).
 - (2) **YPXMALSE_529** (RR Pump A Seal A2 Failure).
 - b. Role play
 - (1) RE (when contacted about the RR ‘A’ Seal Failure) – “I am on my way to the MCR.”
 - (2) Booth Operator (if the MCR requests status of B33-R601 Recorder Points) – report the value of computer points RRBA008 and RRBA009 as B33-R601 Recorder Points 8 & 9 respectively.
- 9. Generator Trip/ATWS**
- a. Event Trigger - Following Event 8 and when directed by the Lead Examiner, **Activate Remote 8** and verify the following command(s):
 - (1) **YP_XMFTB_4063** (Generator Trip)
 - b. Role play:
 - (1) Maintenance (after 2 minutes from scram announcement) – report to the MCR as IMD.
 - (2) IMD (when requested to perform ATWS EOP actions) – acknowledge the order, release the requested actions from the simulator lesson plan, and then report when the actions are complete to the requestor.

10. **Reactor Water Cleanup (RWCU) System fails to isolate on SLC Pump start**
 - a. Event Trigger - None
 - b. Role play - None

Turnover

1. The plant is in Mode 1, operating at ~ 97% power.
 - a. Control rods - Step 32 / Gang 14A @ position 02.
2. Status of Tagged Out Equipment
 - MC Pump 'A' (0MC01PA) is OOS for maintenance. Not expected back this shift.
3. Today Day Shift
4. Weather Conditions
 - Thunderstorms are expected in the area within the next hour.
5. Thermal Limit Problems or concerns
 - Maintain power at 97%.
 - RE and Rod Verifier are available on request.
6. LCO's in effect
 - None
7. Surveillances in progress
 - None
8. Previous Shift Evolutions completed
 - None
9. Evolutions planned for the shift
 - Shift hydraulic pumps IAW CPS 3105.02 MAIN EHC HYDRAULIC POWER UNIT (EH) to support hanging a clearance order.
10. Risk Levels
 - Green
 - Protected Equipment: FC 'B', Div 1 and 2 VX
11. Dose equivalent Iodine 131 is reading 1.5 E-6 mcuries per gram.