

Scenario Outline

Facility: Clinton Power Station

Scenario No.: NRC 1.3

Op Test No.: 1

Examiners: _____

Operators: _____

Initial Conditions:

- A startup is in progress with power currently at 9% reactor power.
- Mode switch has just been placed in RUN.
- CRD A is out of service for motor replacement.
- Control 24-29 is stuck at position 48

Turnover:

- Continue with power ascension IAW GP.

Event No.	Malf. No.	Event Type*		Event Description
1	N/A	R	SRO RO	Raise reactor power with control rods.
2	LS02	I	RO SRO	Control rod reed switch failure.
3	I/O	C	BOP SRO	Auto start of SX Pump with failure of SX isolation valve to close.
4	HP13H	C	BOP SRO	Inadvertent opening of an ADS SRV
5	PC11B	I	BOP SRO	Inadvertent dump of the Upper Containment Pool
6	RR02A	C	RO SRO	Reactor Recirculation Pump Trip
7	YPXIMALSE(665)	M	All	Seismic event causing LPCS suction line break (Unisolable)

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

Narrative Summary

Event(s)	Description
1	The SRO should direct the RO to continue the power increase with control rods.
2	While pulling control rods a reed switch fails requiring the use of substitute position.
3	A Shutdown Service Water pump auto starts and the isolation valve fails to close. This requires closing the valve with the hand switch. SRO must evaluate Tech Specs.
4	Inadvertent opening of an SRV requires entry in CPS 4009.01 Inadvertent opening safety/relief valve and CPS 4005.01 Loss of feedwater heating. The SRV closes on the first attempt. The ADS SRV should be declared inop and the Tech Spec LCO entered
5	An inadvertent dump of the Upper Containment Pool requires entry into EOP-6 on high suppression pool level.
6	A Reactor Recirculation Pump Trip requires actions for single loop.
7	A Seismic event causes a LPCS suction line break that requires a scram and Blowdown due to low Suppression Pool level.

Critical Tasks

Manually Scram prior to Emergency Depressurization.

Emergency Depressurize prior to Suppression Pool level reaching 15' 1".

EOPs Entered

EOP-8, Secondary Containment Control

EOP-6, Primary Containment Control

EOP-1, RPV Control

EOP Contingencies Entered

EOP-3, Emergency RPV Depressurization

Event No.(s):	1	Page 1 of 1
Description: Raise reactor power with control rods.		
Initiation: When the crew takes the shift		
Cues: Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> • Withdraws Control Rods to raise power.
	BOP	<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.
	SRO	<ul style="list-style-type: none"> • Directs actions listed above.
Terminus: Observable power increase has been observed		

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

Event No.(s): 2		Page 1 of 1
Description: Control rod reed switch failure.		
Initiation: During Control Rod Withdrawal		
Cues: Annunciator 5006-2H ROD OUT BLOCK and a DATA FAULT light		
Time	Position	Applicant's Actions or Behavior
	RO	Per 3304.02 ROD CONTROL AND INFORMATION SYSTEM: <ul style="list-style-type: none"> ○ Verify that the INDIVID DRIVE light is energized on the OCM. If not, select individual drive by depressing DRIVE MODE push-button. ● Depress the SUBST POSITION push-button. ○ Verify: <ul style="list-style-type: none"> – No other gang member of the rod having the defective reed switch is presently using substitute data. – Data from the other channel is not substitute data. – RAW DATA is not selected. ● Select the rod with the defective reed switch. ○ Ensure that the rod is at the position at which the defective reed switch exists. ● Depress the ENT SUBST push-button located in the PATTERN CONTROL section of the OCM. ○ Verify that the data has been entered by depressing the SUBST POSITION push-button. All rods with substitute data are indicated.
	BOP	<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.
	SRO	<ul style="list-style-type: none"> ● Directs actions listed above.
Terminus: Substitute position has been entered		

NOTES:

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Description: Auto start of SX Pump with failure of SX isolation valve to close.

Initiation: By direction of lead examiner

Cues: Annunciator 5064-1D AUTO START SSW PUMP 1A

Time	Position	Applicant's Actions or Behavior
	RO	<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.
	BOP	Per 5064-1D Annunciator procedure <ul style="list-style-type: none"> ○ Verify SSW Pump 1A running. ○ Verify 1SX014A closed, and 1SX063A & 1SX013D (local) open. ● Close 1SX014A ○ Verify SSW Pump Room 1A supply fan running. ○ Coordinate with Chemistry for securing/starting RWT Chemical injection to the SX 1A Pump per CPS 3209.01, Raw Water Treatment (RWT) System. ○ Report SSW Pump 1A discharge pressure is indicating zero ○ Dispatch E area to check the operation of the SSW pump
	SRO	<ul style="list-style-type: none"> ● Directs actions listed above. ● Enters Tech. Specs: <ul style="list-style-type: none"> 3.7.1.B Restore SX subsystem to OPERABLE status within 72 hours. 3.8.1.B Perform SR 3.8.1.1 for OPERABLE offsite circuit(s) within 1 hour and Restore the Div 1 DG to OPERABLE status within 72 hours.

Terminus: Tech Specs have been entered

NOTES:

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Description: Inadvertent opening of an ADS SRV

Initiation: By direction of lead examiner

Cues: Annunciator 5067-8L SRV MONITORING SYSTEM TROUBLE

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> ○ Select the CNMT SUPPORT DCS display. ● Identify that SRV F047A is open.
	BOP	Per CPS 4009.01 Inadvertent opening safety/relief valve <ul style="list-style-type: none"> ● Sound the containment evacuation alarm. ● Place the SRV control switch to OPEN, and back to OFF. ● Identify the SRV has shut.
	SRO	<ul style="list-style-type: none"> ● Direct crew to enter CPS 4009.01 Inadvertent opening safety/relief valve. ● Declare ADS valve F047A inop, enter LCO 3.5.1.e.1, restore within 14 days.

Terminus: Tech Specs have been entered and the SRV is shut.

NOTES:

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Event No.(s): 5		Page 1 of 1
Description: Inadvertent dump of the Upper Containment Pool		
Initiation: By direction of lead examiner		
Cues: Annunciator 5041-5F Not fully closed SM line A shutoff valve		
Time	Position	Applicant's Actions or Behavior
	RO	Reports SPDS alarm on Suppression Pool Level and reports Suppression Pool level.
	BOP	Reports the following alarms: <ul style="list-style-type: none"> • 5041-5F Not fully closed SM line A shutoff valve. • 5040-5F Low level upper containment pool. • 5063-3E & 5062-3E Suppression pool level high. Per 5041-5F: <ul style="list-style-type: none"> • Disables the SM dump. • Closes the SM dump valves. ○ Reports trip of FC pump B
	SRO	Enters EOP-6 due to Suppression Pool High Level <ul style="list-style-type: none"> • Hold pool level below Figure Q. • Start the H₂O₂ monitors. Note: The SRO could determine that an emergency does not exist and exit the EOP. Enters the following Tech Spec LCOs: <ul style="list-style-type: none"> • 3.6.2.4.A Restore upper pool level within 4 hrs. • 3.6.2.4.C Restore Suppression Pool Makeup within 7 days. • 3.6.2.2 Restore Suppression Pool level within 2 hrs. Directs BOP operator to: <ul style="list-style-type: none"> • Take actions per 5041-5F to close the SM makeup valves. • Restore upper pool level with RHR or FC.
Terminus: Tech Specs have been entered and actions taken to shut the SM makeup valves.		

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Description: Reactor Recirculation Pump Trip

Initiation: By direction of lead examiner

Cues: Annunciator 5003-1F RECIRC PMP A MTR BRKR TRIP

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> • Identifies Recirc Pump trip and reports to SRO. Per 4008.01 ABNORMAL REACTOR COOLANT FLOW: <ul style="list-style-type: none"> • Shuts 1B33-F067A RR pump A discharge valve per CPS 4008.01 step 3.2. ○ Reports critical parameters to SRO including Loop flows and Reactor Power.
	BOP	<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.
	SRO	<ul style="list-style-type: none"> • Enters CPS 4008.01 Abnormal Reactor Coolant Flow. • Enters ITS LCO 3.4.1 for single loop operation. <ol style="list-style-type: none"> 1. Thermal Power ≤ 58%. 2. Total core flow and thermal power within limits. 3. Required limits modified for single loop. 4. Thermal power scram setpoint reset within 12 hours. • Refers to CPS 3004.01 TURBINE STARTUP AND GENERATOR SYNCHRONIZATION, for single loop ops.

Terminus: Tech Specs have been entered and actions taken for single loop.

NOTES:

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Description: Seismic event causing LPCS suction line break (Unisolable)

Initiation: By direction of lead examiner

Cues: Annunciators: Seismic Alarms and EOP-8 entry conditions

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> • Observes and reports entry conditions for EOP-8.
	BOP	<ul style="list-style-type: none"> ○ Observes and reports entry conditions for EOP-8. ○ Operates (verifies operation of) area coolers. ○ Operates (verifies operation of) VF. ○ Evacuates affected areas of Secondary Containment. ○ Monitors area temperatures, levels and radiation levels. • Shuts down and isolates LPCS.
	SRO	<p>Enters EOP-8 and directs and verifies:</p> <ul style="list-style-type: none"> • Operate VF. • Operate area coolers. • Hold floor drain sump levels below max. normal. • Isolate all discharges into the affected area except systems needed for: <ul style="list-style-type: none"> EOP Actions Fire Fighting Monitor area temperatures, levels and radiation levels <p>Directs additional actions:</p> <ul style="list-style-type: none"> ○ Notification of Radiation Protection (RP) Department. ○ Evacuate affected areas of Secondary Containment. <p>Initiates actions per CPS No. 4304.01 FLOODING:</p> <ul style="list-style-type: none"> ○ Dispatch area operators to locate and isolate source of flooding. ○ Notify RW and RP of flooding source and magnitude. • Verifies LPCS not needed for Core cooling. • Directs shutdown and isolation of LPCS.

Terminus: None

NOTES:

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Description: Seismic event causing LPCS suction line break (Unisolable)

Initiation: By direction of lead examiner

Cues: Annunciators: Seismic Alarms and EOP-6 entry conditions

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> • Observes and reports entry conditions for EOP-6 • Places the mode switch in SHUTDOWN • Reports that Reactor Power is ~1%
	BOP	<ul style="list-style-type: none"> ○ Starts H₂O₂ Monitors ○ Holds SP Level above 15' 1" by filling the SP
	SRO	<p>Directs and verifies performance of appropriate actions per EOP-6:</p> <ul style="list-style-type: none"> ○ Start H₂O₂ monitors ○ Monitor status and hold condition of containment/drywell parameters • Directs that normal Suppression Pool Makeup be initiated <p>Determines that SP Level cannot be maintained above 15'1" <u>and</u>, directs and verifies performance of appropriate actions per EOP-1</p> <ul style="list-style-type: none"> • Mode Switch to SHUTDOWN • Enter CPS No. 4100.01, Reactor Scram • Verify needed automatic actions: <ul style="list-style-type: none"> Isolations ECCS start DG start • Control RPV Water Level between Level 3 and Level 8 • Stabilize RPV pressure below 1065 psig

Terminus: None

NOTES:

Description: Seismic event causing LPCS suction line break (Unisolable)

Initiation: By direction of lead examiner

Cues: Annunciators: Seismic Alarms and EOP-6 entry conditions

Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> Maintain level 3 to 8
	BOP	<ul style="list-style-type: none"> Initiates ADS, Reports that 7 SRV's have opened.
	SRO	<ul style="list-style-type: none"> Determines that still cannot hold pool level above 15'1" Anticipates blowdown and directs the Turbine Bypass valves opened Enters EOP-3 and directs actions: Prevent LPCS and LPCI injection not needed for core cooling Directs ADS initiation
Terminus: None		

NOTES:

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Simulator Operator Instructions

Initial Setup

1. Verify daily lamp test completed
2. Reset to IC labeled scenario #3.
3. Load the lesson plan for this scenario
4. Place simulator in RUN
5. Tag out the ERAT
6. Turn on and advance recorders
7. Reset SRM A drawer
8. Verify the AR/PR server is running and stabilize AR/PR
9. Verify GETAR alarm is reset
10. Identify T/S issues associated with OOS and turnover
11. Verify simulator conditions match the turnover

Event #

1. Raise reactor power with control rods.
 - a. None

2. Control rod reed switch failure.
 - a. **Remote 1**

3. Auto start of SX Pump with failure of SX isolation valve to close.
 - a. **Remote 2**
 - b. Roll play as E area report SX pressure is 170 psig

4. Inadvertent opening of an ADS SRV
 - a. **Remote 3**

5. Inadvertent dump of the Upper Containment Pool
 - a. **Remote 4**

6. Reactor Recirculation Pump Trip
 - a. **Remote 5**

7. Seismic event causing LPCS suction line break (Unisolable)
 - a. **Remote 6**