

Facility: <u>Clinton Power Station</u>		Scenario No.: <u>Four</u>	Operating Test No.: <u>01-01</u>
Examiners: _____		Operators: _____	
_____		_____	
_____		_____	
Initial Conditions: 55% power. Withdraw rods to > HPSP and note sequence position for turnover.			
Turnover: The WT Pumps need to be shifted for PM. A power ascension is in progress, need to pull rods to 100% rod line. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.			
Event No.	Malf. No.	Event Type*	Event Description
1		BOP-N	Shift Turbine Building Closed Cooling Water (WT) Pumps to A running
2		RO-R CREW-N	Continue power ascension
3	LS02	RO-I	Control rod reed switch failure
4	FW06B	RO-C	Condensate booster pump B trip
5	HP13H	BOP-C	Inadvertent Opening of an ADS SRV
6	TU02	BOP-I	Turbine LO temp controller failure (causes turbine trip)
7	RP01 <sup>1</sup>	M	Auto and manual scram failure
8	TC09A TC09B	M	All bypass valves fail open due to pressure regulator failure
9	LC07B	BOP-C	CRD FCV failure

\*(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor  
1-Preinsert

**Narrative Summary**

- | Event(s) | Description  |
|----------|--|
| 1.       | Once the turnover is completed, the SRO should direct the BOP operator shift WT pumps  |
| 2.       | The SRO should direct the RO to raise power with control rods to 100% rod line.  |
| 3.       | While the RO is withdrawing control rods a reed switch fails requiring the use of substitute position.   |
| 4.       | A condensate booster pump trips and the RO should start the standby pump.  |
| 5.       | 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. |
| 6.       | A turbine lube oil temperature controller failure causes a turbine trip and a reactor scram signal. The crew may insert a scram prior to the turbine trip.   |
| 7.       | The reactor fails to scram. The crew enters EOP-1A.  |
| 8.       | The pressure regulator fails causing all turbine bypass valves to open. To prevent the pressure reduction, the MSIVs must be shut and pressure control transferred to the SRVs.  |
| 9.       | The CRD flow control valve fails shut. The crew should pursue methods of rod insertion that do not require CRD drive header pressure.  |

**Critical Tasks**

1. The crew closes the MSIVs to prevent an uncontrolled RPV depressurization and power excursion during an ATWS.
2. The crew takes action to reduce power by injecting boron during an ATWS.





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Event Description: Control rod 8-41 reed switch failure

Symptoms: alarm 5006-2H

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report
	SRO	Directs the RO to enter substitute data per CPS 3304.02 RCIS
	SRO	May refer to Tech Specs and determine no LCOs apply (3.1.3, 3.9.4)
	RO	<p>Reports alarm 5006-2H Rod Out Block            Determines and reports a channel 1 reed switch failure            Per CPS 3304.02</p> <ul style="list-style-type: none"> <li>• Verify the INDIVID DRIVE light is lit</li> <li>• Depress the SUBST POSITION push-button and verify               <ul style="list-style-type: none"> <li>- No other gang member has substitute position</li> <li>- Other channel data is not substitute data</li> <li>- RAW DATA is not selected</li> </ul> </li> <li>• Select the rod with defective reed switch</li> <li>• Ensure rod is at position with bad reed switch (<i>position will be flashing</i>)</li> <li>• Depress ENT SUBST (<i>position stops flashing</i>)</li> <li>• Verify data entered by depressing SUBST POSITION push-button. (<i>rod should be indicated with LED</i>)</li> </ul>
	BOP	Monitor Parameters.

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Op-Test No.: 01-01 Scenario No.: 4 Event No: 5 Page 1 of 1

Event Description: Inadvertent opening of SRV

Symptoms: alarms 5067-8L and 5066-5B

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	SRO	Direct crew to enter CPS 4009.01 Inadvertent opening safety/relief valve.
	SRO	Direct crew to CPS 4005.01 Loss of feedwater heating.
	SRO	Direct the SRV actuation recorded per CPS 3831.01 Safety relief valve report
	SRO	Declare ADS valve F047A inop, enter LCO 3.5.1.e.1, restore within 14 days. Alternate LCO 3.3.5.1.F1 and F.2 for instrumentation vice valve.
	RO	<ul style="list-style-type: none"> <li>• Select the CNMT SUPPORT DCS display</li> <li>• Identify that SRV F047A is open</li> <li>• Per CPS 4005.01 Loss of feedwater heating               <ul style="list-style-type: none"> <li>- Reduce power 20 Mwe with RR flow</li> <li>- Reduce power an additional 3 Mwe for each 1° F FW temperature drop.</li> </ul> </li> </ul>
	BOP	Acknowledge and report Alarms 5067-8L SRV MONITORING SYSTEM TROUBLE and 5066-5B ADS OR SAFETY RELIEF VALVE LEAKING
	BOP	Refer to Annunciator procedure.
	BOP	Per CPS 4009.01 Inadvertent opening safety/relief valve <ul style="list-style-type: none"> <li>• Sound the containment evacuation alarm</li> <li>• Place the SRV control switch to OPEN, and back to OFF</li> <li>• Identify the SRV has shut</li> </ul>

Notes: \_\_\_\_\_

Op-Test No.: 01-01 Scenario No.: 4 Event No: 6,7&8 Page 1 of 2

Event Description: Turbine LO temperature controller failure causes turbine trip, the reactor fails to scram and all bypass valves fail open due to pressure regulator failure

Symptoms: alarm 5018.3A

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledges report of LUBE OIL TEMP alarm
	SRO	Directs BOP operator to restore LO temperature to normal
	SRO	May direct a rapid plant shutdown.
	SRO	Directs a reactor scram and turbine trip prior the vibration reaching 10 mils
	SRO	Directs entry into EOPs and EOP actions  Per EOP-1: <ul style="list-style-type: none"> <li>• Directs RO to place Mode Switch in Shutdown</li> <li>• Enters EOP-1A ATWS</li> </ul> Per EOP-1A: <ul style="list-style-type: none"> <li>• Directs BOP to inhibit ADS</li> <li>• Directs RO to Manual Scram and ARI and insert Rods</li> <li>• Directs BOP to start SLC</li> <li>• Acknowledges report that BPVs failed open.</li> <li>• Directs BOP to shut the MSIVs and control pressure 800 to 1065 psig with SRVs (2 SRVs may be keyed over, others cycle on LLS.</li> <li>• Directs RO and BOP to terminate injection and lower level to -60 to -162 (Band B). (-60 to -100 perferred)</li> </ul>

Critical Task

Critical Task

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Op-Test No.: 01-01 Scenario No.: 4 Event No: 6,7&8 Page 2 of 2

Event Description: Turbine LO temperature controller failure causes turbine trip, the reactor fails to scram and all bypass valves fail open due to pressure regulator failure

Time	Position	Applicants Actions or Behavior
	RO	Checks/reports Lube Oil temperature.
	RO	Identifies rising vibrations on Main turbine bearings
	RO	<ul style="list-style-type: none"> <li>• Turns the mode switch to shutdown and reports no rod movement</li> <li>• Initiates Manual Scram</li> <li>• Initiates ARI</li> </ul>
	RO	Performs EOP actions directed by SRO <ul style="list-style-type: none"> <li>• Takes action to insert Control Rods</li> <li>• Terminates and prevents Feedwater when directed</li> <li>• Controls RPV level in specified band</li> </ul>
	RO	Identifies the Bypass valves have failed open.
	BOP	Acknowledge and report alarm 5018.3A HIGH TEMP TURB-GEN LUBE OIL <ul style="list-style-type: none"> <li>• Attempts to reduce LO temperature with controller in manual</li> <li>• Directs NLO to check local operation</li> <li>• May evacuate Turbine BLDG and Containment</li> <li>• May startup Aux steam</li> <li>• May start a Vacuum pump</li> </ul>
	BOP	Performs EOP actions directed by SRO <ul style="list-style-type: none"> <li>• Inhibits ADS.</li> <li>• Initiates SLC</li> <li>• Shuts MSIVs</li> <li>• Controls pressure 800 to 1065 psig with SRVs</li> <li>• Terminates and prevents injection of directed systems</li> </ul>

Notes: \_\_\_\_\_

