

CLINTON
INITIAL LICENSE EXAM

JULY 16 THRU 23, 2001

The As-Given Scenarios

Facility: Clinton Power StationScenario No.: OneOperating Test No.: 01-01Examiners: _____

_____Operators: _____

_____Initial Conditions: IC-1: 100% power, ~~110%~~ ^{106%} Rod Line

Turnover: Plans are to commence a shutdown for a planned outage with initial power reduction at 250 MWe/hr. CPS 9067.01 VG System Train Flow/Heater operability performance is scheduled. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		BOP-N	Start Standby Gas Treatment (VG) surveillance
2		RO-R(N) CREW-N	Plant Shutdown
3	Override	RO-I	Condenser overflow controller fails high
4	Override	BOP-I	Main EHC Fluid Temperature Controller Failure
5	RR02A	RO-C	Recirc Pump A trips
6	MS06A YP_XREMT_739 ¹	M	Steam line leak in the Aux bldg steam tunnel Failure of an automatic GP 1 isolation
7	YVMSSILK_1 ¹ YVMSSILK_5 ¹	M	Both MSIVs in the A steam line leak by
8	HP13D ¹	BOP-C	ADS SRV, F041D fails to open

*(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 to conduct the VG surveillance in accordance with CPS 9067.01.
2. The SRO should direct the RO to lower power at ~250 Mwe/hr using RR flow control valves.
3. While the RO is reducing power, the Main Condenser overflow controller fails causing the emergency overflow valve to open, requiring the RO to place the controller in manual.
4. The Main EHC temperature controller fails causing a high fluid temperature. The BOP operator must determine that the high temperature has caused the Trouble EHC Fluid alarm and control temperature manually. If temperature is allowed to continue to rise, an EHC pump high temperature alarm followed by a pump trip will occur.
5. The A Recirc Pump trips. The RO should shut the pump discharge valve and ensure the RESTRICTED ZONE has not been entered as an immediate action for CPS 4008.01. The SRO should then evaluate tech specs and enter the LCO for single loop.
~~Control rods should be inserted to exit the Exit Region.~~
6. A steam line develops a leak in the Aux bldg steam tunnel. EOP-8 Secondary containment control, should be entered. The GP 1 isolation fails to automatically occur. A reactor scram and manual GP 1 should be performed.
7. When the manual GP 1 isolation is performed, both MSIVs in the leaking steam line leak by and the steam leak continues.
8. MAX safe area temperatures are reached in two areas, requiring a Blow Down.
9. One ADS valve fails to open and the operator should open other SRVs until 7 valves are open.

Critical Tasks

1. With a primary system discharging into the secondary containment manually scram prior to any area exceeding the MAX safe operating level.
2. With a primary system discharging into the secondary containment blow down when any two areas exceed the MAX safe operating level.

Op-Test No.: 01-01 Scenario No.: 1 Event No: 1 Page 1 of 3

Event Description: Start Standby Gas Treatment (VG) surveillance

Time	Position	Applicants Actions or Behavior
	SRO	May direct performance of CPS 9067.01 VG train A operability surveillance.
	SRO	Monitor the starting of VG A.
	SRO	Enter T/S 3.6.4.1 Secondary Containment due to low secondary containment D/P when Fuel Building HVAC is shutdown. Starting VG will reestablish D/P.
	RO	Monitoring Parameters.
	BOP	<p>Performance of CPS 9067.01 VG train A operability surveillance through step 8.5.</p> <ul style="list-style-type: none"> • Verify the SGTS is in STANDBY. <i>P801</i> • Verify that one of the SGTS Process Radiation Monitors, OPR03S or OPR04S is in service. <i>AR/PR terminal</i> • Notify RP that SGTS is to be started. <i>Plant Announcement</i> • Notify I&C that CPS 9532.43, Standby Gas Treatment System Train Flow Monitor OFT-VG001 Channel Functional Test can be performed in conjunction with this procedure. • Notify Chemistry to obtain a SGTS exhaust grab sample during system flow • If testing Standby Gas Treatment Train A, verify AXM 0RIX-PR008, Accident Range Monitor is in STBY and ready for service. <i>AR/PR terminal</i> • Obtain the SMngt permission prior to performing this surveillance. • Place SGTS DIV 1(2) OUT OF SERVICE switch in INOP. <i>P801</i> <ul style="list-style-type: none"> - Verify VG DIV 1(2) OUT OF SERVICE status light energizes. - Verify NOT AVAILABLE VG SYSTEM DIVISION 1(2) annunciator 5050(2)-1H actuates, unless already in due to plant conditions.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 1 Event No: 1 Page 2 of 3

Event Description: Start Standby Gas Treatment (VG) surveillance.

Time	Position	Applicants Actions or Behavior
	BOP	<ul style="list-style-type: none"> Shutdown and isolate VF per CPS 3404.01 Fuel Building HVAC (VF) <ul style="list-style-type: none"> Notify RP of pending VF system shutdown. <p>Note to examiner: The following are local operations performed by the C area operator.</p> <ul style="list-style-type: none"> IF Heater, 1VF02A is ON, THEN Place Heater, 1VF02A to OFF. Place the standby Supply Fan, and the standby Exhaust Fan, in PTL. Stop/verify stopped the running Supply Fan, place H/S in PTL. Stop/verify stopped the running Exhaust Fan, place H/S in PTL. <p>Note to examiner: The following are MCR operations.</p> <ul style="list-style-type: none"> Shut/verify shut 1VF04Y/9Y, Fuel Bldg Outbd Isol Dmprs. Shut/verify shut 1VF06Y/7Y, Fuel Bldg Inbd Isol Dmprs. Note: If SGTS is not promptly started, may receive Sec Cnmt SPSS alarm (0"), and may enter T.S. 3.6.4.1 for Sec Cnmt ΔP (>-.25"). <ul style="list-style-type: none"> Start SGTS Trn A(B) Exh Fan, 0VG02CA. <i>P801</i> <ul style="list-style-type: none"> 0VG02YA, SGTS Trn A Exh Fan 2CA Dmpr opens. 0VG05YA, SGTS Trn A Exh Stack Dmpr opens. Verify: <i>P801</i> <ul style="list-style-type: none"> 1VG16YA, Fuel Bldg Exh Inbd Isol Dmpr shuts. 1VG17YA, Fuel Bldg Exh Inbd Isol Dmpr shuts. 1VG02YA, SGTS Trn A Fuel Bldg Isol Dmpr opens. 1VG05YA, SGTS Trn A Fuel Bldg Suct Dmpr opens. 1VG04YA, SGTS Trn A Pmp Rms Suct Dmpr opens. 0VG01YA, SGTS Trn A Inlet Dmpr modulates. SGTS Trn A Standby Clg Fan, 0VG03CA stops (if running). (Local) Room Fan, 0VG05CA starts. SGTS Trn A Htr, 0VG04AA energizes. -

Notes: _____

Event Description: Start Standby Gas Treatment (VG) surveillance.

[illegible]

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

Event Description: Main EHC Fluid Temperature Controller Failure causing a high fluid temperature. If no action is taken, the pumps will overheat and trip causing a turbine trip and scram.

Symptoms: Alarm 5017-3B

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report and direct operators to investigate.
	SRO	Direct BOP to take manual control of EHC temperature.
	RO	Monitor Parameters.
	BOP	Acknowledge and report Alarm 5017-3B Trouble EHC Fluid
	BOP	Refer to Annunciator procedure.
	BOP	Identify and report cause of the alarm is High Temperature.
	BOP	Diagnose a failure of the Temperature Controller. <i>P870</i>
	BOP	Place the Temperature Controller in Manual and control fluid temperature.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 1 Event No: 5 Page 1 of 2

Event Description: Recirc Pump A trips.

Symptoms: Alarm 5003-1F

Time	Position	Applicants Actions or Behavior
	SRO	Enters CPS 4008.01 Abnormal Reactor Coolant Flow.
	SRO	Acknowledges EXIT REGION and directs insertion of control rods to exit.
	SRO	Enters ITS LCO 3.4.1 for single loop operation. 1. Thermal Power \leq 70%; 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.
	SRO	Refers to CPS 3005.01 Unit Power Changes, for single loop ops.
	RO	Identifies Recirc Pump trip and reports to SRO.
	RO	Shuts 1B33-F067A RR pump A discharge valve per CPS 4008.01 step 3.2.
	RO	Reports critical parameters to SRO including Loop flows and Reactor Power.
	RO	Enters CPS 4008.01 Abnormal Reactor Coolant Flow.

Notes: _____

Op-Test No.: <u>01-01</u> Scenario No.: <u>1</u> Event No: <u>5</u> Page <u>2</u> of <u>2</u>		
Event Description: Recirc Pump A trips.		
Symptoms: Alarm 5003-1F		
Time	Position	Applicants Actions or Behavior
	RO	Verifies the Restricted zone is not entered and that the EXIT-REGION has been entered.
	RO	Inserts control rods to exit the Exit Region. (may use reverse sequence or eram array) Selects GANG mode Selects any rod in the desired gang Inserts with the INSERT button or IN-TIMER SKIP button.
	BOP	Monitor Parameters.
	BOP	Respond to Feedwater Heater Alarms caused by the power reduction.

[illegible]

Op-Test No.: 01-01 Scenario No.: 1 Event No: 6 Page 1 of 2

Event Description: Steam line leak in the Aux bldg steam tunnel with a Failure of an automatic GP 1 isolation

Symptoms: SPDS EOP-8 entry condition and alarm 5013-5D Hi-Hi level Flr/Eq Drn Sump Aux Bldg.

Time	Position	Applicants Actions or Behavior
	SRO	Enters EOP-8 and directs and verifies: <ul style="list-style-type: none"> • Shutdown VG and start VF • 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"> - Fire Fighting - EOP actions
	SRO	Directs additional actions: <ul style="list-style-type: none"> • Notification of Radiation Protection (RP) Department • Evacuate affected areas of Secondary Containment
Critical Task	SRO	Prior to first MAX SAFE temperature, directs <ul style="list-style-type: none"> • Scram • Enter EOP-1 • Perform manual GP 1 isolation
	SRO	Directs and verifies performance of appropriate actions per EOP-1: <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

Notes: _____

Op-Test No.: 01-01 Scenario No.: 1 Event No: 7 & 8 Page 1 of 1

Event Description: MSIVs leak by and an ADS SRV fails to open

Time	Position	Applicants Actions or Behavior
Critical Task	SRO	Recognizes two areas above MAX SAFE Temperatures and directs Emergency Depressurization per EOP-3. (Points 18 upper recorder and 15 & 16 lower recorders)
	SRO	Directs other SRV opened until 7 are open.
	RO	Maintains level lvl 3 to lvl 8.
Critical Task	BOP	<ul style="list-style-type: none"> • Initiates ADS. • Verifies 7 SRVs open. • Reports 6 SRVs open • Opens other SRVs until 7 SRVs are open.
Terminus: <ul style="list-style-type: none"> • RPV level is being controlled lvl 3 to lvl 8. • 7 SRVs are open. • Upon approval of lead examiner. 		

Notes:

Facility: Clinton Power StationScenario No.: TwoOperating Test No.: 01-01Examiners: _____

_____Operators: _____

Initial Conditions: 80% power

Turnover: The station is operating at 80% power. Plans are to raise power to 100% the fuel is preconditioned to 100% power. CPS 9054.01 RCIC system operability is in progress. RCIC is inop but available. The WCS is taking the Suppression Pool temperature log. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		BOP-N	Secure RCIC from surveillance
2		RO-R(N) CREW-N	Power ascension with RR flow
3	CU102	RO-C	RWCU filter demin isolation
4	FW09B	RO-I	TDRFP B control signal failure
5	Override	BOP-I	Inadvertent Suppression Pool Dump
6	CW06C	BOP-C	CCW pump trip
7	TC06A TC06B	M	Loss of Main EHC hydraulics
8	MS05C PC14	M	Drywell steam leak and excess drywell bypass leakage
9	RH01B ¹	BOP-C	RHR B fail to start
10	RH02A ¹		RHR A trip

*(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 to complete the RCIC surveillance in accordance with CPS 9054.01.
2. The SRO should direct the RO to raise power to 95% in ~50 Mwe increments using RR flow control valves. A 3D Monicore case is run after each power increase to check thermal limits.
3. A RWCU filter demin isolates. The RO should open the filter demin bypass valve to restore system flow to ~300 gpm with two pumps running
4. While the RO is raising power, a control signal failure occurs on the B TDRFP. The RO should shift the pump to the manual potentiometer and control the pump manually.
5. One division of suppression pool makeup valves open due to a logic failure. The BOP operator should place the SM dump valve mode switch in disable and then close the valves. The SRO should refer to Tech Specs for required actions.
6. A CCW pump trips. The crew must determine that this is a partial loss of CCW and not trip the RR pumps. The BOP operator should start the standby CCW pump.
7. A loss of Main EHC hydraulics causes a turbine trip and reactor scram. The pressure transient causes a small steam line leak in the drywell.
8. The steam line leak increases in size and excessive drywell bypass leakage requires containment sprays and emergency depressurization due to pressure suppression pressure concerns.
9. The B RHR pump fails to auto start and should be started manually for containment sprays.
10. The A RHR pump trips when it starts and the crew should try to get it started for containment sprays.

Critical Tasks

1. The crew initiates containment sprays to reduce the possibility of exceeding the pressure suppression pressure.
2. The crew takes action to emergency depressurize when cannot stay below the pressure suppression pressure.

Op-Test No.: 01-01 Scenario No.: 2 Event No: 1 Page 1 of 2

Event Description: Secure RCIC from surveillance

Time	Position	Applicants Actions or Behavior
	SRO	May direct completion of CPS 9054.01 RCIC System Operability
	RO	Monitoring Parameters
	BOP	<p>Complete the performance of CPS 9054.01 RCIC System Operability</p> <ul style="list-style-type: none"> • Time shut 1E51-F095, RCIC Turb Stm Supp Bypass Valve. • Trip RCIC turbine from 1H13-P601 by depressing the RCIC TURBINE REMOTE TRIP push-button. • Shut 1E51-F059, RCIC Pmp Second Test Valve To Stor Tank. • Shut 1E51-F022. • Record RCIC Storage Tank Level from Comp Pt. RI-DA401. • Time shut 1E51-F045, RCIC Turb Stm Supp Shutoff Valve. • After 1E51-F045 closes, verify following valves open automatically: <ul style="list-style-type: none"> - 1E51-F004, RCIC Turb Exh Drn To RF First Isol Vlv. - 1E51-F025, RHR & RCIC Stm Supp First Drn Isol Valve. - 1E51-F026, RHR & RCIC Stm Supp Second Drn Isol Valve. • Verify shut 1E51-F019, RCIC Pmp Min Flow Recirc To Suppr Pool. • Reset the RCIC Turbine Trip & Throttle Valve as follows: <ul style="list-style-type: none"> - Place the 1E51-C002, RCIC Turbine Trip Vlv Opr switch to CLOSE. - Open 1E51-C002, RCIC Turbine Trip Vlv Opr (Stem). • Shut 1E51-F046, RCIC Pmp Supp To Turb Lube Oil Clr. • If RCIC Room is < 64°F (read at AB 702')(otherwise N/A) <p><i>Note: Give temp of 75°F.</i></p> <ul style="list-style-type: none"> - Verify stopped/stop the RCIC Pmp Rm Sply Fan, 1VY04C. - Locally verify shut 1SX037, Outlet Pump Room HVAC Valve. • Verify exhaust pressure ~ 0 on 1E51-R603, then turn off Gland Seal Air Compressor, 1E51-C002F.

Op-Test No.: 01-01 Scenario No.: 2 Event No: 1 Page 2 of 2

Event Description: Secure RCIC from surveillance

Time	Position	Applicants Actions or Behavior
	BOP	<p>Overspeed trip linkage exercise/freedom of movement verification.</p> <ul style="list-style-type: none"> Verify the following: <ul style="list-style-type: none"> No turbine trip signals activated. E51-F045 closed. 1E51-F095 closed. Manually trip the overspeed trip linkage locally. Verify load driver operability: <ul style="list-style-type: none"> Run motor for 1E51-C002E to closed position. Verify 1E51-C002E will not open when control switch is placed in OPEN. Reset the trip linkage of 1E51-C002E. Reset the RCIC Turbine Trip & Throttle Valve as follows: Place the 1E51-C002, RCIC Turbine Trip Vlv Opr switch to CLOSE to reset the RCIC Turbine Trip & Throttle Valve. Open 1E51-C002, RCIC Turbine Trip Vlv Opr (Stem). Place RCIC DIV 1 MOV TEST PREP switch in NORM, and verify RCIC D1 MOV'S IN TEST status light deenergizes. Verify RCIC MANUAL INITIATION SWITCH IN ARMED POSITION annunciator (5063-1E) clear. Perform necessary fill and vent restoration and standby verifications per CPS 3310.01, Reactor Core Isolation Cooling Place RCIC DIV 1 OUT OF SERVICE switch in NORM. <ul style="list-style-type: none"> Verify RCIC DIV 1 OUT OF SERVICE annunciator 5063-8D clears. Verify RCIC D1 OUT OF SERVICE status light deenergizes. Notify the SMngt that the test is complete.

Notes: _____

Event Description: Power ascension with RR flow

[illegible]

Notes:

Op-Test No.: 01-01 Scenario No.: 2 Event No: 4 Page 1 of 1

Event Description: TDRFP B control signal failure

Symptoms: alarm 5002-3P

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	SRO	Direct the RO stop the power ascension and place the feed pump on the Manual Pot Per 3103.01 Feedwater.
	RO	Acknowledge and report alarm 5002-3P RFPT control signal failure. Refer to the annunciator procedure.
	RO	Per CPS 3103.01 Feedwater <ul style="list-style-type: none"> Adjust the Manual Pot to zero the deviation meter. Transfer control to the Pot by pressing the MAN XFR pushbutton. Adjust the feedpump speed to equalize the pump flows. Place the flow controller in manual.
	BOP	Monitor Parameters

Notes: _____

Op-Test No.: 01-01 Scenario No.: 2 Event No: 5 Page 1 of 1

Event Description: Inadvertent Suppression Pool Dump

Symptoms: alarms 5041-5F, 5040-5F, 5063-3E & 5062-3E

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	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.
	SRO	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
	SRO	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
	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 • Reports FC Pump trip • Reports RCIC/HPCS suction swap to Supp. Pool
	BOP	Per 5041-5F: <ul style="list-style-type: none"> • Disables the SM dump (<i>Back panel not modeled in simulator</i>) • Closes the SM dump valves 1SM001A and 1SM002A • Isolates FC to the Upper Pools
	BOP	Verifies RCIC and HPCS suctions shift to the suppression pool due to high pool level.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 2 Event No: 6 Page 1 of 1

Event Description: CCW C pump trip

Symptoms: alarms 5003-3D, 5003-3K and 5040-1B

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge reports.
	SRO	Direct the BOP operator to start the Standby CCW A pump Note: The SRO could direct the operator to shutdown FC and raise CCW pressure by shutting 1CC075B and 1CC076B.
	RO	Report alarms 5003-3D & 3K
	RO	Per the annunciator procedures monitors the RR pump temperatures
	BOP	Reports alarm 5040-1B and determines cause to be a CCW pump trip
	BOP	Starts the standby CCW A pump Per the annunciator procedure or per CPS 3203.01 CCW
	CREW	Determines that this is a partial loss of CCW and that the Recirc Pumps do not need to be tripped.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 2 Event No: 7 Page 1 of 1

Event Description: Loss of Main EHC hydraulics

Symptoms: Turbine trip and Reactor Scram.

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge reports
	SRO	Enter EOP-1 due to level 3 entry condition: <ul style="list-style-type: none"> • Direct RO to maintain level 3 to 8. • Direct RO to maintain pressure 800 to 1065 psig.
	RO	Per CPS 4100.01 Reactor Scram <ul style="list-style-type: none"> • Turn the mode switch to shutdown • Verify power lowering and all rods in • Secure one feed pump and control level 3 to 8 • Per 3103.01 FW Startup the MDRFP and trip the TDRFP • Verify the bypass valves are controlling pressure • Insert SRM and IRM detectors
	BOP/RO	Per CPS 4100.01 Reactor Scram <ul style="list-style-type: none"> • Evacuate the containment • Verify the TG tripped • Open GCBs 4506 and 4510 • Open MOD 4508 • Trip the exciter field breaker

Notes: _____

Op-Test No.: 01-01 Scenario No.: 2 Event No: 8, 9 & 10 Page 1 of 2

Event Description: Drywell steam leak and excess drywell bypass leakage, RHR B fail to start and RHR A trip

Symptoms: Rising Drywell pressure and temperature.

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge reports
	SRO	Direct BOP operator to start a Mixing Compressor to control drywell pressure
	SRO	Enter EOP-6 due to high drywell pressure and temperature <ul style="list-style-type: none"> • Direct the BOP operator to start both Mixing compressors • Direct starting the H₂O₂ monitors • Direct BOP to start all available drywell cooling • Direct BOP to start containment sprays • Reduce reactor pressure by either: <ul style="list-style-type: none"> - Anticipate blowdown and opening the bypass valves (EOP-1) Or - Enter EOP-3 Blowdown when cannot stay inside Figure N
	RO	Report rising drywell pressure
	RO	Report EOP entry conditions: <ul style="list-style-type: none"> • High drywell pressure • High Drywell temperature
	RO	Maintain level 3 to 8
	RO	If anticipate blowdown Then open all bypass valves with the bypass jack.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 2 Event No: 8, 9 & 10 Page 2 of 2

Event Description: Drywell steam leak and excess drywell bypass leakage, RHR B fail to start and RHR A trip

Time	Position	Applicants Actions or Behavior
	BOP	Start both Mixing compressors Identify RHR A & B fail to start Attempt to start RHR A & B Report RHR A & B failed to auto start, - RHR A tripped when manual start attempted - RHR B started on manual start If directed, start all available drywell cooling If directed, start H ₂ O ₂ monitors If directed, start containment sprays If directed, initiate ADS
	<div>Critical Task</div> <div>Critical Task</div>	Terminus: <ul style="list-style-type: none"> • RPV level stable and under control • The RPV is depressurized • Upon approval of lead examiner

Facility: Clinton Power StationScenario No.: ThreeOperating Test No.: 01-01Examiners: _____

_____Operators: _____

Initial Conditions: 135 psig, the reactor critical with ½ to 1 bypass valves open.

Turnover: A plant startup is in progress following an unplanned outage. Performing step 8.1.2 in conjunction with step 8.4.2 of 3002.01. Plans are to increase power to establish 1½ bypass valves open and then start the heatup. The WCS is taking the Heatup Log. A CD pump, SA compressor, and Division II Hydrogen Igniters are OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		BOP-N	Shift CCP fans
2		RO-R CREW-N	Establish a reactor heatup
3	RDACT5 ¹	RO-C	Control rod uncoupled
4	Override	BOP-C	SX Pump auto starts on faulty low pressure and WS to SX isolation valve does not shut
5	PC04B	BOP-C	Drywell Chiller trips
6	RR03	M	Small RR leak that ramps to 10% after the scram.
7	RP04 ¹	RO-C	Auto and manual scram failure, ARI works
8	RDACT4 ¹	M	Two control rods fail to insert
9	ED04 ¹	M	Div 1 bus locks out when LPCS pump starts

*(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 to shift the CCP supply and exhaust fans.~~
2. The SRO should also direct the RO to withdraw control rods to open $\sim \frac{1}{2}$ to $1\frac{1}{2}$ Bypass valves and then commence a $<100^\circ \text{F/hr}$ heatup using pressure set.
3. While the RO is withdrawing control rods an uncoupled rod goes to overtravel when at 48. The rod recouples on the first attempt.
4. SX pump B starts due to a faulty system pressure switch and the WS isolation valve fails to automatically close. The valve partially closes when the hand switch is taken to close. The SRO should evaluate tech specs to determine that SX is inoperable.
5. ~~The running Drywell Chiller trips. The BOP operator should start the standby Chilled Water Pump, Fans and Chiller.~~
6. A leak develops on an RR loop.
7. The automatic and manual scrams fail.
8. ARI inserts all but two control rods. The only high flow preferred ATWS systems available are feedwater and RHR through shutdown cooling. Feedwater flow is restricted by the throttled feed line isolation valves which have lost power. RHR requires bypassing interlocks prior to use. Level reaches TAF requiring a blowdown and injection with alternate ATWS systems to restore level.
9. The Div 1 bus locks out When LPCS starts.

Critical Tasks

1. The crew inhibits ADS to prevent an uncontrolled RPV depressurization and power excursion during an ATWS.
2. The crew terminates and prevents injection to prevent an uncontrolled power excursion during an ATWS.
3. The crew injects with alternate ATWS injection systems to restore core cooling.

Op-Test No.: 01-01 Scenario No.: 3 Event No: 1 Page 1 of 2

Event Description: Shift Containment Continuous Purge (CCP) fans

Time	Position	Applicants Actions or Behavior
	SRO	Directs the BOP operator to shift the CCP supply and exhaust fans
	RO	Monitors parameters
	BOP	<p>Per CPS 3408.01</p> <ul style="list-style-type: none"> • Select the non-running fan using the CNMT BLDG SPLY(EXH) FAN selector switch. P801 • Shut off the running supply (exhaust) fan and observe the standby fan auto-starts. • Check that primary to secondary containment D/P -0.25 to $+0.25$ psid. (checked in the field) • Check drywell to primary containment D/P -0.2 to $+1.0$ psid. (checked on ATM in back panel not in the simulator) • Place switches for running fans in AFTER-START. <p><u>Note to Examiner:</u> Last step of the procedure is condition met, this is a procedure problem that will be corrected after the exam.</p>

Notes: _____

Op-Test No.: 01-01 Scenario No.: 3 Event No: 3 Page 1 of 1

Event Description: Control Rod 12-41 uncoupled

Symptoms: alarm 5006-5G

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	SRO	Direct the to RO stop the power ascension and attempt to recouple the control rod Per CPS 3304.02
	SRO	Monitors recoupling of control rod
	SRO	Review T.S 3.1.3 Control Rod Operability
	SRO	May review CPS 4007.03 Rod Drop
	RO	Acknowledge and report alarm 5006-5G Rod Overtravel. Refer to the annunciator procedure.
	RO	Per CPS 3304.02 RCIS <ul style="list-style-type: none"> • Verify the INDIVID DRIVE light is lit • Insert the drive 1 or 2 notches • Withdraw drive and check if recoupled • Return to normal operation
	BOP	Monitor Parameters

Notes: This event occurs while withdrawing control rods during event #2. After this event, the rod withdraw and heatup should continue per event #2.

Op-Test No.: 01-01 Scenario No.: 3 Event No: 4 Page 1 of 1

Event Description: SX Pump 1B auto starts on faulty low pressure and WS to SX isolation valve does not shut

Symptoms: alarm 5065-1G

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	SRO	Direct the RO to attempt to close 1SX014B
	SRO	<ul style="list-style-type: none"> • Declare Div 2 SX inop and enter Tech Spec LCO 3.7.1.b restore SX within 72 hrs. • Declare Div 2 DG inop and enter Tech Spec LCO 3.8.1.b perform SR 3.8.1.1 within 1 hr and restore the DG 72 hrs.
	RO	Monitor Parameters
	BOP	Acknowledge and report alarm 5065-1G Auto start SSW pump 1B. Refer to the annunciator procedure. <ul style="list-style-type: none"> • Verify SSW B pump is running (1SX01PB) • Verify 1SX014B closed and 1SX 063B and 1SX013E (local) open • Verify SSW Pump Room 1B supply fan running Report that 1SX014B did not shut.
	BOP	Close 1SX014B with handswitch and report it partially closed (dual indication) May send NLO to check 1SX014B locally, NLO will report flow noise through valve.
	BOP	Identify and report SX pressure indicates zero psig. May send NLO to check pressure locally.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 3 Event No: 5 Page 1 of 2

- Event Description: The running Drywell Chiller trips
- Symptoms: alarm 5017-1A

Time	Position	Applicants Actions or Behavior
	SRO	Acknowledge report.
	SRO	<ul style="list-style-type: none"> • Direct the BOP operator to restore Drywell Cooling per 3320.01 • Note: May direct an emergency start of Drywell Cooling
	RO	Monitor parameters
	BOP	Acknowledges and reports the following alarms: <ul style="list-style-type: none"> • 5017-1A
	BOP	<ul style="list-style-type: none"> • Reports that the B Drywell Chiller has tripped. • Sends C area operator to check chiller <ul style="list-style-type: none"> - C area reports back chiller tripped on low oil pressure and there is no oil visible in the sight glass.
	BOP	Per CPS 3320.01 Drywell Cooling System <u>Shifting Drywell Cooling Systems</u> <ul style="list-style-type: none"> • Locally open dampers 1VP10Y and 1VP12Y at 1PL43JA and 1PL43JB. • At 1H13-P801, start the idle Drywell Cooling Fans 1VP01CA and 1VP01CC. • Locally, shut the idle 1VP001A, Chill Water Pump Discharge Valve. • At 1H13-P801, start the idle Chill Water Pump, 1VP03PA • At 1H13-P800, transfer Supplemental Drywell Cooling Coil Units 1VP02SE and 1VP02SF to the previously idle Drywell Cooling System as follows: • Shut Supplemental Drywell Cooling Coil Units Supply and Return Isol Valves 1VP090B/1VP091B. • Open Supplemental Drywell Cooling Coil Units Supply and Return Isol Valves 1VP090A/1VP091A. • Locally start idle Drywell Chiller 1VP04CA. • Stop the previously operating Drywell Cooling

Notes: _____

Op-Test No.: 01-01 Scenario No.: 3 Event No: 5 Page 2 of 2

- Event Description: The running Drywell Chiller trips
- Symptoms: alarm 5017-1A

Time	Position	Applicants Actions or Behavior
	BOP	<p>Per CPS 3320.01 Drywell Cooling System <u>Emergency Startup of Standby Drywell Cooling System</u></p> <p>Start the standby Drywell Cooling System as follow:</p> <ul style="list-style-type: none"> • Start Drywell Cooling Fans, 1VP01CA and 1VP01CC. • Start Chill Water Pump, 1VP03PA without first closing discharge valve. • Verify/place 1SX020A, Drywell Chiller 1A Inlet Valve in AUTO AFTER OPEN. • Start standby Drywell Chiller 1VP04CA using the START push-button on 1H13-P801. • Send an area operator to the Drywell Chiller to monitor performance and load the chiller. • Transfer Supplemental Drywell Cooling Coil Units, 1VP02SE and 1VP02SF to the operating Drywell Cooling System as follows: <ul style="list-style-type: none"> - Shut Supplemental Drywell Cooling Coil Units Supply and Return Isol Valves, 1VP090B/1VP091B. - Open Supplemental Drywell Cooling Coil Units Supply and Return Isol Valves, 1VP090A/1VP091A. - Verify WO system lineup to Supplemental Drywell Cooling Coil Units, 1VP02SG and 1VP02SH. • Locally, monitor the operating Drywell Chiller to ensure proper operation.

Notes: _____

Op-Test No.: 01-01 Scenario No.: 3 Event No: 6, 7, 8 & 9 Page 1 of 3

Event Description: RR leak, Auto and manual scram failure, ARI works, Two control rods fail to insert, Div 1 bus locks out when LPCS pump starts.

Symptoms: Reactor level decreasing, drywell pressure increasing and alarms for drywell sumps and fission product monitor

Time	Position	Applicants Actions or Behavior
	SRO	<ul style="list-style-type: none"> Acknowledge reports.
	SRO	<p>When an entry condition occurs (High drywell pressure or Level 3), directs entry into EOPs and EOP actions</p> <p>Per EOP-1:</p> <ul style="list-style-type: none"> Directs RO to place Mode Switch in Shutdown Enters EOP-1A ATWS <p>Per EOP-1A:</p> <ul style="list-style-type: none"> Directs BOP to inhibit ADS Directs RO to Manual Scram and ARI Leaves Power enters CPS 4100.01 Scram Directs RO to stabilize pressure with bypass valves Directs BOP to terminate and prevent HPCS LPCS & LPCI Directs RO to maintain level TAF to level 8 with preferred ATWS systems <p>When level drops to TAF enters EOP-3 BLOWDOWN.</p> <p>Per EOP-3</p> <ul style="list-style-type: none"> Directs RO and BOP to terminate and prevent injection from Detail F1 systems. Directs BOP to initiate ADS. <p>Per EOP-1A</p> <ul style="list-style-type: none"> When pressure is less than 138 psig and level cannot be restored above TAF directs the use of Alternate ATWS Systems to restore level TAF to level 8. <p>Per EOP-6</p> <ul style="list-style-type: none"> Directs starting the H₂O₂ monitors Directs starting the Mixing Compressors

Event Description: RR leak, Auto and manual scram failure, ARI works, Two control rods fail to insert, Div 1 bus locks out when LPCS pump starts.

Notes:

Op-Test No.: 01-01 Scenario No.: 3 Event No: 6, 7, 8 & 9 Page 3 of 3

Event Description: RR leak, Auto and manual scram failure, ARI works, Two control rods fail to insert, Div 1 bus locks out when LPCS pump starts.

Time	Position	Applicants Actions or Behavior
	BOP	<ul style="list-style-type: none"> Reports alarms for Drywell Floor Drain Leake Rate Hi and Fission Product Monitor
Critical Task	BOP	<ul style="list-style-type: none"> Inhibit ADS Terminate and prevent HPCS, LPCS and LPCI Reports loss of bus 1A1. (P877) Evacuate the Containment Start H2O2 Start Mixing Compressors Line up to feed with RHR B through shutdown cooling
Critical Task	BOP	<ul style="list-style-type: none"> Initiate ADS Restore level to TAF to level 8 with Alternate ATWS systems HPCS <ul style="list-style-type: none"> - LPCI B - LPCI C

Terminus:

- RPV level stable and under control
- The RPV is depressurized
- Upon approval of lead examiner

Notes: _____
