

2010 PALISADES NUCLEAR PLANT

INITIAL EXAMINATION

AS-ADMINISTERED EXAM FILES

SCENARIOS

Facility: PalisadesScenario No.: ONEOp-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions: 87% power with P-66B HPSI Pump tagged out.

Turnover: P-66B HPSI Pump is tagged out for a coupling alignment and will be restored to operable in 4 hours. Shift orders are to maintain current power level.

Event No.	Malf. No.	Event Type*	Event Description
1	CW01A	SRO (C, T) BOP (C) RO (R)	Cooling Tower Pump P-39A trips (ONP-14) and rapid downpower (ONP-26)
2	EG04 ED142	BOP (C) SRO (C)	Main Generator Voltage Regulator failure with concurrent change in grid voltage
3	RP24A	SRO (I, T) RO (I)	Cold Leg #1 RTD fails high
4	SG01A	SRO (C, T) RO (C)	'A' S/G tube leak that rises to require a reactor trip. (≥ 0.4 gpm requires reactor trip)
5	SG01A	ALL (M)	SGTR on 'A' S/G
6	ED13B	RO (C)	Failure of Right Train SIAS to automatically actuate

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

Scenario ONE - Simulator Operator Instructions

- Reset to IC 16
- Ensure FIC-0210A set for 40-gallon dilution on Panel C-02
- INSERT MF ED13B (PIDS101)
- Hang Caution Tag on HPSI Pump P-66B (OOS) hand switch
 - RACKOUT breaker for P-66B using SI24 on PIDS102
 - Ensure EOOS indicates that P-66B is out of service
- Create Event Trigger 5: Event: rdsr(13)<100

Event #	Remote or Trigger #	Instructions
1	REMOTE 1	CW01A (PIDCW01) C/T Pump P-39A Trip
2	REMOTE 2	EG04 (PIDEG01) Main Gen Auto Volt Regulator Fail ED142 (PIDED03) Infinite Grid Voltage, Final Value = 380000
3	REMOTE 3	RP24A (PIDRPNI1) Cold Leg #1 RTD Fail High TE-0112CA, Final Value = 100
4	REMOTE 4	SG01A (PIDSG01) Severity 0.20, 20-minute ramp. causes a S/G Tube Leak on 'A' S/G.
5	TRIGGER 5	Action: imf sg01a 40.0 <i>[raises severity of tube leak to 400 gpm]</i>
6		ACTIVE AT SETUP (right train SIAS auto failure)

Special instructions:

None

Scenario ONE - Turnover Information

The Plant is at 87% power. P-66B HPSI Pp. is tagged out for pump coupling alignment and it is estimated that it will be restored to operable in 4 hours (LCO 3.5.2.B.1 - 72 hrs.). Turbine valve testing is planned for the next shift. Shift orders are to maintain current power level.

Op-Test No.: 1	Scenario No.: ONE	Event No.: 1	Page 1 of 3
Event Description: P-39A Cooling Tower Pump Trip			
Time	Position	Applicant's Actions or Behavior	
	BOP/SRO	Diagnoses that P-39A has tripped: <ul style="list-style-type: none"> • EK-3522, "CLG TWR PUMP P-39A TRIP" • P-39A red light OUT, green light ON • P-39A ammeter reads ZERO • Possible lowering trend on Main Condenser vacuum. 	
	SRO	Enters and directs the actions of ONP-14, Loss of Condenser Vacuum and ONP-26, Rapid Downpower. <ul style="list-style-type: none"> • Reviews trip criteria of ONP-14 • Reviews trip criteria of ONP-26 	
	SRO/RO/ BOP	Initiate a rapid downpower to <55% at a rate of $\leq 300\%$ per hour, as directed by ONP-14 and as controlled by ONP-26, Rapid Downpower.	
	RO	INSERTS Group 4 Control Rods 10 inches: <ul style="list-style-type: none"> • Rod Control Switch operated to INSERT Group 4 control rods 10 inches 	
	BOP	Stabilize power at < 55% as specified by SRO. COMMENCE turbine load reduction in Operator Auto using RUNBACK at a rate $\leq 300\%/hour$, as ordered by the Control Room Supervisor.	

Time	Position	Applicant's Actions or Behavior
Op-Test No.: 1 Scenario No.: ONE Event No.: 1 Page 2 of 3 Event Description: P-39A Cooling Tower Pump Trip		
	RO	Stabilize power at < 55% as specified by SRO. MAINTAIN T_{AVE} within 5°F of T_{REF} during the rapid power reduction by regulating rod insertion and/or boration. For Boration: <ul style="list-style-type: none"> ▪ RESET PMW and BA Controllers if required ▪ SET quantity and batch flow limit on FIC-0201B, BA flow controller ▪ SET quantity and batch flow limit on FIC-0210A, PMW flow controller ▪ START P-56B (preferred) OR P-56A, Boric Acid Pump ▪ OPEN CV-2155, Make Up Stop Valve ▪ PUSH start pushbutton on FIC-0210B ▪ VERIFIES FIC-0210B output signal at zero when dilution complete ▪ PUSH start pushbutton on FIC-0210A ▪ VERIFIES FIC-0210A output signal at zero when dilution complete ▪ CLOSES CV-2155 ▪ MONITORS reactor power and T_{AVE} For Control Rod manipulations: <ul style="list-style-type: none"> ▪ Operates Rod Control Switch to INSERT Group 4 Regulating Rods in increments specified by CRS ▪ MONITORS reactor power and TAVE Note: This will take some time to stabilize; i.e., crew will slow rate of power reduction significantly when vacuum starts to stabilize.
	SRO	Refers to and implements the following Tech Spec LCOs: <ul style="list-style-type: none"> • 3.1.6.A, 2-hour action to restore rods above PDIL
	BOP	Performs ONP-14, attachment 1 to control 'A' Cooling Tower basin level and maintain cooling to the affected waterbox. <ul style="list-style-type: none"> • THROTTLE P-39A Waterbox Inlet, MO-5301 • ENSURE CLOSED Dilution Water Pump Discharge to Mixing Basin, MO-5311 • ENSURE OPEN Dilution Water Pump Discharge to Cooling Towers, MO-5313 and MO-5315 • ENSURE CLOSED Cooling Tower Blowdown Valve, MO-5326A • May throttle closed 'B' Cooling Tower Condenser Inlet, MO-5302, to lower level in the 'B' Cooling Tower

Op-Test No.: 1

Scenario No.: ONE Event No.: 1

Page 3 of 3

Event Description: ***P-39A Cooling Tower Pump Trip***

Time	Position	Applicant's Actions or Behavior
	RO	<p>May balance Group 4 control rods.</p> <ul style="list-style-type: none"> • PLACE Rod Selector Switch in the position for the rod to be moved. • TURN Group Selector Switch to the position for the group containing the rod to be moved. • PLACE Mode Selector Switch to MI (Manual Individual) position • PERFORM the following to reposition the rod: <ul style="list-style-type: none"> ○ OPERATE the Raise-Lower Switch. ○ MONITOR Nuclear Instruments and TAVE closely while repositioning rod. ○ IF necessary to maintain power level, THEN STOP single rod motion AND COMPENSATE with Regulating Rods. • PLACE the Group Selector Switch to desired position. • PLACE the Mode Selector Switch in MS (Manual Sequential) position or as directed by the Shift Manager.
	BOP	May place one Main FW pp. to MANUAL at minimum speed per SRO direction.
<p>After power has been lowered to 55% <u>OR</u> at the discretion of the Lead Examiner, <u>INSERT REMOTE #2</u></p>		

Op-Test No.: 1	Scenario No.: ONE	Event No.: 2	Page 1 of 1
Event Description: Main Gen Auto Volt Regulator Trip			
Time	Position	Applicant's Actions or Behavior	
	BOP SRO	<p>Diagnose Main Gen Auto Voltage Regulator Trip:</p> <p>Indications:</p> <ul style="list-style-type: none"> • Lights above Voltage Regulator Control Switch on Panel C-01 are OFF • Generator Terminal Voltage is 23.6 kV <p>Major alarms:</p> <ul style="list-style-type: none"> • EK-0310, Generator Volt Reg Trip • EK-0317, Generator HI Volts/Hertz 	
SIMULATOR OPERATOR: Make phone call to CRS as Transmission System Controller that grid is experiencing severe voltage problems.			
	BOP	<p>Respond per ARP-2 for EK-0310:</p> <p>IF Generator has NOT tripped, THEN CHECK Generator Terminal Voltage normal.</p> <p>IF Generator Terminal Voltage is NOT normal, THEN ADJUST with DC Adjuster by performing the following:</p> <p>VERIFY Regulator Balance Meter indicates approximately zero.</p> <p>PLACE 390CS, Voltage Regulator Control Switch to OFF or TEST position.</p> <p>ADJUST 370DC/CS, Voltage Regulator Manual Control Switch to control Generator Terminal Voltage between 21kV and 23kV.</p>	
	SRO	<p>Make notifications to Transmission Systems Coordinator notifying them that the Plant is not currently operating in accordance with the Generator Reliability Program (GRCP).</p>	
At the discretion of the Lead Examiner, INSERT REMOTE #3			

Op-Test No.: 1	Scenario No.: ONE	Event No.: 3	Page 1 of 2
Event Description: Cold Leg RTD Failure HIGH			
Time	Position	Applicant's Actions or Behavior	
	RO	<p>Diagnoses high failure of Loop #1 Tcold signal:</p> <p>Alarms/Indications:</p> <ul style="list-style-type: none"> • EK-0967, Loop 1 LOOP 2 T_{AVE} Deviation • EK-0968, Loop 1 T_{AVE}/T_{REF} Gross Deviation • EK-0759, No PCS Protection Channel A • EK-06 Rack C Window #1, TM/LO Pressure Channel Trip • EK-06 Rack C Window #5, TM/LO Pressure Channel Pre-Trip • EK-06 Rack D Window #3, Nuclear-ΔT Power Deviation T-Inlet Off Normal/Calculator Trouble Channel A (already in from Event #1) • Calculated ΔT Power lowers • TM/LP trip setpoint for Channel 'A' rises • TI-0112CA Loop 1 Cold Leg Temperature indicates high 	
	RO	<p>Checks ARP-5 and ARP-21 for alarms present: report to CRS that ONP-13 needs to be referenced.</p> <p>May also reference SOP-1A, attachment 1 for PCS Temperature Instrumentation functions.</p>	
	SRO	<p>May enter ONP-13, T_{AVE}/T_{REF} Controller Failure (no actions apply).</p> <p>May check ΔT Power for the PIP Node and the SPI Node/Host Computer on a workstation and compare to actual heat balance power (no actions apply)</p>	

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

Event Description: **Cold Leg RTD Failure HIGH**

Time	Position	Applicant's Actions or Behavior
	SRO	Refers to and implements the following Tech Spec/ORM LCOs: <ul style="list-style-type: none"> • 3.3.1.A (Table 3.3.1-1 Items 1 and 9), 7 day action statement • 3.3.8.A (Table 3.3.8-1 item 6), 30 day action statement • ORM 3.17.6 (Item 12.1), Prior to next MODE 1 entry from MODE 2
NOTE: Have Shift Manager surrogate tell CRS to direct BOP operator to relieve ATC operator so they can perform the next task.		
	RO	BYPASS Variable High Power Trip and TM/LP Trip for Channel 'A' per SOP-36 (does not need to be in-hand) <ul style="list-style-type: none"> • INSERT bypass keys (289 or 297) above affected RPS Trip Unit. • TURN key 90° clockwise. • Verify lit yellow light above bypass keyswitch. • Repeat for other trip(s) to be bypassed.
	SRO	Initiates troubleshooting and repairs
After RPS has been bypassed <u>OR</u> at the discretion of the Lead Examiner, <u>INSERT REMOTE #4</u>		

Op-Test No.: 1	Scenario No.: ONE	Event No.: 4	Page 1 of 2
Event Description: 'A' Steam Generator Tube Leak			
Time	Position	Applicant's Actions or Behavior	
	SRO BOP RO	Diagnoses Steam Generator Tube Leak on 'A' S/G: <ul style="list-style-type: none"> • EK-1364, GASEOUS WASTE MONITORING HI RADIATION alarms • Monitors PZR level, pressure • Monitors VCT level • Charging-Letdown mismatch • PPC Primary to Secondary Leakrate alarm 	
	SRO RO BOP	Notes trends on any of the following: <ul style="list-style-type: none"> • RIA-0631, Condenser Off-Gas Monitor • RIA-2323, Main Steam Gamma Monitor ('B' S/G) • RIA-2324, Main Steam Gamma Monitor ('A' S/G) • RIA-0707, Steam Generator Blowdown Monitor • RIA-2325/2326, Stack Gas Effluent Monitors • RIA-2327, High Range Noble Gas Monitor 	
	SRO BOP	Uses ONP-23.2, Att.1 and/or Att.2 or PPC Page 540/550 to calculate leak rate. (Calculated leak rate may be inaccurate due to changing value over 20 minute ramp.) May also use DWO-1 method (15 min)	
Simulator Operator: If asked as Chemistry, PCS Gas Total Isotope activity = 0.6 μCi/cc			
	SRO	Reviews trip criteria of ONP-23.2.	
	SRO	Determines that Tech Spec 3.4.13.B applies - 6 hours to MODE 3, 36 hours to MODE 5. (> 150 gpd) OR Determines that ONP-23.2 Action Level 3 applies.	
	SRO	Notify HP to determine dose rates on C-42 cation columns. Notify HP to perform surveys per EOP Supplement 14. May notify Chemistry to sample S/Gs for lithium and activity.	
Simulator Operator: Inform control room that cation surveys for 'A' S/G indicate a higher than normal dose rate.			

Op-Test No.: 1		Scenario No.: ONE	Event No.: 4	Page 2 of 2
Event Description: 'A' Steam Generator Tube Leak				
Time	Position	Applicant's Actions or Behavior		
	ALL	Diagnose that leak rate is above 0.4 gpm which requires a Reactor trip.		
	SRO	Directs Reactor Trip.		
Plant Trip				
	RO	Depresses Reactor Trip pushbutton on Panel C-02.		
	RO/BOP	Perform EOP-1.0 immediate actions.		

Op-Test No.: 1	Scenario No.: ONE	Event No.: 5/6	Page 1 of 5
Event Description: 'A' Steam Generator Tube Rupture/Failure of Right Train SIAS			
Time	Position	Applicant's Actions or Behavior	
	SRO	Commence EOP-1.0 verbal verifications.	
	RO	Reactivity Control: YES <ul style="list-style-type: none"> ▪ Reactor power lowering ▪ negative SUR ▪ maximum of one control rod not inserted 	
	BOP	Main Turbine Generator criteria: YES <ul style="list-style-type: none"> ▪ Main Turbine tripped ▪ Generator disconnected from grid 	
	BOP	Feedwater criteria: YES: <ul style="list-style-type: none"> ▪ PLACES Main FWP Controllers to 'MANUAL' and RAMPS to minimum speed ▪ Main FRV and B/Ps CLOSED 	
	BOP	Vital Auxiliaries-Electric: <ul style="list-style-type: none"> ▪ Buses 1C and 1D energized: YES ▪ Bus 1E energized: NO (if SIS present) ▪ Bus 1A and 1B energized: YES ▪ Y-01 energized: YES ▪ Six DC Buses energized: YES ▪ 3 of 4 Preferred AC Buses energized: YES 	

Op-Test No.: 1		Scenario No.: ONE	Event No.: 5/6	Page 2 of 5
Event Description: 'A' Steam Generator Tube Rupture/Failure of Right Train SIAS				
Time	Position	Applicant's Actions or Behavior		
	RO	<p>PCS Inventory Control: YES OR NO (Depends on Plant conditions)</p> <ul style="list-style-type: none"> ▪ PZR level 20% - 85% and trending toward 42% - 57%. IF NO for PZR Level < 20% (CONTINGENCY: All available Charging Pumps in service and Orifice Stop Valves Closed) ▪ PCS 25°F subcooled. IF NO, NO CONTINGENCY. 		
	RO	<p>PCS Pressure Control: NO</p> <ul style="list-style-type: none"> ▪ PZR pressure 1650 to 2185 psia and trending toward 2010 to 2100 psia <p>Contingencies:</p> <ul style="list-style-type: none"> • Manually operates PZR heaters and spray; heaters will be off due to low PZR level, spray valves closed. • When PCS pressure is < 1605 psia, verify safety injection initiated, EK-1342 in alarm and all available HPSI and LPSI pumps in service and valves open <ul style="list-style-type: none"> ▪ Notes Right Train SIAS does not automatically initiate: Pushes Right Train SIAS pushbutton Panel C-13 per EOP-1.0 immediate actions (attached): (CRITICAL TASK PL-000 433 05 01) • If PCS pressure is < 1300 psia, stops 'A' and 'D' PCPs. 		
	RO	<p>Core Heat Removal: YES</p> <ul style="list-style-type: none"> ▪ At least one PCP operating ▪ Verify Loop ΔT less than 10°F ▪ Verify PCS at least 25°F subcooled 		
	BOP	<p>PCS Heat Removal: YES</p> <ul style="list-style-type: none"> ▪ Verify at least ONE S/G level 5% to 70% with Feedwater available (will isolate AFW to 'A' S/G) ▪ Verify T_{AVE} between 525°F and 540°F ▪ Verify BOTH S/G pressures between 800 psia and 970 psia 		

Op-Test No.: 1

Scenario No.: ONE Event No.: 5/6

Page 3 of 5

Event Description: **'A' Steam Generator Tube Rupture/Failure of Right Train SIAS**

Time	Position	Applicant's Actions or Behavior
	RO	Containment Isolation: YES <ul style="list-style-type: none"> ▪ Verify containment pressure less than 0.85 psig
	BOP	Containment Isolation: <ul style="list-style-type: none"> ▪ Containment Area Monitors CLEAR and no unexplained rise: YES ▪ Condenser Off Gas Monitor, RIA-0631, CLEAR and no unexplained rise: NO ▪ Main Steam Line Monitor and no unexplained rise: NO
	RO	Containment Atmosphere: YES <ul style="list-style-type: none"> ▪ Verify temperature less than 125°F ▪ Verify Containment pressure less than 0.85 psig
	RO	Vital Auxiliaries – Water: YES <ul style="list-style-type: none"> ▪ Verify at least two Service Water Pumps operating ▪ Verify BOTH Critical SW Header Pressures greater than 42 psig ▪ Verify at least one CCW Pump operating
	RO	Vital Auxiliaries – Air: YES <ul style="list-style-type: none"> ▪ Instrument Air header pressure greater than 85 psig
	BOP	Verifies BOTH of the following: <ul style="list-style-type: none"> ▪ At least one Condensate Pump operating ▪ At least one Cooling Tower Pump operating
	BOP	PLACES LEFT train CRHVAC in emergency mode: <ul style="list-style-type: none"> ▪ STARTS V-26A, Air Filter Unit Fan ▪ ENSURES OFF: V-94, Purge Fan; V-47, Switchgear Exhaust Fan ▪ May follow-up with SOP-24 verification

Op-Test No.: 1		Scenario No.: ONE		Event No.: 5/6		Page 4 of 5	
Event Description: 'A' Steam Generator Tube Rupture/Failure of Right Train SIAS							
Time	Position	Applicant's Actions or Behavior					
	ALL	Diagnose 'A' S/G as affected					
	SRO	Directs isolating AFW to 'A' S/G					
	BOP	When directed, isolates AFW to 'A' S/G: <ul style="list-style-type: none"> • SELECTS 'MANUAL' on FIC-0737A • SELECTS 'MANUAL' on FIC-0749 • Raises output to 100% on each controller ('RED' signal indicator to the full right position) 					
	SRO	Performs EOP-1.0, attachment 1, Event Diagnostic Flow Chart Diagnoses a SGTR and enters EOP-5.0, Steam Generator Tube Rupture Recovery					
	SRO	Directs PCS cooldown to below 524°F on Loop Thots via TBV					
	RO	Commences a cooldown of the PCS: <ul style="list-style-type: none"> • SELECTS 'MANUAL' on PIC-0511 • ADJUSTS signal on controller to achieve desired TBV position • Monitors S/G pressures and cooldown rate Controls 'B' S/G level 60 - 70 %					
	BOP	Perform SIS checklist, EOP Supplement 5 (SAT)					
	SRO/RO	Establish PCS temperature and pressure control bands					
	BOP/RO	CLOSSES Letdown orifice isolation valves on Panel C-02: PLACES control switches for CV-2003, CV-2004, CV-2005, to CLOSE					

Op-Test No.: 1	Scenario No.: ONE	Event No.: 5/6	Page 5 of 5
Event Description: 'A' Steam Generator Tube Rupture/Failure of Right Train SIAS			
Time	Position	Applicant's Actions or Behavior	
	SRO	Directs chemistry to sample S/Gs for lithium and activity (if not previously performed per ONP-23.2).	
	SRO	Directs EOP Supplement 4, HPSI flow verification, completed.	
	SRO	When highest hot leg temperature is < 524°F, orders 'A' S/G isolated per EOP Supplement 12.	
	BOP	<p>Isolates 'A' S/G per EOP Supplement 12 (attached)</p> <p>Isolation from inside the Control Room:</p> <p>(CRITICAL TASK PL-000 209 05 01):</p> <ul style="list-style-type: none"> ○ If removing heat using the TBV, ensures MO-0501, 'B' S/G MSIV Bypass valve is open ○ CLOSES 'A' S/G MSIV Bypass Valve, MO-0510 (if open for cooldown) ● CLOSES MSIVs on Panel C-01 (momentarily places either control switch to CLOSE and then back to OPEN) ○ CLOSES 'A' FRV, CV-0701, on Panel C-01 ● CLOSES 'A' FRV Block valve, CV-0742, on Panel C-01 ○ CLOSES CV-0749, CV-0737, CV-0737A, AFW to 'A' S/G (if not performed earlier), on Panel C-01 ○ CLOSES 'A' S/G Blowdown Valves CV-0767, CV-0771, CV-0739, on Panel C-13 (if not performed earlier) ○ Directs AO to perform EOP Supplement 12 to isolate 'A' S/G from outside control room 	
SIM OP: Use MS20/MS21 and SG09/SG11 on PIDMS01 to isolate 'A' S/G			
SRO: Emergency Classification Level: Alert, FA1, Loss of PCS Boundary due to SGTR that results in ECCS actuation			
Terminate Scenario when S/G is isolated or at examiner discretion			

Facility: **Palisades**Scenario No.: **TWO**Op-Test No.: **1**

Examiners: _____ Operators: _____

Initial Conditions: 100% power. P-8C, Auxiliary Feedwater Pump, is out of service.

Turnover: Shift orders are to alternate running Service Water pumps and then reduce power to approximately 87% at 4% per hour to perform Turbine valve testing on the next shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	RO (N)	Alternate Running Service Water Pumps
2	N/A	SRO (N) RO (R) BOP (N)	Power de-escalation
3	N/A	SRO (T)	Report of Personnel Airlock condition
4	OVRD	SRO (C, T) BOP (C)	Dilution Water Pump P-40A trip/breaker failed
5	MS03B	ALL (M)	ESDE Inside Containment
6	ED01 ED14A	SRO (C) RO (C)	Loss of Offsite Power with failure of D/G 1-1 to start
7	RD16	RO (C)	Two stuck Control Rods

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

Scenario TWO - Simulator Operator Instructions

- Reset to IC-17 (or similar) 100% power MOL IC.
- Ensure FIC-0210A set for 40-gallon dilution on Panel C-02
- AFW Pump P-8C is OOS:
 - Use FW16C on PIDFW01 to trip P-8C
 - Override P-8C-G (green light for P-8C) to OFF
 - Override P-8C-W (white light for P-8C) to OFF
 - Hang Caution Tag on P-8C handswitch
 - Ensure EOOS indicates P-8C is out of service
- Ensure SW Pumps P-7B and P-7C inservice
- INSERT MF ED14A (PIDED08) D/G 1-1 fail to start
- INSERT MFs RD16-05 and RD16-20 (PIDRD02) Control Rods #5 and #20, Final Value = 5-Stuck
- Create Event Trigger 4: Event: Reg Group 1 Rod 21 less than 110"

Event #	Remote or Trigger #	Instructions
1		No actions required.
2		No actions required.
3		No actions required (Simulator Operator phone call: see event)
4	REMOTE 2	P-40A-1 (DWS P-40A Selector Stop) to ON (= trips P-40A) P-40A-W (P-40A white light) to OFF P-40A-G (P-40A green light) to OFF
5	REMOTE 3	MS03B (PIDMS01) 'B' S/G Main Steam Line Break Inside Containment; Severity value = 7%, 10 minute ramp
6	TRIGGER 4	ED01 (PIDED03) Loss of Offsite Power
7		No actions required.

Special instructions:

- *None.*

Scenario TWO - Turnover Information

The Plant is at 100% power, MOL. P-8C, Auxiliary Feedwater Pump, is out of service for a bearing inspection (LCO 3.7.5.A.1 - 72 hrs.) It is expected to be 4 hours before bearing inspection is completed.

Shift orders are to alternate running Service Water pumps (Start P-7A and stop P-7B and place it in STDBY). Once this is complete, a power reduction to approximately 87% at 4% per hour is ordered to prepare for Turbine valve testing on the next shift.

Op-Test No.: 1		Scenario No.: TWO		Event No.: 1		Page 1 of 1	
Event Description: Alternate Running Service Water Pumps							
Time	Position	Applicant's Actions or Behavior					
	SRO	Directs alternating running Service Water Pumps.					
	RO	Refers to SOP-15, 7.1.1 and 7.1.2.					
Simulator Operator: If called as Chemistry to recalculate mixing basin discharge flow volume, inform CR this is not required if they are alternating SW pumps. When called as AO for SW Pp. parameters, report discharge valve open, oil levels normal.							
	RO	Starts P-7A SW pump. <ul style="list-style-type: none"> • Make PA announcement. • Check discharge valve, oil levels for P-7A (call to AO). • Remove P-7A from standby (PLACES handswitch to TRIP). • STARTS P-7A. • Check amps less than 92 amps. • Check local discharge pressure (call to AO). • Check packing leakoff not excessive. (call to AO) • Possible alarm: EK-1132 P-7A basket strainer Hi dp (clears on its own) 					
Simulator Operator: If asked by NCO, report PI-1322 indicates 72 psig and stable; packing leakoff is NOT excessive.							
	RO	<ul style="list-style-type: none"> • STOPS P-7B. • PUSHES STANDBY pushbutton to place P-7B in standby Note: Chemistry recalculation of mixing basin volume is NOT required.					

Op-Test No.: 1 Scenario No.: TWO Event No.: 2 Page 1 of 2		
Event Description: Lower power to less than 87%		
Time	Position	Applicant's Actions or Behavior
	SRO	Directs lowering power to 87%.
	RO	INSERTS Group 4 Control Rods to less than 128 inches: <ul style="list-style-type: none"> ▪ Rod Control Switch MANIPULATED to lower control rods
	BOP	Operates turbine generator on the DEH panel for power de-escalation @ 4% per hour: <ul style="list-style-type: none"> ▪ ENTERS setter value ▪ SELECTS rate of 4% per hour ▪ PUSHES "GO " pushbutton and observes white light illuminate ▪ Informs CRS/RO that turbine is in "GO"
	RO	Performs periodic borations and/or control rod manipulations to maintain T_{AVE} within 3°F of T_{REF} For Boration: <ul style="list-style-type: none"> ▪ RESET PMW and BA Controllers if required ▪ SET quantity and batch flow limit on FIC-0201B, BA flow controller ▪ SET quantity and batch flow limit on FIC-0210A, PMW flow controller ▪ START P-56B (preferred) OR P-56A, Boric Acid Pump ▪ OPEN CV-2155, Make Up Stop Valve ▪ PUSH start pushbutton on FIC-0210B ▪ VERIFIES FIC-0210B output signal at zero when boration complete ▪ PUSH start pushbutton on FIC-0210A ▪ VERIFIES FIC-0210A output signal at zero when boration complete ▪ CLOSES CV-2155 ▪ MONITORS reactor power and T_{AVE} For Control Rod manipulations: <ul style="list-style-type: none"> ▪ Operates Rod Control Switch to INSERT Group 4 Regulating Rods in increments specified by CRS ▪ MONITORS reactor power and T_{AVE}

Op-Test No.: 1		Scenario No.: TWO	Event No.: 2	Page 2 of 2
Event Description: Lower power to less than 87%				
Time	Position	Applicant's Actions or Behavior		
	RO	May divert CVCS letdown to Clean Waste as VCT level rises: <ul style="list-style-type: none">• PLACES CV-2056, Letdown to VCT or Radwaste, in the "TO CLEAN WASTE RCVR TANKS" position• When desired VCT level is achieved, PLACES CV-2056 to the "AUTO" or "TO VOL CNTRL TANK" position (then "AUTO")		
After PZR level control is reestablished <u>OR</u> at the discretion of the Lead Examiner, make phone call to CRS (see next event).				

Op-Test No.: 1		Scenario No.: TWO		Event No.: 3		Page 1 of 1	
Event Description: Report of Personnel Airlock Condition							
Time	Position	Applicant's Actions or Behavior					
SIMULATOR OPERATOR: Make phone call to CRS: report as Health Physics Supervisor that the door interlock for the Personnel Airlock is broken. This was observed by the personnel on the previous shift (4 hours ago) that made the bi-weekly Containment entry, but was not effectively turned over to the supervisor. HP Supervisor is in the process of initiating a Condition Report.							
	SRO	Receives report from HP Supervisor that door interlock for Personnel Airlock is broken.					
	SRO	Refers to Tech. Spec. 3.6.2, and determines required actions: B.1: Verify an operable door is closed within one-hour. B.2: Lock an operable door closed within 24 hours B.3: Verify an operable door is locked closed every 31 days					
After power has lowered 1 to 2% <u>OR</u> at the discretion of the Lead Examiner, <u>INSERT REMOTE #2</u>							

Op-Test No.: 1	Scenario No.: TWO	Event No.: 4	Page 1 of 1
Event Description: Dilution Water Pump P-40A Trip			
Time	Position	Applicant's Actions or Behavior	
	BOP SRO	Diagnoses Dilution Water Pump P-40A trip: <ul style="list-style-type: none"> • EK-3518, Dilution Wtr Pump P-40A Trip • P-40A red light OFF, green light OFF, white light OFF • P-40A amps are ZERO • Notes 'A' Cooling Tower level lowering. 	
	BOP	THROTTLE OPEN MO-5305 (Cooling Tower Pp. P-39A discharge) to maintain cooling tower basin level.	
	BOP	Supply both Water Boxes from P-40B per SOP-14, section 7.3.5: ENSURE CLOSED MO-5313, P-40A/B Disch to E-30A Makeup/Fill. ENSURE CLOSED MO-5315, P-40A/B Disch to E-30A Makeup/Fill. SLOWLY OPEN MV-CW735, Dilution Water Pumps P-40A/B Disch Xconn. SIMULTANEOUSLY THROTTLE OPEN MO-5315, P-40A/B Disch to E-30A Makeup/Fill, for a total of 15-20 seconds AND THROTTLE CLOSED MO-5316, P-40A/B Disch to E-30B Makeup/Fill. CONTACT chemistry to obtain Cooling Tower samples.	
SIMULATOR OPERATOR: If directed to open MV-CW735, use CW19 (PIDCW02), value = 100.			
	SRO	May order Main Turbine placed in HOLD (if not already done).	
	BOP	DEPRESS HOLD on Main Turbine (if not already done).	
	SRO	Notify Chemistry or RMC concerning degraded dilution capability.	
	SRO	Notify AO and Work Week Mgr to investigate P-40A and breaker.	
SIMULATOR OPERATOR: Call CRS as AO and inform that P-40A breaker 152-102 has no control power light and there is a smell of burnt insulation from breaker.			
	SRO	Determines that LCO 3.4.9.B.1, 72 hours to restore to OPERABLE status, applies for P-40A breaker 152-102 being inoperable.	
NOTE: After CRS has determined LCO <u>OR</u> at the discretion of the Lead Examiner, <u>INSERT REMOTE #3.</u>			

Op-Test No.: 1		Scenario No.: TWO		Event No.: 5		Page 1 of 1	
Event Description: ESDE Inside Containment							
Time	Position	Applicant's Actions or Behavior					
	BOP/RO	Informs the SRO that indications of excessive load exist: <ul style="list-style-type: none"> • EK-1148, Fire System Panel C-47, C-47A/B or C-49 Off Normal • EK-1343, Containment Air Cooler VHX-1 Dry Pan HI Level • EK-1345, Containment Air Cooler VHX-3 Dry Pan HI Level • EK-1362, Containment Pressure Off Normal • Reactor power rising • 'B' S/G Compartment Humidity rising • T_{AVE} lowering 					
	SRO	Enters ONP-9, "Excessive Load" <ul style="list-style-type: none"> • Determines that unisolable load rise exceeds 1% change in NI or Delta-T Power (may wait for HB Power Steady to also be above 1%) • Directs a reactor trip. 					
	RO	TRIPS reactor by depressing reactor trip pushbutton at Panel C-02					
	SRO/BOP	May direct AO to check for source of steam release.					
	RO/BOP	Perform EOP-1.0 immediate actions					
Simulator Operator: If contacted by Control Room as AO to check on steam leak, wait a few minutes and REPLY back: there are no Steam Generator relief valves blowing by or leaking on SIRWT roof area.							

Op-Test No.: 1		Scenario No.: TWO		Event No.: 6/7		Page 1 of 8	
Event Description: ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start							
Time	Position	Applicant's Actions or Behavior					
	BOP	Informs SRO that S/G pressures < 800 psia, CONTINGENCY ACTION: <ul style="list-style-type: none"> MSIVs, CV-0510 and CV- 0501, CLOSED by taking one HS to CLOSE and then back to OPEN (may auto close on CHP) 					
	BOP	Informs SRO that offsite power has been lost and that D/G 1-1 did not auto start, CONTINGENCY ACTION: D/G 1-1 attempted start from Panel C-04 handswitch (does not start)					
	RO	Informs SRO that two controls rods are not fully inserted, CONTINGENCY ACTION: <ul style="list-style-type: none"> Commences emergency boration. (CRITICAL TASK PL-000 024 05 01) <ul style="list-style-type: none"> STARTS Boric Acid Pump, P-56A OPENS MO-2140, Boric Acid Pump Feed Isolation VERIFIES Charging Flow greater than 33 gpm 					
	SRO	Commences EOP-1.0 verbal verifications					
	RO	Reactivity Control: <ul style="list-style-type: none"> Reactor power lowering YES negative SUR YES maximum of one control rod not inserted NO (two rods stuck out) (Emergency Boration is in progress) 					

Op-Test No.: 1 Scenario No.: TWO Event No.: 6/7 Page 2 of 8

Event Description: **ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start**

Time	Position	Applicant's Actions or Behavior
	BOP	<p>Main Turbine Generator criteria: YES</p> <ul style="list-style-type: none"> ▪ Main Turbine tripped ▪ Generator disconnected from grid
	BOP	<p>Feedwater criteria:</p> <ul style="list-style-type: none"> ▪ PLACES Main FWP Controllers to 'MANUAL' and RAMPS to minimum speed NO – MSIVs closed ▪ PLACES Main FW Controllers to 'MANUAL,' Main FRV and B/Ps CLOSED YES
	BOP	<p>Main Vital Auxiliaries-Electric:</p> <ul style="list-style-type: none"> ▪ Buses 1C and 1D energized: NO (Bus 1C not energized, D/G 1-1 would not start, Bus 1D being supplied by D/G 1-2) ▪ Bus 1E energized: NO ▪ Bus 1A and 1B energized: NO ▪ Y-01 energized: YES ▪ Six DC Buses energized: YES ▪ 3 of 4 Preferred AC Buses energized: YES
	RO	<p>PCS Inventory Control:</p> <ul style="list-style-type: none"> ▪ PZR level 20% - 85% and trending toward 42% - 57%: YES/NO (depends on conditions) Applicable Contingency: Verify max Charging and min Letdown ▪ PCS 25°F subcooled: YES (by CETs)
	RO	<p>PCS Pressure Control: NO</p> <ul style="list-style-type: none"> ▪ PZR pressure 1650 to 2185 psia and trending toward 2010 to 2100 psia Contingencies: • Manually operates PZR heaters and spray; heaters will be off due to low PZR level, spray valves closed. • When PCS pressure is < 1605 psia, verify safety injection initiated, EK-1342 in alarm and all available HPSI and LPSI pumps in service and valves open • At 1300 psia, NONE: PCPs already off due to loss of power

Op-Test No.: 1		Scenario No.: TWO	Event No.: 6/7	Page 3 of 8
Event Description: ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start				
Time	Position	Applicant's Actions or Behavior		
	RO	Core Heat Removal: <ul style="list-style-type: none"> ▪ At least one PCP operating: NO ▪ Verify Loop ΔT less than 10°F: NO ▪ Verify PCS at least 25°F subcooled: YES (by CETs) 		
	BOP	PCS Heat Removal: <ul style="list-style-type: none"> ▪ Verify at least one S/G has; level 5% - 70%; Feedwater available: YES ▪ Verify T_{AVE} 525°F - 540°F: YES/NO Applicable Contingency Action: Ensures Turbine Bypass Valve and Atmospheric Steam Dump Valves are closed ▪ Verify BOTH S/G pressures 800 psia – 970 psia: NO Applicable Contingency Action: <ul style="list-style-type: none"> • CLOSSES MSIVs on Panel C-01 (momentarily places either control switch to CLOSE and then back to OPEN) • Ensures Turbine Bypass Valve and Atmospheric Steam Dump Valves are closed 		
	RO	Containment Isolation: NO <ul style="list-style-type: none"> ▪ Containment pressure > 0.85 psig Applicable Contingency Actions: When Containment pressure > 4.0 psig perform all of the following per EOP-1.0 immediate actions (attached): ▪ ENSURE EK-1126 (CIS Initiated) OR PUSH High Radiation Pushbuttons on Panel C-13 ▪ ENSURE CLOSED: Both MSIVs (MO-0510 and MO-0501); Main FRVs; Main FRV Bypasses; CCW Isolation Valves ▪ ENSURE EK-1342 (Safety INJ Initiated) OR PUSH left and right Injection Initiate pushbuttons on Panel EC-13 		
	BOP	Containment Isolation: <ul style="list-style-type: none"> ▪ Verify Containment Area Monitor alarms clear: YES/NO (Depends on timing: All four in alarm, <u>not</u> corroborated with High Range Gamma Monitors) ▪ Verify Condenser Off Gas Monitor alarm clear: YES ▪ Verify Main Steam Line Monitor alarms clear: YES 		

Time	Time	Time
Op-Test No.: 1	Scenario No.: TWO	Event No.: 6/7
Page 4 of 8		
Event Description: ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start		
	RO	Containment Atmosphere: NO <ul style="list-style-type: none"> ▪ Containment temperature > 125°F ▪ Containment Pressure > 0.85 psig CONTINGENCY: ENSURE OPERATING ALL available Containment Air Cooler 'A' Fans and ensure all CAC Hi Capacity outlet valves are open per EOP-1.0 immediate actions (attached): At 4 psig: <ul style="list-style-type: none"> • ENSURE OPEN Containment Spray Valves CV-3001 and CV-3002 • ENSURE OPERATING Containment Spray Pump P-54A
	RO	Vital Auxiliaries – Water: YES <ul style="list-style-type: none"> ▪ At least two SW Pumps operating ▪ BOTH Critical SW Headers in operation with pressure > 42 psig ▪ At least one CCW Pump operating
	RO	Vital Auxiliaries – Air: YES/NO (depends on when compressor is started) <ul style="list-style-type: none"> ▪ Instrument Air Pressure > 85 psig CONTINGENCY ACTION: <ul style="list-style-type: none"> ▪ Start available Instrument Air Compressors (C-2B)
	BOP	PLACES right train CRHVAC in emergency mode: <ul style="list-style-type: none"> ▪ STARTS V-26B Air Filter Unit Fan ▪ ENSURES OFF: V-94, Purge Fan; V-47, Switchgear Exhaust Fan ▪ May follow up with SOP-24 verification
	BOP	Report that neither Condensate Pump nor Cooling Tower Pump is operating due to loss of power. CONTINGENCY: CLOSE MSIVs, CV-0510 and CV-0501 (already completed)
	SRO	MAY direct isolating AFW to 'B' S/G
	BOP	When directed, isolates AFW to 'B' S/G: <ul style="list-style-type: none"> ▪ SELECTS 'MANUAL' on FIC-0727, P-8A/B flow to S/G 'B' ▪ SELECTS 'MANUAL' on FIC-0736A, P-8C flow to S/G 'B' ▪ RAISES flow output to 100% on each controller ('RED' signal indicator to the full right position)

Op-Test No.: 1 Scenario No.: TWO Event No.: 6/7 Page 5 of 8

Event Description: **ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start**

Time	Position	Applicant's Actions or Behavior
	SRO	<ul style="list-style-type: none"> ▪ Performs Event Diagnostic Flow Chart per EOP-1.0, Attachment 1 <li style="padding-left: 20px;">Diagnoses EOP-9.0, Functional Recovery Procedure, ESDE and two stuck control rods ▪ Performs EOP-9.0 strategy brief ▪ Establishes PCS pressure and temperature bands with RO
	SRO	Directs closing CV-1064 and CV-1065, CWRT vent valves
	BOP	CLOSES CV-1064 and CV-1065 (already closed due to Containment Isolation)
	SRO	Directs performance of EOP Supplement 5, Checklist for Safeguards Equipment Following SIAS
	BOP	Completes EOP Supplement 5
	SRO	Directs placing a Hydrogen Monitor in service in accident mode
	BOP	Places right train H ₂ monitor in service in accident mode (back of Panel C-11A): <ul style="list-style-type: none"> ▪ PLACES HS-2418 to ACCI ▪ PLACES HS-2416 to OPEN and RELEASES ▪ PLACES HS-2412A, HS-2412B, HS-2414A, and HS-2414B, to OPEN ▪ Energizes H₂ Recorder, AR-2401, by: PLACING to 'ON' Power Switch and PLACES to 'ON' Chart Drive Switch ▪ PLACES HS-2427R to 'ANALYZE' position ▪ REMOVES pen caps from chart pens
	SRO	Directs SE to perform EOP-9.0 SFSCs

Op-Test No.: 1 Scenario No.: TWO Event No.: 6/7 Page 6 of 8

Event Description: **ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start**

Time	Position	Applicant's Actions or Behavior
	SRO	Determines success paths for each safety function: <ul style="list-style-type: none"> ▪ Reactivity: RC-3 ▪ Maintenance of Vital Auxiliaries-Electric: DC-1, AC-2 ▪ PCS Inventory: IC-2 ▪ PCS Pressure: PC-3 ▪ PCS/Core Heat Removal: HR-2 (challenged) ▪ Containment Isolation: CI-1 ▪ Containment Atmosphere: CA-3 ▪ Maintenance of Vital Auxiliaries-Air: MVAW-1, MVAA-1
	SRO	Directs actions from HR-2: <ul style="list-style-type: none"> ▪ Perform EOP Supplement 4, SI flow verification (SE action) ▪ May secure Emergency Boration ▪ Commence a cooldown of 'A' S/G using ADVs ▪ Verify natural circulation exists ▪ Isolate 'B' S/G
	SRO	Directs steaming unaffected 'A' S/G to within 50 psi of 'B' S/G
	RO	Begins steaming 'A' S/G: <ul style="list-style-type: none"> ▪ HIC-0780A, Steam Dump Controller, 'MANUAL' pushbutton PUSHED ▪ 'Slidebar' taken to the OPEN position ▪ MONITORS S/G pressures and cooldown rate on PPC

Op-Test No.: 1		Scenario No.: TWO	Event No.: 6/7	Page 7 of 8
Event Description: ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start				
Time	Position	Applicant's Actions or Behavior		
	SRO	May direct use of PZR Auxiliary Spray to lower PCS pressure		
	RO	Refers to EOP Supplement 37, PZR Pressure Control Using Auxiliary Spray: <ul style="list-style-type: none"> ▪ ENSURE CV-1057 and CV-1059 switches in CLOSE ▪ ENSURE at least one charging pump in operation ▪ ENSURE OPEN HS-2111, Charging Line Stop ▪ ENSURE CLOSED MO-3072, Charging Pump Discharge to Train 2 ▪ OPERATE HS-2117, Aux. Spray CV-2117 keyswitch as desired 		
	SRO	Directs placing handswitches for Letdown Orifice Stop Valves to close		
	RO	PLACES handswitches to CLOSE: <ul style="list-style-type: none"> ▪ HS-2003 (CV-2003) ▪ HS-2004 (CV-2004) ▪ HS-2005 (CV-2005) 		
	SRO	Directs isolating 'B' S/G per EOP Supplement 18, 'B' S/G ESDE Isolation Checklist		

Op-Test No.: 1

Scenario No.: TWO Event No.: 6/7

Page 8 of 8

Event Description: **ESDE Inside Containment/Two Stuck Control Rods/Loss of offsite power/Failure of D/G 1-1 to start**

Time	Position	Applicant's Actions or Behavior
	BOP	Isolates 'B' S/G per EOP Supplement 18 (attached) Isolation from inside the Control Room: (CRITICAL TASK PL-000 209 05 01) <ul style="list-style-type: none"> ○ ENSURE CLOSED BOTH MSIVs (already completed) ○ ENSURE CLOSED MO-0501, 'B' S/G MSIV Bypass Valve. ○ CLOSE CV-0703, 'B' S/G Main Feed Reg Valve. ● CLOSE CV-0744, 'B' S/G Main Feed Reg Block Valve ○ CLOSE CV-0734, 'B' S/G Bypass Feed Reg Valve. ○ CLOSE S/G E-50B Blowdown Valves: CV-0768, CV-0770, and CV-0738 (may be performed in EOP supplement 6) ○ CLOSE S/G E-50B Auxiliary Feedwater Flow control Valves CV-0736, CV-0736A, CV-0727 ● DIRECTS Auxiliary Operator to isolate 'B' S/G per EOP Supplement 18
SRO: Emergency Classification Level: SA5 AC Power Supplied by one D/G > 15 minutes		
TERMINATE Scenario when 'B' S/G has been isolated per EOP Supplement 18 <u>OR</u> at the discretion of the Lead Examiner.		

Facility: PalisadesScenario No.: THREEOp-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions: 25% power.

Turnover: The Plant is at approximately 25% power MOL following a startup from a forced outage. The Turbine Drain Valves are closed per SOP-8. A Chemistry hold has just been lifted with S/G chemistry within specifications. GCL-5.1, Power Escalation in MODE 1, has been completed through Step 2.13a. Shift orders are to then commence a power escalation to full power at 6% per hour.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	SRO (N) RO (R) BOP (N)	Power escalation
2	RP11A	SRO (C, T) BOP (C)	Power Range Detector NI-5 fails low
3	RX05B	SRO (I) RO (I)	Channel 'B' Pressurizer Pressure Controller failure
4	N/A	SRO (T)	T-10A Diesel Fuel Oil Inventory Low
5	RC16A	SRO (C) RO (C)	PCP P-50A High Vibration (requires pump trip)
6	RC04	ALL (M)	LOCA
7	TC02	BOP (I)	Failure of Turbine to auto trip
8	CH05A CH05B	RO (I)	CHP Channels Auto Initiate Failure

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

Scenario THREE - Simulator Operator Instructions

- Reset to IC-14
- Ensure FIC-0210A set for 40-gallon dilution on Panel C-02
- INSERT MF TC02 (PIDTC03) Failure of Turbine to trip on Reactor Trip
- INSERT MFs CH05A and CH05B (PIDCH01) Failure of CHP channel to AUTO initiate
- Create Event Trigger 4: Event: AN:K09(3) {this is Alert alarm for PCP Vibration}

Create Event Trigger 5:

Event: ZDI2P(123) {this is P-50A HS to TRIP position}

Action: ior TIA-0138A (0 15:00) 0.55

- Create Event Trigger 6: Event: rdsr(13)<100

Event #	Remote or Trigger #	Instructions
1		No actions required.
2	REMOTE 1	RP11A (PIDRPNI3) Loss of NI 5 Power Range Detector (fails low)
3	REMOTE 2	RX05B (PIDRX01) Channel 'B' PZR Pressure Controller failure
4		No actions required (Simulator Operator phone call: see end of Event #3)
5	REMOTE 3	RC16A (PIDRC03) HI Vibration on PCP P-50A
	TRIGGER 4	TIA-0138A (PNL C-11) P-50A Upper Thrust Bearing Temperature Final Value = 0.75, 7 minute ramp <i>[Trigger #5 will activate when P-50A is secured]</i>
6	TRIGGER 6	RC04 (PIDRC01) Severity = 100 (1000 gpm LOCA)
7		ACTIVE AT SETUP – No actions required.
8		ACTIVE AT SETUP – No actions required.

Special instructions:

- Provide a marked up copy of GCL 5.1 completed through step 2.13a.

Scenario THREE - Turnover Information

The Plant is at approximately 25% power MOL following a startup from a forced outage. The Turbine Drain Valves are closed per SOP-8. A Chemistry hold has just been lifted with S/G chemistry within specifications. GCL-5.1, Power Escalation in MODE 1, has been completed through Step 2.13a. Shift orders are to commence a power escalation to full power at 6% per hour.

Op-Test No.: 1	Scenario No.: THREE	Event No.: 1	Page 1 of 1
Event Description: Power Ascension			
Time	Position	Applicant's Actions or Behavior	
	SRO	Enters/continues and directs the actions of GOP-5.	
	BOP	<p>Operates turbine generator on the DEH panel for power escalation @ 6% per hour:</p> <p>ENTERS setter value</p> <p>SELECTS rate of 6% per hour</p> <p>PUSHES "GO " pushbutton and observes white light illuminate</p> <p>Informs CRS/RO that turbine is in "GO"</p>	
	RO	<p>Performs periodic dilutions and/or control rod manipulations to maintain T_{AVE} within $3^{\circ}F$ of T_{REF}</p> <p>For Dilution:</p> <ul style="list-style-type: none"> ▪ RESET PMW Controller if not already RESET ▪ SET quantity and batch flow limit on FIC-0210A, PMW flow controller ▪ OPEN CV-2155, Make Up Stop Valve ▪ PUSH start pushbutton on FIC-0210A ▪ VERIFIES FIC-0210A output signal at zero when dilution complete ▪ CLOSES CV-2155 ▪ MONITORS reactor power and T_{AVE} <p>For Control Rod manipulations:</p> <ul style="list-style-type: none"> ▪ Operates Rod Control Switch to WITHDRAW Group 4 Regulating Rods in increments specified by CRS <p>MONITORS reactor power and T_{AVE} T_{REF}</p>	
	RO	<p>May divert CVCS letdown to Clean Waste as VCT level rises:</p> <ul style="list-style-type: none"> ▪ PLACES CV-2056, Letdown to VCT or Radwaste, in the "TO CLEAN WASTE RCVR TANKS" position ▪ When desired VCT level is achieved, PLACES CV-2056 to the "AUTO" or "TO VOL CNTRL TANK" position (then "AUTO") 	
<p>After power has been raised 1%-2% <u>OR</u> at the discretion of the Lead Examiner, INSERT REMOTE #1</p>			

Op-Test No.: 1	Scenario No.: THREE	Event No.: 2	Page 1 of 2
Event Description: Power Range NI-05 Fails			
Time	Position	Applicant's Actions or Behavior	
	BOP	<p>Diagnose failure of Power Range NI-05:</p> <p>Indications: NI-05 Lower and Upper power meters read 0%; HI voltage meter reads 0 volts; Rod Drop tell-tale light illuminated</p> <p>Major Alarms:</p> <ul style="list-style-type: none"> • EK-0948, Dropped Rod; • EK-06 Rack C Window 3, Channel Deviation Level 1 5%; • EK-06 Rack C Window 4, Channel Deviation Level 2 10%; • EK-06 Rack C Window 7, Dropped Rod; • EK-06 Rack C Window 8, NI Channel Trouble; • EK-06 Rack D Window 2, Loss of Load Trip Channel Bypassed, • EK-06 Rack D Window 3, Nuclear $-\Delta T$ Power Deviation/T-Inlet Off Normal/Calculator Trouble Channel 'A' 	
	BOP	May DEPRESS 'HOLD' on the turbine	
	BOP	<p>Performs Operator Actions of EK-06 Rack 'C' Windows 3 and 4;</p> <p>If Reactor Power less than 25%:</p> <ul style="list-style-type: none"> ▪ CHECK Rod positions normal <p>Follow Up Actions:</p> <ul style="list-style-type: none"> ▪ REMOVE faulty Power Range Nuclear Instrument from service per SOP-35 	
	BOP	<p>Performs Operator Actions of EK-06 Rack 'C' Windows 8:</p> <ul style="list-style-type: none"> ▪ CHECK detector voltage for NI-08 greater than 650 VDC <p>Follow Up Actions:</p> <ul style="list-style-type: none"> ▪ NI detector voltage less than 650 VDC, REMOVE from service per SOP-35 	
	SRO	<ul style="list-style-type: none"> • May reference or enter ONP-5.1, Dropped Rod. ONP-5.1 does not apply • Directs removal of NI-05 from service • Declares Channel 'A' Flux-Delta T Comparator and ASI alarm function of TMM 'A' Channel inoperable • Directs monitoring and logging the "Power Density" status of the remaining operable TMMs hourly • May call Reactor Engineer to assist in Quadrant Power Tilt and Linear Heat Rate with an NI out of service using Incore Detectors 	

Op-Test No.: 1	Scenario No.: THREE	Event No.: 2	Page 2 of 2
Event Description: Power Range NI-05 Fails			
Time	Position	Applicant's Actions or Behavior	
	BOP	<p>REMOVES NI-05 from service per SOP-35, Section 7.2.2:</p> <p>For 'A' Channel RPS, BYPASS the following Trip Units per SOP-36:</p> <p>Variable High Power Key # 289 High Power Rate Key # 290 TM/LP Key # 297 Loss of Load Key # 298</p> <ul style="list-style-type: none"> ▪ INSERT bypass key above affected RPS Trip Unit ▪ TURN key 90° clockwise ▪ VERIFY the yellow light above the bypass keyswitch is ON ▪ Repeat for other affected channel(s) 	
	BOP	<p>May RESET Rod Drop 'Telltale" and alarm on Panel C-06:</p> <p>PUSHES Rod Drop "Telltale" pushbutton for Channel 'A'</p>	
	BOP	<p>May check the "Power Density" status (OK) of the remaining operable TMMs (not in tripped), (Step G)</p>	
	SRO	<p>The following Tech Spec LCOs apply: (THESE ARE MOST IMPORTANT)</p> <ul style="list-style-type: none"> ▪ 3.3.1, Action: A.1, VHP and TM/LP, 7 days ▪ 3.3.1, Action: B.1, High SUR, Prior to entering MODE 2 from MODE 3 ▪ 3.3.1, Action: C.1, Loss of Load, Prior to increasing power ≥ 17% from MODE 3 <p>(THESE ARE OF LESSER IMPORTANCE)</p> <p>The following ORM, Operating Requirements Manual, items apply:</p> <ul style="list-style-type: none"> ▪ 3.17.6, Item: 12.1, Flux-Delta T Comparator, Prior to next MODE 1 entry from MODE 2 ▪ 3.17.6, Item: 15, Excore deviation alarm, Once per 12 hours ▪ 3.17.6, Item: 16, ASI alarm, Prior to next MODE 4 entry from MODE 5 ▪ 3.11.2, Excores unable to monitor Linear Heat Rate 	
<p>After BOP bypasses RPS trip units on 'A' Channel RPS <u>OR</u> CRS has briefed loss of NI-05 <u>OR</u> at the discretion of the Lead Examiner, INSERT REMOTE #2.</p>			

Op-Test No.: 1	Scenario No.: THREE	Event No.: 3	Page 1 of 2
Event Description: Failure of 'B' Channel PZR Pressure Controller			
Time	Position	Applicant's Actions or Behavior	
	RO	<p>Diagnoses failure of 'B' PZR Pressure Controller:</p> <p>Indications: PIC-0101B, 'B' Channel PZR Pressure Controller reads 2500 psia; Signal output on PIC-0101B in 'full Spray' position; PZR Spray CV's 1057/1059 show full open; PZR pressure lowering on PI-0104 and PIC-0101A</p> <p>Major Alarm EK-0754, Pressurizer Pressure OFF Normal HI-LO:</p>	
	RO	<p>Performs Operator Actions for EK-0754:</p> <ul style="list-style-type: none"> ▪ Notifies CRS to refer to ONP-18 	
	SRO	<p>Enters ONP-18, Pressurizer Pressure Control Malfunctions</p> <p>Directs subsequent actions to be taken</p>	
	SRO	<p>May direct RO to perform:</p> <ul style="list-style-type: none"> ▪ PIC-0101B to the 'M' position ▪ Control PZR pressure using Slide Bar ▪ Direct a pressure band in which to maintain pressure ▪ Swap to PIC-0101A per SOP-1A <p><u>OR</u></p> <ul style="list-style-type: none"> ▪ Placing HS 1/PRC-0101 to the 'A' Channel position <p>And then</p> <ul style="list-style-type: none"> ▪ Refer to SOP-1A, Primary Coolant System, to ensure all steps are completed referencing the procedure <p>Directing RO to swap controllers and then reference the SOP <u>OR</u> following step by step guidance in SOP <u>are both acceptable</u></p>	

Op-Test No.: 1	Scenario No.: THREE	Event No.: 3	Page 2 of 2
Event Description: Failure of 'B' Channel PZR Pressure Controller			
Time	Position	Applicant's Actions or Behavior	
	RO	<p>Per SRO direction performs:</p> <ul style="list-style-type: none"> ▪ PLACES PIC-0101B to the 'M' position ▪ Control PZR pressure using Slide Bar ▪ Swap to PIC-0101A per SOP-1A <p><u>OR</u></p> <ul style="list-style-type: none"> ▪ PLACES HS 1/PRC-0101 to the 'A' Channel position <p>And then</p> <ul style="list-style-type: none"> ▪ Refers to SOP-1A, Primary Coolant System, to ensure all steps are completed referencing the procedure <p>(CRITICAL TASK PL-000 423 04 01)</p>	
	RO	<p>PLACES PPCS in 'AUTO" per SOP-1A Section 7.2.2:</p> <ul style="list-style-type: none"> ▪ ADJUST blue pointer to match red pointer ▪ DEPRESS the 'AUTO' pushbutton on PIC-0101A 	
	SRO	<p>The following Tech Spec LCO may apply:</p> <ul style="list-style-type: none"> ▪ 3.4.1, Action: A.1, PZR pressure < 2010 psia, 2 hours 	
	SRO	<p>May exit ONP-18, may direct BOP to check instruments on back of C-12.</p>	
<p>After the SRO has briefed the loss of the 'B' Channel Pressurizer Pressure Controller OR at the discretion of the Lead Examiner, make phone call to CRS as I&C technician and report the following:</p> <p>a. During calibration of T-10A fuel oil tank level transmitter for LIA-1400, we did a dipstick check of T-10A.</p> <p>b. The dipstick check results are that T-10A actual level is 64" which means we will need to recalibrate LIA-1400 since it is reading inaccurately.</p>			

Op-Test No.: 1	Scenario No.: THREE	Event No.: 4	Page 1 of 1
Event Description: T-10A Diesel Fuel Oil Inventory Low			
Time	Position	Applicant's Actions or Behavior	
	SRO	Receives phone call from I&C that T-10A dipstick reading is 64".	
	SRO BOP	Verifies that LIA-1400 in the Control Room is incorrectly indicating adequate T-10A inventory.	
	SRO	Refers to SOP-22, Attachment 3 and determines that based on a dipstick reading of 64", there is inadequate fuel oil inventory in T-10A (22,000 gallons).	
	SRO	Refers to Tech. Spec. 3.8.3 and determines that LCO 3.8.3.A applies. Must restore fuel oil inventory within 48 hours.	
	SRO	May direct T-10A fill from T-926.	
At the discretion of the Lead Examiner, INSERT REMOTE #3			

Op-Test No.: 1	Scenario No.: THREE	Event No.: 5	Page 1 of 1
Event Description: PCP P-50A High Vibration requiring a Plant trip			
Time	Position	Applicant's Actions or Behavior	
	SRO/RO	Diagnoses P-50A high vibration: Vibration Monitor VIA-131A readings on Panel C-02 above normal, in ALERT or DANGER Alarms EK-0913, Pri Coolant Pump Vib Alert/Mon Trouble and/or EK-0914, Pri Coolant Pump Vibration Danger P-50A upper thrust bearing temperature on Panel C-11, TIA-0138A, trending upward	
	RO	RESPONDS to alarms for P-50A using ARP-5. DETERMINES that reactor trip is required (based on rate of rise and other corroborating indications) and that PCP should be stopped.	
	SRO	Directs tripping reactor and then securing P-50A	
	RO	DEPRESSES CO-2 Panel Reactor Trip Pushbutton (CRITICAL TASK PL-343 223 05 01)	
	RO	TRIPS P-50A using switch on Panel C-02 ENSURES associated AC or DC lift pump automatically starts	
	BOP/RO	PERFORM EOP-1.0 immediate actions	

Op-Test No.: 1	Scenario No.: THREE	Event No.: 6/7/8	Page 1 of 7
Event Description: EOP-1.0 actions/EOP-4.0 (LOCA)			
Time	Position	Applicant's Actions or Behavior	
	BOP	Informs the CRS that the Turbine did not trip, CONTINGENCY ACTION: PERFORM the following: <ul style="list-style-type: none"> • CLOSE both MSIVs: CV-0510 ('A' S/G) and CV-0501 ('B' S/G): places one handswitch to CLOSE momentarily and back to OPEN 	
	SRO	Commences EOP-1.0 verbal verifications	
	RO	Reactivity Control: YES <ul style="list-style-type: none"> ▪ Reactor power lowering ▪ Negative SUR ▪ Maximum of one control rod not inserted 	
	BOP	Main Turbine Generator criteria: YES <ul style="list-style-type: none"> ▪ Main Turbine tripped (Contingency taken to close MSIV) ▪ Generator disconnected from grid 	
	BOP	Feedwater criteria: <ul style="list-style-type: none"> ▪ PLACES Main FWP Controllers to 'MANUAL' and RAMPS to minimum speed NO – MSIVs closed ▪ PLACES Main FW Controllers to 'MANUAL,' Main FRV and B/Ps CLOSED YES 	

Time	Position	Applicant's Actions or Behavior
Op-Test No.: 1 Scenario No.: THREE Event No.: 6/7/8 Page 2 of 7		
Event Description: EOP-1.0 actions/EOP-4.0 (LOCA)		
	BOP	Vital Auxiliaries-Electric: <ul style="list-style-type: none"> ▪ Buses 1C and 1D energized: YES ▪ Bus 1E energized: YES/NO (depends on SIAS status) ▪ Bus 1A and 1B energized: YES ▪ Y-01 energized: YES ▪ Six DC Buses energized: YES ▪ 3 of 4 Preferred AC Buses energized: YES
	RO	PCS Inventory Control: <ul style="list-style-type: none"> ▪ PZR level 20% - 85% and trending toward 42% - 57% NO Applicable Contingency Actions: <ul style="list-style-type: none"> • Ensure all orifice stop valves are closed • Ensure all available charging pumps are operating <ul style="list-style-type: none"> ▪ PCS 25°F subcooled YES/NO (depends on timing)
	RO	PCS Pressure Control: <ul style="list-style-type: none"> ▪ PZR pressure 1650 – 2185 psia and trending toward 2010 – 2100 psia NO Applicable Contingency Actions: <ul style="list-style-type: none"> • Ensure Spray Valves are closed • Ensure all available heaters are energized (all heaters will be de-energized due to PZR level < 36%) • Ensure all available HPSI (P-66A/B) and LPSI Pumps (P-67A/B) operating with associated loop injection valves (12 total) open

Op-Test No.: 1	Scenario No.: THREE	Event No.: 6/7/8	Page 3 of 7
Event Description: EOP-1.0 actions/EOP-4.0 (LOCA)			
Time	Position	Applicant's Actions or Behavior	
	RO	<p>Core Heat Removal:</p> <p>May SECURE ALL PCPs due to loss of CCW for cooling</p> <ul style="list-style-type: none"> ▪ At least one PCP operating: YES or NO (depends on timing) ▪ Verify Loop ΔT less than 10°F: YES ▪ Verify PCS at least 25°F subcooled: YES/NO (depends on timing) 	
	BOP	<p>PCS Heat Removal:</p> <ul style="list-style-type: none"> ▪ Verify at least one S/G has; level 5% - 70%; Feedwater available: YES ▪ Verify T_{AVE} 525°F - 540°F: YES ▪ Verify BOTH S/G pressures 800 psia – 970 psia: YES 	
	RO	<p>Containment Isolation: NO</p> <ul style="list-style-type: none"> ▪ Containment pressure > 0.85 psig <p>Applicable Contingency Actions (may occur in EOP-4.0):</p> <p>When Containment pressure > 4.0 psig perform all of the following per EOP-1.0 immediate actions (attached):</p> <ul style="list-style-type: none"> ▪ ENSURE EK-1126 (CIS Initiated) OR PUSH High Radiation Pushbuttons on Panel C-13 ▪ ENSURE CLOSED: Both MSIVs (MO-0510 and MO-0501); Main FRVs; Main FRV Bypasses; CCW Isolation Valves ▪ ENSURE EK-1342 (Safety INJ Initiated) OR PUSH left and right Injection Initiate pushbuttons on Panel C-13 	
	BOP	<p>Containment Isolation:</p> <ul style="list-style-type: none"> ▪ Verify Containment Area Monitor alarms clear: YES/NO (Depends on timing: All four in alarm, not corroborated with High Range Gamma Monitors) ▪ Verify Condenser Off Gas Monitor alarm clear: YES ▪ Verify Main Steam Line Monitor alarms clear: YES 	

Op-Test No.: 1 Scenario No.: **THREE** Event No.: **6/7/8** Page 4 of 7Event Description: **EOP-1.0 actions/EOP-4.0 (LOCA)**

Time	Position	Applicant's Actions or Behavior
	RO	Containment Atmosphere: NO <ul style="list-style-type: none"> ▪ Containment temperature > 125°F ▪ Containment Pressure > 0.85 psig Applicable Contingency Actions (may occur in EOP-4.0): <ul style="list-style-type: none"> • ENSURE OPERATING ALL available Containment Air Cooler 'A' Fans and ensure all CAC Hi Capacity outlet valves are open per EOP-1.0 immediate actions (attached): • At 4 psig: <ul style="list-style-type: none"> ○ ENSURE OPEN Containment Spray Valves CV-3001 and CV-3002 ○ ENSURE OPERATING all Containment Spray Pumps, P-54A/B/C <p style="text-align: center;">(CRITICAL TASK PL-000 433 05 01)</p>
	RO	Vital Auxiliaries – Water: YES <ul style="list-style-type: none"> ▪ Verify at least two SW Pumps operating ▪ Verify BOTH Critical SW Headers in operation with pressure > 42 psig ▪ Verify at least one CCW Pump operating
	RO	Vital Auxiliaries – Air: YES <ul style="list-style-type: none"> ▪ Instrument Air Pressure > 85 psig
	SRO	<ul style="list-style-type: none"> ▪ Directs performance of EOP Supplement 6, Checklist For Containment Isolation and CCW Restoration ▪ Directs performance of EOP Supplement 5, Checklist for Safeguards Equipment Following SIAS
	BOP	PERFORMS EOP Supplement 5 and Supplement 6
	BOP	PLACES left train CRHVAC in emergency mode: <ul style="list-style-type: none"> ▪ STARTS V-26A Air Filter Unit Fan (will auto start if CHP has occurred) ▪ ENSURES OFF: V-94, Purge Fan; V-47, Switchgear Exhaust Fan ▪ May follow-up with SOP-24 verification

Op-Test No.: 1 Scenario No.: **THREE** Event No.: **6/7/8** Page 5 of 7Event Description: **EOP-1.0 actions/EOP-4.0 (LOCA)**

Time	Position	Applicant's Actions or Behavior
	BOP	Verify BOTH of the following: <ul style="list-style-type: none"> • At least one Condensate Pump operating • At least one Cooling Tower Pump operating
	BOP	TRIPS both Main Feed Pump Turbines due to MSIVs being closed.
	SRO	<ul style="list-style-type: none"> • Performs Event Diagnostic Flow Chart per EOP-1.0, Attachment 1 • Diagnoses EOP-4.0, Loss of Coolant Event • Performs EOP-4.0 strategy brief • Establishes PCS pressure and temperature bands with RO • Directs cooldown of PCS using ADVs
	SRO	Directs SE to perform Safety Function Status checks for EOP-4.0
	SRO	Directs performance of EOP Supplement 4, Pre-RAS Minimum HPSI Injection Flow
	BOP/SE	PERFORMS EOP Supplement 4

Op-Test No.: 1	Scenario No.: THREE	Event No.: 6/7/8	Page 6 of 7
Event Description: EOP-1.0 actions/EOP-4.0 (LOCA)			
Time	Position	Applicant's Actions or Behavior	
	SRO	Directs placing handswitches for Letdown Orifice Stop Valves to close	
	RO	PLACES handswitches to CLOSE: <ul style="list-style-type: none"> ▪ HS-2003 (CV-2003) ▪ HS-2004 (CV-2004) ▪ HS-2005 (CV-2005) 	
	SRO	Directs closing CV-1064 and CV-1065, CWRT vent valves	
	BOP	CLOSES CV-1064 and CV-1065	
	SRO	Directs closing CV-2001 and CV-2009, Letdown Stop valves	
	BOP	CLOSES CV-2001 and CV-2009	
	SRO	Directs closing CV-1910 and CV-1911, PCS Sample Isolation valves	
	BOP	CLOSES CV-1910 and CV-1911	

Op-Test No.: 1	Scenario No.: THREE	Event No.: 6/7/8	Page 7 of 7
Event Description: EOP-1.0 actions/EOP-4.0 (LOCA)			
Time	Position	Applicant's Actions or Behavior	
	SRO	Directs placing a Hydrogen Monitor in service	
	BOP	Places left train H ₂ monitor in service in accident mode (back of Panel C-11A): <ul style="list-style-type: none"> ▪ PLACES HS-2419 in ACCI position ▪ PLACES HS-2417 to OPEN and RELEASES ▪ PLACES HS-2413A, HS-2413B, HS-2415A, and HS-2415B, to OPEN ▪ Energizes H₂ Recorder, AR-2401, by: PLACING to 'ON' Power Switch and PLACES to 'ON' Chart Drive Switch ▪ PLACES HS-2427L to 'ANALYZE' position ▪ REMOVES pen caps from chart pens 	
	SRO	Verifies all available charging pumps operating	
	SRO	Evaluates securing/reducing Containment Spray flow per EOP-4.0 Step 16	
	BOP	SECURES either P-54B OR P-54C	
SRO: Emergency Classification Level: Alert, FA1, PCS Leak Rate GREATER THAN available makeup capacity indicated by PCS subcooling LESS THAN 25 degrees F based on average of qualified CETs			
TERMINATE Scenario after first Containment Spray Pump is stopped per EOP-4.0 Step 16.a <u>OR</u> at the discretion of the Lead Examiner.			

Facility: **Palisades**

Scenario No.: **SPARE**

Op-Test No.: **1**

Examiners: _____ Operators: _____

Initial Conditions: 100% power. P-8A, Auxiliary Feedwater Pump is out of service for pump packing replacement.

Turnover: Shift orders to rotate Instrument Air Compressors and then lower power at 4% per hour to 87% to perform Turbine Valve Testing.

Event No.	Malif. No.	Event Type*	Event Description
1	N/A	RO (N)	Rotate Instrument Air Compressors
2	N/A	SRO (N) RO (R) BOP (N)	Power de-escalation.
3	CH06B	SRO (I, T) BOP (I)	Loss of 'B' Control Room HVAC Train
4	ED08B	SRO (I, T) RO (I) BOP (I)	Loss of Preferred AC Bus Y20
5	RC03	SRO (C, T) RO (C)	PCS Leak
6	FW03B	BOP (C)	Failure of Steam Driven AFW Pump P-8B to Auto Start
7	MS06B MS15B	ALL (M)	Main Steam Relief RV-0711 partially open (initiates at time of trip)
8	SI09B	RO (C)	Failure of P-66B, HPSI Pump, to Auto start

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

Scenario Spare - Simulator Operator Instructions

- Reset to IC 17.
- Ensure FIC-0210A set for 40-gallon dilution on Panel C-02
- Place Right Train CRHVAC in service per SOP-24.
- AFW Pump P-8A is OOS:
 - Use FW16A on PIDFW01 to trip P-8A
 - Override P-8A-G (green light for P-8A) to OFF
 - Override P-8A-W (white light for P-8A) to OFF
 - Hang Caution Tag on P-8A handswitch
 - Ensure EOOS indicates P-8A is out of service
- INSERT MF FW03B (PIDFW01) Failure of AFW Pump P-8B to auto start
- INSERT MF SI09B (PIDSIO2) Failure to AUTO start P-66B, Safety Injection Pump
- Create Event Trigger 4: Event: 0, Action: imf RC03 15
- Create Event Trigger 5: Event: Reg Group 1 Rod 21 less than 110"

Event #	Remote or Trigger #	Instructions
1/2		No actions required.
3	REMOTE 1	CH06B (PIDCH06) Loss of 'B' CRHVAC train
4	REMOTE 2	ED08B (PIDED02) Loss of Preferred AC Bus NO.2 (Y-20)
5	REMOTE 3	RC03 (PIDRC01) PCS Leak, Severity = 6 (6 gpm). [Simulator Operator will insert Remote 4 after Crew determines Tech Spec implications]
5	TRIGGER 5	Action: imf RC03 100 [<i>PCS leak to 100 gpm when reactor trips</i>]
6		ACTIVE AT SETUP – No actions required.
7	TRIGGER 5	MS06B (PIDMS01) Safety Relief Valve RV-0711 Leak, Severity = 100 MS15B (PIDMS01) 'B' S/G Steam Line Break Outside Cont, Severity = 2
8		ACTIVE AT SETUP – No actions required.

Special instructions:

- NONE

Scenario Spare - Turnover Information

The Plant is at 100% power with P-8A Auxiliary Feedwater Pump is out of service for pump packing replacement (LCO 3.7.5.A.1 - 72 hrs.) Shift orders are to alternate running Instrument Air Compressors by placing C-2B in service, and C-2A and C-2C in AUTO, per SOP-19, section 7.2.8. Then, shift orders are to lower power at 4% per hour to less than 87% to perform Turbine Valve testing.

Op-Test No.: 1	Scenario No.: SPARE	Event No.: 1	Page 1 of 1
Event Description: Alternate Instrument Air Compressors			
Time	Position	Applicant's Actions or Behavior	
	SRO RO	Refers to SOP-19, section 7.2.8	
	RO	<p>STARTS C-2B per SOP-19 section 7.2.2:</p> <p>PLACE Compressor Switch in HAND position.</p> <ol style="list-style-type: none"> 1. VERIFY the UNLOAD light is de-energized. 2. IF the compressor UNLOAD light is energized, THEN DEPRESS C-2B, Instrument Air Compressor's Load/Unload button. <p>(a) VERIFY the UNLOAD light is extinguished.</p>	
<p>Simulator Operator: Role play as AO and follow along in procedure when RO is performing SOP-19 section 7.2.2:</p> <p>For Step 7.2.2.c: C-2B UNLOAD light is deenergized and C-2B is loading.</p>			
	RO	<p>PLACES C-2A in OFF per SOP-19 section 7.2.4.</p> <p>IF time allows, THEN PERFORM the following:</p> <p>WHEN PIA-1210, Instrument Air Header Pressure Ind Alarm, reaches peak air header pressure, THEN after at least 10 seconds PLACE Compressor Switch to OFF.</p>	
	RO	<p>PLACES C-2A in AUTO per SOP-19 section 7.2.5.</p> <p>IF C-2A is being taken from HAND to AUTO, THEN PERFORM the following:</p> <p>WHEN PIA-1210, Instrument Air Header Pressure Ind Alarm, reaches peak air header pressure, THEN after at least 10 seconds PLACE C-2A Control Switch to OFF.</p> <p>PLACE C-2A Control Switch to AUTO.</p>	
<p>Simulator Operator: Role play as AO and follow along in procedure when RO is performing SOP-19 section 7.2.5 as needed: no responses expected.</p>			

Op-Test No.: 1		Scenario No.: SPARE	Event No.: 2	Page 1 of 2
Event Description: Lower power to less than 87%				
Time	Position	Applicant's Actions or Behavior		
	RO	INSERTS Group 4 Control Rods to less than 128 inches: <ul style="list-style-type: none"> ▪ Rod Control Switch MANIPULATED to lower control rods 		
	BOP	Operates turbine generator on the DEH panel for power de-escalation at 4% per hour: <ul style="list-style-type: none"> ▪ ENTERS setter value ▪ SELECTS rate of 4% per hour ▪ PUSHES GO pushbutton and observes white light illuminate ▪ Informs CRS/RO that turbine is in "GO" 		
	RO	Performs periodic borations and/or control rod manipulations to maintain T_{AVE} within 3°F of T_{REF} For Boration: <ul style="list-style-type: none"> ▪ RESET PMW and BA Controllers if required ▪ SET quantity and batch flow limit on FIC-0201B, BA flow controller ▪ SET quantity and batch flow limit on FIC-0210A, PMW flow controller ▪ START P-56B (preferred) OR P-56A, Boric Acid Pump ▪ OPEN CV-2155, Make Up Stop Valve ▪ PUSH start pushbutton on FIC-0210B ▪ VERIFIES FIC-0210B output signal at zero when boration complete ▪ PUSH start pushbutton on FIC-0210A ▪ VERIFIES FIC-0210A output signal at zero when boration complete ▪ CLOSES CV-2155 ▪ MONITORS reactor power and T_{AVE} For Control Rod manipulations: <ul style="list-style-type: none"> ▪ INSERTS Group 4 Regulating Rods in increments specified by CRS ▪ MONITORS reactor power and T_{AVE} 		

Op-Test No.: 1

Scenario No.: SPARE

Event No.: 2

Page 2 of 2

Event Description: **Lower power to less than 87%**

Time	Position	Applicant's Actions or Behavior
	RO	May divert CVCS letdown to Clean Waste as VCT level rises: <ul style="list-style-type: none"> ▪ PLACES CV-2056, Letdown to VCT or Radwaste, in the "TO CLEAN WASTE RCVR TANKS" position ▪ When desired VCT level is achieved, PLACES CV-2056 to the "AUTO" or "TO VOL CNTRL TANK" position (then "AUTO")
After power has been lowered 1%-2% <i>OR</i> at the discretion of the Lead Examiner, INSERT REMOTE #1. ALSO ENSURE THAT DPIC-1659 AND 1660 PLACARDS (showing low pressure) ARE HUNG ON BACK OF PANEL C-33.		

Op-Test No.: 1	Scenario No.: SPARE	Event No.: 3	Page 1 of 2
Event Description: Loss of operating CRHVAC train			
Time	Position	Applicant's Actions or Behavior	
Simulator Instructor: When Event 3 is initiated, place placards on the back of C-11A showing DPIC-1659/1660 indicating '0' inches H₂O			
	BOP	Diagnose loss of 'B' Train CRHVAC: Indications: V-96, Air Handling Unit Fan, stops running; noticeable lowering of back-round sound Major alarm: EK-0249, Control Room LOW Pressure DPIC-1659/1660	
	BOP	Operator actions from EK-0249: • CHECK CR HVAC not operating per SOP-24, Ventilation and Air Conditioning System • START opposite CR HVAC train in service per SOP-24	
	SRO	Directs BOP to Place 'A' Train CR HVAC in service per SOP-24	
	BOP	IF placing CR HVAC to 'A' Train in service per SOP-24 in NORMAL: <ul style="list-style-type: none"> • ENSURE Control Switch for VC-11 in AUTO • ENSURE Control Switch for V-26A, Air Filter Unit Fan, in AUTO • ENSURE Control Switch for V-95, Air Handling Unit Fan, PLACED to ON • PLACES V-96 in AUTO • CHECK indications for train ('A') being placed in service: <ul style="list-style-type: none"> ○ All Dampers in correct position (OPEN/MODULATING) 	
Simulator Instructor: When CRHVAC is restored, post placards on the back of C-11A showing DPIC-1659/1660 indicating > 0.125 inches H₂O			

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

Event Description: **Loss of operating CRHVAC train**

Time	Position	Applicant's Actions or Behavior
	BOP	<p>IF placing CR HVAC to 'A' Train inservice per SOP-24 in EMERGENCY:</p> <ul style="list-style-type: none"> • PLACE Control Switch for V-26B, Air Filter Unit Fan, in ON • ENSURE Control Switch for V-95, Air Handling Unit Fan, PLACED to ON • PLACE Control Switch for V-96 to AUTO • PLACE Control Switch for VC-10 to AUTO • ENSURE Control Switch for VC-11 in AUTO • CHECK indications for train being stopped: • Notes that Train 'B' Dampers reposition to CLOSED: <ul style="list-style-type: none"> ○ Outside Air Damper, D-8 ○ Modulating Damper, D-9 ○ Recirc Damper, D-10 ○ Discharge Damper, D-11 • CHECK indications for train ('A') being placed in service: <ul style="list-style-type: none"> ○ All Dampers in correct position (OPEN/MODULATING)
<p>Simulator Instructor: When CRHVAC is restored, post placards on the back of C-11A showing DPIC-1659/1660 indicating > 0.125 inches H₂O</p>		
	SRO	<p>Refer to Technical Specifications and determine the following required actions due to inoperable 'B' CRHVAC train:</p> <ul style="list-style-type: none"> ▪ LCO 3.7.10.A.1 (7-day action) ▪ LCO 3.7.11.A.1 (30-day action)
<p>After SRO has briefed CRHVAC event <u>OR</u> at the discretion of the Lead Examiner, INSERT REMOTE #2</p>		

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

Event Description: **Loss of Preferred Bus Y-20**

Time	Position	Applicant's Actions or Behavior
	RO/BOP	Diagnose loss of Preferred AC Bus Y20: Indications: 'B' RPS channel parameters all in 'trip' (red lights illuminated); PIP Control Rod indications read -188.0 T _{AVE} temperature reads 515.0°F 'B' channel PZR Pressure Controller power loss 'B' PZR Level Controller power loss Major Alarms: EK-0545, Preferred AC Bus NO.2 Trouble EK-0154, FW Pump P1B LO Suction Flow or LO Disch Press EK-0764, Pressurizer Level Ch 'B' LO-LO EK-0754, Pressurizer Pressure Off Normal HI-LO EK-0918, PIP Trouble; EK-1145, Sequencer Trouble EK-1378, Contmt Iso Safety INJ Right Side Cont CKT UV
	BOP	May DEPRESS 'HOLD' on the turbine
	SRO	Enters ONP-24.2, Loss of Preferred AC Bus Y20 Directs Subsequent Actions to be taken
	BOP	Contacts AO to CLOSE MV-FW734, Feed Pump P-1B Recirc Valve (isolates CV-0710)
Simulator Operator – When contacted by Control Room as AO to close MV-FW734, wait approx. 4 minutes , use FW62 (PIDFW03), then report back MV-FW734 is closed.		
	SRO	Direct the RO to place: <ul style="list-style-type: none"> • Pressurizer Level Control System (PLCS) to channel 'A' • Pressurizer Pressure Control System (PPCS) to channel 'A' • PLCS to 'CASCADE' • PPCS to 'AUTO' And then <ul style="list-style-type: none"> • Refer to SOP-1A, Primary Coolant System to ensure all steps are completed referencing the procedure Directing RO to swap controllers and then reference the SOP <u>OR</u> following step by step guidance in SOP are both acceptable

Op-Test No.: 1 Scenario No.: **SPARE** Event No.: 4 Page 2 of 4Event Description: **Loss of Preferred Bus Y-20**

Time	Position	Applicant's Actions or Behavior
	RO	PLACES Avg Temp Display Switch to LOOP 1 position
	RO	PLACES HS 1/LRC-0101, Pressurizer Level Control Switch to the 'A' position
	RO	PLACES HS 1/LIC-0101, Heater Control Selector Switch to the 'A' position
	RO	PLACES HS 1/PRC-0101, Pressurizer Pressure Control Selector Switch to the 'A' position.
	RO	PLACES PLCS in 'CASCADE" per SOP-1A Section 7.2.1: <ul style="list-style-type: none"> ▪ ADJUST blue pointer to match red pointer on LIC-0101B ▪ DEPRESS the 'AUTO' pushbutton on LIC-0101A ▪ DEPRESS the 'CASCADE' pushbutton on LIC-0101A
	RO	PLACES PPCS in 'AUTO" per SOP-1A Section 7.2.2: <ul style="list-style-type: none"> ▪ ADJUST blue pointer to match red pointer ▪ DEPRESS the 'AUTO' pushbutton on PIC-0101A
	BOP	Performs Operator Actions for EK-0545, Preferred AC Bus NO.2 Trouble: <ul style="list-style-type: none"> ▪ Refer to ONP-24.2 ▪ Contacts AO to go to investigate loss of AC Bus Y-20

Op-Test No.: 1	Scenario No.: SPARE	Event No.: 4	Page 3 of 4
Event Description: Loss of Preferred Bus Y-20			
Time	Position	Applicant's Actions or Behavior	
Simulator Operator – When contacted by Control Room as AO to investigate, wait approx. 4 minutes, then contact the Control Room and STATE: <u>the Inverter DC input breaker is closed and the AC output breaker is tripped</u>			
	SRO	Directs bypassing all Channel 'B' RPS trips per SOP-36	
	BOP	No Operator Actions required for EK-0154, FW Pump P1B LO Suction	
	BOP	BYPASS 'B' Channel RPS trips per SOP-36: <ul style="list-style-type: none"> ▪ INSERT bypass key above affected RPS Trip Unit ▪ TURN key 90° clockwise (note: yellow light will not light due to loss of Y20) ▪ Repeat for remaining trips 	
	RO	No Operator Actions required for EK-0545 (PZR level), EK-0754 (PZR Press), EK-1378 (Cont and SI CNTRL CKT UV), EK-1145 (SEQ Trouble), EK-0918 (PIP)	
	SRO	May direct BOP to close 2400V breaker 152-211 per SOP-30, Station Power to restore power to PZR Heaters from 'D' Bus	
	BOP	CLOSES 152-211 per SOP-30: <ul style="list-style-type: none"> Pressurizer Heater controls OFF for Xfmr 16. Pressurizer level greater than 36%. Charging Motor white light lit above 152-211 handswitch. CLOSE 152-211, Bus 1D to XFMR 16 VERIFY Charging Motor light for Breaker 152-211, Xfmr 16 Feeder, lights within 10 seconds after closure. ENSURE CLOSED 480 V group supply breakers (lights on heater controls for Xfmr 16) OPERATE Proportional Heater Group switch and Backup Heater Group switches when directed by Shift Manager. 	

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

Event Description: **Loss of Preferred Bus Y-20**

Time	Position	Applicant's Actions or Behavior
	SRO	<p>The following Tech Spec LCOs apply:</p> <ul style="list-style-type: none"> ▪ 3.8.9, Action: B.1, Preferred AC Bus, (8-hour action) ▪ 3.8.7, Action: A.1, Inverter, (24-hour action) ▪ 3.8.1, Action: B.1, One D/G (DBA/NSD sequencer), (1-hour action) (may invoke LCO 3.0.6 - support/supported system) ▪ 3.7.5, Action A.1, and B.1, (6 hours to MODE 3) (can NOT invoke LCO 3.0.6 for supported systems since P-8A was already Inoperable) ▪ 3.3.1, Action A.1, RPS Trip Units, (7-day action) (may invoke LCO 3.0.6 - support/supported system) <p>NOTE: SRO may not reference Tech Specs until after ONP-24.2, attachment 1 is reviewed with the crew.</p>
	SRO	May exit ONP-24.2
<p>After SRO has briefed loss of Y-20 <u>OR</u> 'B' Channel RPS is bypassed <u>OR</u> at the discretion of the Lead Examiner <u>INSERT REMOTE #3:</u></p>		

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

Event Description: **PCS Leak requiring a Plant Shutdown**

Time	Position	Applicant's Actions or Behavior
	SRO RO BOP	Diagnose PCS leak: Indications from PPC: Containment Sump level rising Containment Sump fill rate rising Charging line flow rising P-55B Charging Pump Start (may occur) Major alarms: EK-0734, Charging PP Seal Cooling LO Press (if P-55B starts)
	SRO	Enters ONP-23.1, Primary Coolant Leak: ▪ Directs actions of ONP-23.1 ▪ Reviews reactor trip criteria
	SRO	Directs PCS Leak Rate calculation by ONP-23.1 or DWO-1
	RO/BOP	PERFORMS PCS Leak Rate calculation, approximately 6 gpm leak
	SRO	Directs closing: ▪ CV-1064 and CV-1065, CWRT Vent Valves ▪ CV-1910 and CV-1911, PCS Sample Valves
	RO	▪ CLOSES CV-1064 and CV-1065, CWRT Vent Valves ▪ CLOSES CV-1910 and CV-1911, PCS Sample Valves
	SRO	Determine the following Tech Spec LCO applies: ▪ 3.4.13, Action: A.1, PCS leakage > 1 gpm unidentified, (4-hour action)
Simulator Operator – When Crew determines Tech Spec implications, then INSERT REMOTE #4 to raise PCS leakrate to 15 gpm.		

Op-Test No.: 1			Scenario No.: SPARE			Event No.: 5			Page 2 of 2		
Event Description: PCS Leak requiring a Plant Shutdown											
Time		Position		Applicant's Actions or Behavior							
		RO BOP SRO		Determines reactor trip criteria have been exceeded (unidentified PCS leakage > 10 gpm)							
		SRO		Directs reactor trip (unidentified PCS leakage > 10 gpm) (CRITICAL TASK PL-343 223 05 01)							
		RO		PUSHES reactor trip pushbutton on Panel C-02							
		RO/BOP		Perform EOP-1.0 immediate actions							

Op-Test No.: 1		Scenario No.: SPARE	Event No.: 6/7/8	Page 1 of 7
Event Description: EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak				
Time	Position	Applicant's Actions or Behavior		
	BOP	Informs the CRS that the AFW Pump P-8B did not auto start, . CONTINGENCY ACTION: PERFORM the following: • START P-8B by taking HS-0522B to OPEN		
	RO	Informs CRS that that Right Train SI did not actuate, CONTINGENCY ACTION: PZR Pressures less than 1605 psia, <u>THEN</u> PERFORM the following per EOP-1.0 immediate actions (attached): • MAY PUSH right INJECTION INITIATE pushbutton on Panel C-13: PB-2 (WON'T WORK due to loss of Y20) THEN P-66A, HPSI Pump and P-67A, LPSI Pump STARTED from handswitches, Right Train HPSI and LPSI Loop Injection Valves OPENED using handswitches (CRITICAL TASK PL-000 433 05 01)		
	RO	Informs CRS that that P-66B HPSI Pump did not start, CONTINGENCY ACTION: PZR Pressures less than 1605 psia, <u>THEN</u> PERFORM the following per EOP-1.0 immediate actions (attached): ENSURE ALL available HPSI pumps operating: START P-66B HPSI Pump		
	SRO	Commences EOP-1.0 verbal verifications		
	RO	Reactivity Control: YES • Reactor power lowering • negative SUR • maximum of one control rod not inserted		

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/8 Page 2 of 7

Event Description: **EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak**

Time	Position	Applicant's Actions or Behavior
	BOP	<p>Main Turbine Generator criteria: YES</p> <ul style="list-style-type: none"> ▪ Main Turbine tripped ▪ Generator disconnected from grid
	BOP	<p>Feedwater criteria:</p> <ul style="list-style-type: none"> ▪ Main FWP Controllers in 'MANUAL' at minimum speed: NO REPORT that MSIVs are closed ▪ Main FRV and B/Ps CLOSED: YES
	BOP	<p>Vital Auxiliaries-Electric:</p> <ul style="list-style-type: none"> ▪ Buses 1C and 1D energized: YES ▪ Bus 1E energized: NO (if SIS present) ▪ Bus 1A and 1B energized: YES ▪ Y-01 energized: YES ▪ Six DC Buses energized: YES ▪ 3 of 4 Preferred AC Buses energized: YES
	RO	<p>PCS Inventory Control: YES OR NO (Depends on Plant conditions)</p> <ul style="list-style-type: none"> ▪ PZR level 20% - 85% and trending toward 42% - 57%, IF NO, due to PZR Level < 20% (CONTINGENCY: All available Charging Pumps in service and Orifice Stop Valves Closed) ▪ PCS 25°F subcooled IF NO, (NO CONTINGENCY)
	RO	<p>PCS Pressure Control:</p> <ul style="list-style-type: none"> ▪ PZR pressure 1650 – 2185 psia and trending toward 2010 – 2100 psia NO <p>Applicable Contingency Actions:</p> <ul style="list-style-type: none"> • Ensure Spray Valves are closed • Ensure all available heaters are energized (all heaters will be de-energized due to PZR level < 36%) <p>At <1605 psia: INITIATE Right Train SI and START P-66B HPSI Pump At <1300 psia, Trip two PCPS (P-50A and P-50D)</p>

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/18 Page 3 of 7

Event Description: **EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak**

Time	Position	Applicant's Actions or Behavior
	RO	Core Heat Removal: YES <ul style="list-style-type: none"> ▪ At least one PCP operating ▪ Verify Loop ΔT less than 10°F ▪ Verify PCS at least 25°F subcooled
	BOP	PCS Heat Removal: YES OR NO (Depends on Plant conditions) <ul style="list-style-type: none"> ▪ Verify at least ONE S/G level 5% to 70% with Feedwater available ▪ Verify T_{AVE} between 525°F and 540°F ▪ Verify BOTH S/G pressures between 800 psia and 970 psia YES/NO, if NO: <ul style="list-style-type: none"> • CLOSE both MSIVs: CV-0510 ('A' S/G) and CV-0501 ('B' S/G); places one handswitch to CLOSE momentarily and back to OPEN IF NO , then at least 165 gpm AFW flow to 'A' S/G; may secure AFW flow to 'B' S/G; Turbine Bypass Valve and ADVs are closed.
	RO	Containment Isolation: YES <ul style="list-style-type: none"> ▪ Containment pressure > 0.85 psig
	BOP	Containment Isolation: YES <ul style="list-style-type: none"> ▪ Verify Containment Area Monitor alarms clear ▪ Verify Condenser Off Gas Monitor alarm clear ▪ Verify Main Steam Line Monitor alarms clear (no power due to loss of Y20)
Simulator Operator – If directed to check for steam leaks, report that steam is coming from ADV/Relief stack area and also in CCW Room upper level: cannot tell exact source (i.e. ADV or Relief).		

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/8 Page 4 of 7

Event Description: ***EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak***

Time	Position	Applicant's Actions or Behavior
	RO	Containment Atmosphere: YES <ul style="list-style-type: none"> ▪ Containment temperature > 125°F ▪ Containment Pressure > 0.85 psig
	RO	Vital Auxiliaries – Water: YES <ul style="list-style-type: none"> ▪ Verify at least two Service Water Pumps operating ▪ Verify BOTH Critical SW Header Pressures greater than 42 psig ▪ Verify at least one CCW Pump operating
	RO	Vital Auxiliaries – Air: YES <ul style="list-style-type: none"> ▪ Instrument Air header pressure greater than 85 psig

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/18 Page 5 of 7

Event Description: **EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak**

Time	Position	Applicant's Actions or Behavior
	BOP	Verifies BOTH of the following: <ul style="list-style-type: none"> ▪ At least one Condensate Pump operating ▪ At least one Cooling Tower Pump operating
	BOP	PLACES Left train CRHVAC in emergency mode: (if not already in emergency mode) <ul style="list-style-type: none"> ▪ STARTS V-26A, Air Filter Unit Fan ▪ ENSURES OFF: V-94, Purge Fan; V-47, Switchgear Exhaust Fan ▪ May follow-up with SOP-24 verification
	SRO	May direct tripping both MFW Pumps (due to no SW and MSIVs closed)
	SRO	Directs isolating AFW to 'B' S/G per EOP-1.0 immediate actions (attached)
	BOP	If directed to isolate AFW to 'B' S/G: <ul style="list-style-type: none"> ▪ SELECTS 'MANUAL' on FIC-0727, P-8A/B flow to S/G 'B' ▪ SELECTS 'MANUAL' on FIC-0736A, P-8C flow to S/G 'B' (will not have power due to the loss of Y-20, AO may be called to close CV-0736A) ▪ Raises output to 100% on each controller ('RED' indicator full right position)
	SRO	<ul style="list-style-type: none"> ▪ Performs Event Diagnostic Flow Chart per EOP-1.0, Attachment 1 Diagnoses EOP-9.0, Functional Recovery Procedure ▪ Performs EOP-9.0 strategy brief ▪ Establishes PCS pressure and temperature bands with RO

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/8 Page 5 of 7

Event Description: ***EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak***

Time	Position	Applicant's Actions or Behavior
	SRO	Directs closing CV-1064 and CV-1065, CWRT vent valves (may be performed previously in ONP-23.1)
	BOP	CLOSES CV-1064 and CV-1065 (may be performed previously in ONP-23.1)
	SRO	Directs performance of EOP Supplement 5, Checklist for Safeguards Equipment Following SIAS
	SRO	Directs Emergency Boration to be performed
	BOP	Verifies Emergency Boration
	BOP	Completes EOP Supplement 5 (repositions components as needed)

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/8 Page 6 of 7

Event Description: **EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak**

Time	Position	Applicant's Actions or Behavior
	SRO	Directs placing a Hydrogen Monitor in service in accident mode
	BOP	Places left train H ₂ monitor in service in accident mode (back of Panel C-11A) per SOP-38: <ul style="list-style-type: none"> ▪ PLACES HS-2419 in ACCI position ▪ PLACES HS-2417 to OPEN and RELEASES ▪ PLACES HS-2413A, HS-2413B, HS-2415A, and HS-2415B, to OPEN ▪ Energizes H₂ Recorder, AR-2401, by: PLACING to 'ON' Power Switch and PLACES to 'ON' Chart Drive Switch ▪ PLACES HS-2427L to "ANALYZE" position ▪ REMOVES pen caps from chart pens
	SRO	Directs SE to perform EOP-9.0 SFSC
	SRO	Determines success paths for each safety function: <ul style="list-style-type: none"> ▪ Reactivity: RC-3 ▪ Maintenance of Vital Auxiliaries-Electric: DC-1, AC-1 ▪ PCS Inventory: IC-2 ▪ PCS Pressure: PC-3 ▪ PCS/Core Heat Removal: HR-2 Challenged ▪ Containment Isolation: CI-1 ▪ Containment Atmosphere: CA-2 ▪ Maintenance of Vital Auxiliaries-Air: MVAW-1, MVAA-1
	SRO	Directs closing Letdown Orifice stop valves, CV-2003/2004/2005
	RO	Places handswitches for CV-2003/2004/2005 to the closed position
	SRO	May direct closing CV-2001 and CV-2009 Letdown Isolation Valves
	RO	CLOSES CV-2001 and CV-2009

Op-Test No.: 1 Scenario No.: SPARE Event No.: 6/7/8 Page 7 of 7

Event Description: **EOP-1.0/EOP-9.0, SBLOCA and Main Steam Safety Valve Leak**

Time	Position	Applicant's Actions or Behavior
	SRO	May direct closing CV-2083 and CV-2099, PCP Controlled Bleedoff Valves
	RO	CLOSES CV-2083 and CV-2099
	SRO	Directs PCS cooldown using ADVs
	RO	Begins PCS cooldown of PCS using the Atmospheric Steam Dump Valves: <ul style="list-style-type: none"> ▪ HIC-0780A, Steam Dump Valve Controller, PLACED in 'MANUAL' ▪ Manual Signal Lever used to OPEN ADVs for PCS cooldown
	SRO	Ensures MSIVs and MSIV Bypass Valves are closed
	SRO	Directs isolation on 'B' S/G per EOP Supplement 18
	BOP	<p>Isolates 'B' S/G per EOP Supplement 18 (attached)</p> <p>Isolation from inside the Control Room:</p> <p>(CRITICAL TASK PL-000 209 05 01)</p> <ul style="list-style-type: none"> ○ CLOSE both MSIVs, CV-0510 and CV-0501 (performed previously) ○ ENSURE CLOSED MO-0501, 'B' S/G MSIV Bypass Valve. ○ CLOSE CV-0703, 'B' S/G Main Feed Reg Valve (performed previously) • CLOSE CV-0744, 'B' S/G Main Feed Block Valve ○ CLOSE CV-0734, 'B' S/G Bypass Feed Reg Valve. • CLOSE S/G E-50B Blowdown Valves: CV-0768, CV-0770, and CV-0738 ○ CLOSE S/G E-50B AFW flow control valves; CV-0736, CV-0736A, CV-0727 (performed previously) • Directs AO to perform Supplement 18 outside the control room.
<p>Simulator Operator: When instructed by BOP to isolate 'B' S/G outside the Control Room per Supplement 18, then perform the following:</p> <p>MS18 (PIDMS01) Main Steam Dump Manual Valve CA-0779, value = CLOSED</p> <p>MS19 (PIDMS01) Main Steam Dump Manual Valve CA-0780, value = CLOSED</p> <p>SG10 (PIDMS01) Manual Throttle Vlv MS-102 for CV-0779, value = 0</p> <p>SG12 (PIDMS01) Manual Throttle Vlv MS-104 for CV-0780, value = 0</p>		
SRO: Emergency Classification Level: Unusual Event, SU5.1, Unidentified PCS Leakage > 10 gpm		
TERMINATE Scenario when 'B' S/G has been isolated per EOP Supplement 18 <u>OR</u> at the discretion of the Lead Examiner.		