

Facility: Fort Calhoun		Scenario No: 1		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC# 1 100% Power BOC				
Turnover: Diesel Generator DG-1 and Charging Pump CH-1B are out of service. Maintain full power operation.				
Event No.	Malf No.	Event Type*	Event Description	
1 (0 min)	COP T:F908	I - sec	S/G steam flow transmitter output fails low	
2 (5 min)	COP T:122H2	I - pri	Hot leg RTD fails high (tech spec entry)	
3 (15 min)	ORP X10I227	C - sec	Heater Drain Pump, FW-5B, trips	
4 (20 min)	COP JLB218LL	I - pri	VCT level transmitter fails low	
5 (30 min)	MFP CRD06 1	C - pri	CEA drop (tech spec entry)	
6		R – pri N - sec	T. S. required power reduction	
7 (42 min)	ORP X01I392	C - pri	CCW pump, AC-3B, trips (tech spec entry)	
8 (47 min)	MFP CRD06 5	C - pri	Second CEA drops – Manual Reactor Trip Required	
9 (55 min)	MFP SGN01A	M - all	Steam Generator Tube Rupture	
10 (preset)	COP RSGH041A	C - sec	MSIV on ruptured S/G will not close	

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

Op-Test No.:	Scenario No.: 1	Event No.: 1	Page 2 of 11
Event Description: S/G steam flow transmitter output fails low			
Time	Position	Applicant's Actions or Behavior	
	SEC	Respond to "S/G-2B level low alarm"	
	SEC	Identify and communicate lowering FW flow and level in S/G "B"	
	SRO	Direct SEC to take manual control of feedwater (FC-1102 in manual)	
	SEC	Take manual control and restore feedwater level before level lowers to 50% NR on "B" S/G	
	SEC	Identify FR-908 as failed instrument	
	SRO	Inform OCC of failure of FR-908	
	SEC	Continue to monitor and control S/G level	
	PRI	Monitor primary parameters	

Op-Test No.:	Scenario No.: 1	Event No.: 2	Page 3 of 11
Event Description: Hot leg RTD fails high (tech spec entry)			
Time	Position	Applicant's Actions or Behavior	
	PRI	Responds to numerous alarms on CB-4, panel A-20 and CB-1,2,3, panel A4. Reports that Trip Unit's 1, 9 and 12 on Channel "A" are tripped	
	PRI/SEC	Reviews ARP	
	PRI	Checks power, pressure and temperature indications	
	PRI	Determines that alarm causes by failed T-hot channel (C/T122H)	
	SRO	Enters T. S. 2.15 and refers to 2.10.4 (5) per ARP (Trip units 1, 9 and 12 on channel A must be bypassed within one hour. The trip units may remain bypassed for 48 hours, at which time they must be placed in the tripped condition. If it is determined that an RTD has failed, the allowable bypass time increases to 7 days after which the reactor must be placed in hot shutdown within 12 hours)	
	SRO	Obtains keys and directs PRI to bypass TU's 1,9 and 12 on affected channel	
	PRI	Bypasses TU's 1, 9 and 12 on affected channel	
	SRO	Makes notification of failed transmitter and bypassed TU's	

Op-Test No.:	Scenario No.: 1	Event No.: 3	Page 4 of 11
Event Description: Heater Drain Pump, FW-5B, trips			
Time	Position	Applicant's Actions or Behavior	
	SEC	Respond to "Heater Drain Pump B Overload/Trip" Alarm	
	PRI or SEC	Refer to ARP	
	SEC	Determine that standby Heater drain pump did not start	
	SRO	Direct SEC to start standby Heater Drain Pump	
	SEC	Start standby Heater Drain Pump, FW-5A	
	SEC	Dispatch Operator to check pump status	
	SRO	Report Heater Drain Pump Trip to the OCC	
	SEC	Monitor Condensate, Heater Drain and Feedwater system	
	PRI	Monitor primary plant systems	

Op-Test No.:	Scenario No.:	Event No.:	Page 6 of 11
Event Description: CEA drop (tech spec entry)			
Time	Position	Applicant's Actions or Behavior	
	PRI	Identify event from "Dropped Rod" and other alarms	
	PRI	Determine only one rod has dropped (rod #1, grp 4)	
	SRO	Enter AOP-02 (CEDM Malfunction)	
	SRO	Direct SEC to adjust turbine load to match reactor power	
	SEC	Adjust turbine load to match reactor power	
	SRO	Direct RO to control pressurizer pressure and level	
	PRI	Monitor Pressurizer pressure and level	
	SRO	Direct PRI to reset Rod Drop Bistables	
	PRI	Reset Rod Drop Bistables	
	SRO	Notify Reactor Engineer	
	SRO	Enter Tech Sec 2.10.2. (Reactor power must be reduced to less than 70% within one hour. The CEA must be realigned or declared inoperable within one hour following the power reduction. If the CEA is declared inoperable, the reactor must be in hot shutdown within an additional 5 hours.)	
	SRO	Inform RO and SEC that Tech Specs require a power reduction to less than 70% within one hour	
	SRO	Notify system Operations of impending power reduction	
	SEC	Continue manual control of S/G level	

Time	Position	Applicant's Actions or Behavior
Op-Test No.:	Scenario No.: 1	Event No.: 9, 10
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Event Description: Steam Generator A Tube Rupture		
	PRI	Identify and report RCS inventory loss
	PRI or SEC	Report rising radiation levels on RM-054A and/or RM-057
	SRO	Diagnose tube rupture - enter EOP-04 or EOP-20
	SRO	Direct RCS cooldown - T_{hot} less than 510°F
	SEC	Cooldown RCS T_{hot} to less than 510°F
	PRI	Identify and verify PPLS
	SRO SEC	Identify most affected steam generator (A)
	SRO	Direct SEC to isolate steam generator A
	SEC	Isolate steam generator A, Close the following: <ul style="list-style-type: none"> • HCV-1041A (A MSIV) [will not close] • HCV-1041C (A MSIV bypass) • MS-291 (atmospheric steam safety valve) • FCV-1101 (FW reg valve) • HCV-1105 (FW reg bypass valve) • HCV-1386 (FW header isolation) • HCV-1103 (FW reg block valve) • HCV-1388A (blowdown isolation) • HCV-1388B (blowdown isolation) • HCV-1107A (AFW isolation) • HCV-1107B (AFW isolation) • YCV-1045A (supply to turbine driven AFW pump, FW-10) Direct the turbine building operator to close: <ul style="list-style-type: none"> • MS-298 (MSIV packing leakoff)
	SEC	Report failure of S/G A's MSIV to close
	SRO or SEC	Direct Plant Operator to attempt local closure of MSIV

Facility: Fort Calhoun		Scenario No: 2		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC #1 100% Power BOC				
Turnover: Diesel driven AFW pump, FW-54 and charging pump CH-1B are Out of Service. Maintain power.				
Event No.	Malf No.	Event Type*	Event Description	
1 (+2 min)	COP T:P910	I - sec	PT-910 fails high causing turbine bypass valve to open	
2 (+5 min)	COP NCVPC1 C	C - pri	Charging Pump, CH-1C, Trips (tech spec entry)	
3 (+10 min)	MFP NIS02D		Wide Range NI channel D fails (tech spec entry)	
4 (+15 min)	COP T:P103Y	I - pri	Pressurizer Pressure channel, 103Y, fails low	
5 (+20 min)	MFP TUR05F	C - sec	High turbine vibration caused by inadequate oil cooling	
6 (+28 min)	MFP SWD02A SWD02B	M - all	Loss of Offsite Power	
7 (preset)	File ATWAS_P LUS1	M - all	ATWS – manual trip required	
8 (preset)	RFP AFW10A	C - sec	Emergency Feedwater Storage Tank line is blocked causing a total loss of Feedwater (once-through cooling required)	
9 (20% WR level on both steam generators)		M - all	Initiate Once-Through Cooling (Note: Examiner may direct simulator operator to run a file to lower steam generator levels to 20%, once through cooling initiation level, if required for time limitations)	

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

Op-Test No.:	Scenario No.: 2	Event No.: 2	Page 3 of 9
Event Description: Charging Pump, CH-1C, Trips (tech spec entry)			
Time	Position	Applicant's Actions or Behavior	
	PRI	Respond to "Charging Pump Off-Normal" Annunciator on AI-30	
	PRI or SEC	Refer to ARP	
	PRI	Report Charging Pump Trip	
	SRO	Direct PRI to Start a charging pump.	
	PRI	Start charging pump, CH-1A.	
	PRI	Direct Auxiliary Building Operator to check status of charging pumps and ensure packing cooling pump running for pump that was started	
	PRI	Control pressurizer level as needed	
	SRO	Enter Technical Specification 2.2.4(1). (72 hour LCO due to 2 charging pumps being inoperable. If 2 charging pumps can not be restored to operability within 72 hours, then be in hot shutdown within 6 hours, less than 300°F within the next 6 hours and in cold shutdown within the following 30 hours)	

Op-Test No.:	Scenario No.: 2	Event No.: 4	Page 5 of 9
Event Description: Pressurizer Pressure channel, 103Y, fails low			
Time	Position	Applicant's Actions or Behavior	
	PRI	Respond to "PZR Pressure Off Normal Hi-Lo Channel Y" alarm on CB-1,2,3 A4	
	PRI or SEC	Refer to ARP	
	PRI	Identify deviation between pressurizer pressure channels.	
	SRO	Direct PRI to swap controlling channels or to take manual control of pressurizer pressure.	
	PRI	Switch controlling channel to channel 103X or take manual control of pressurizer pressure.	
	PRI	Monitor and maintain proper pressurizer pressure.	

Op-Test No.:	Scenario No.: 2	Event No.: 5	Page 6 of 9
Event Description: High turbine vibration caused by inadequate oil cooling			
Time	Position	Applicant's Actions or Behavior	
	PRI or SEC	Respond to plant computer alarm for high turbine vibration	
	SEC	Report recorder indication of rising vibration on bearing #6, 7 mills and rising	
	SRO	Enter AOP-26	
	SEC	Report vibration greater than 8 mills	
	SRO	Direct power reduction	
	SEC	Reduce turbine load	
	PRI	Control reactivity during load reduction	
	SEC	Report turbine vibration below 8 mills	
	SRO	Direct PRI and SEC to maintain power	
	SRO or SEC	Dispatch Turbine Building Operator to check turbine cooling	
	SRO or SEC	Upon receiving report of high lube oil temperature, direct Turbine Building Operator to raise cooling water flow.	
	SEC	Continue to monitor vibration levels	

Op-Test No.:	Scenario No.:	Event No.:	Page 7 of 9
Event Description: Loss of Offsite Power with ATWS			
Time	Position	Applicant's Actions or Behavior	
	PRI	Determine and communicate that the reactor failed to trip.	
	SRO	Direct PRI to manually trip the reactor	
	PRI	Push CB-4 manual Reactor Trip Pushbutton.	
	SEC	Determine and communicate that Trip did not actuate.	
	SRO	Direct the PRI and SEC to initiate RPS panel (AI-31) trip and DSS trip.	
	SEC	Operate DSS Trip.	
	SRO	Direct PRI or SEC to open Clutch Power Supply Breakers	
	PRI or SEC	Open Clutch Power Supply Breakers	
	PRI	Optional: May initiate Emergency Boration	
	PRI	Determine and communicate that the rods have inserted.	
	SRO	Direct PRI and SEC to take Standard Post Trip Actions (SPTAs).	
	PRI SEC	Perform Standard Post Trip Actions: <ul style="list-style-type: none"> • Verify control rod insertion, power lowering, negative startup rate • Verify turbine trip and generator trip • Verify electrical status – 4160, D/G, instrument power, 125V DC • Verify instrument air status • Verify CCW and raw water status • Verify RCS inventory control • Verify RCS pressure control • Verify core heat removal • Verify S/G Feed- Report loss of feedwater • Verify S/G pressure and T-cold • Verify containment conditions 	
	PRI	Restart charging pump, CH-1A	
	SRO	Verify completion of SPTA's	

Op-Test No.:	Scenario No.: 2	Event No.: 9	Page 9 of 9
Event Description: Initiate Once Through Cooling			
Time	Position	Applicant's Actions or Behavior	
	SRO	Enter EOP-20/HR-4.	
	SRO	Direct PRI to initiate Once Through Cooling.	
	PRI	Open all HPSI loop injection valves. <ul style="list-style-type: none"> • HCV-311 • HCV-312 • HCV-314 • HCV-315 • HCV-317 • HCV-318 • HCV-320 • HCV-321 	
	PRI	Start all three HPSI pumps and ensure charging pump.CH-1A is running	
	PRI	Open Both PORVs	
	PRI	Verify PORVs have opened.	
	PRI	Report Once Through Cooling is initiated.	
	SRO	Direct PRI and SEC to monitor parameters.	
	PRI	Monitor primary parameters.	
	SEC	Monitor secondary parameters.	
		Scenario ends with Once-Through Cooling in progress.	

Facility: Fort Calhoun		Scenario No: 3		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC# 7 BOC 50% Power, FW-54 Out of Service				
Turnover: Diesel driven FW pump, FW-54 is out of service. Maintain power				
Scenario objective: Evaluate ISRO candidates in the primary and secondary positions with a surrogate acting as SRO				
Event No.	Malf No.	Event Type*	Event Description	
1 (+2 min)	COP T:L101Y	I - pri	Controlling pressurizer level channel, 101Y, fails low	
2 (+7 min)	COP T:L906Y	I - sec	Steam generator RC-2B level channel, 906Y, fails high	
3 (+13 min)	MFP RCP09B	C - pri	Reactor Coolant Pump, RC-3B, lower seal failure	
4 (+18 min)	COP T:P210	I - pri	Letdown pressure transmitter PT-210 fails low	
5 (+24 min)	MFP RCP10B		Reactor Coolant Pump, RC-3B, middle seal failure	
6		R - pri N - sec	Emergency shutdown	
7 (+35 min)	RFP BCW10A	C - sec	Running Bearing water pump, AC-9A, trips	
8 (+40 min)	MFP RCS01C 0.2%	M - all	Loss of Coolant Accident	
9 (preset)	MFP EHC02	C - sec	Turbine trip failure	
10 (preset)	File HPSI- LOOP-INJ- PULL	C - pri	HPSI loop injection valves fail to open	

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

Op-Test No.:	Scenario No.: 3	Event No.: 2	Page 3 of 10
Event Description: Steam generator RC-2B level channel, 906Y, fails high			
Time	Position	Applicant's Actions or Behavior	
	SEC	Responds to 'Feedwater Control Steam Generator RC-2B Level Hi' alarm	
	PRI or SEC	Obtain ARP-CB-4/A8 and determines actions	
	SEC	Check S/G level channels to determine failed channel	
	SEC	Identify regulating valve FCV-1102 is closed	
	SRO	Direct SEC to take manual control of FCV-1102	
	SEC	Takes manual control of FCV-1102 Aux controller and opens valve to control level	
	SRO	Notifies OCC of failure	
	PRI	Monitors primary parameters	

Op-Test No.:	Scenario No.: 3	Event No.: 6	Page 7 of 10
Event Description: Emergency shutdown			
Time	Position	Applicant's Actions or Behavior	
	SRO	Enter AOP-05 (Emergency Shutdown) - Direct Emergency Shutdown	
	SRO	Notify System Operations of Power Decrease	
	SRO	Direct PRI to begin boration using SIRWT	
	PRI	Switch charging pump suction from the VCT to the SIRWT	
	PRI	Direct SEC to control RCS cold leg temperature by reducing turbine load	
	SEC	Reduce turbine load to control cold leg temperature	
	SRO	Direct PRI to operate control rods to control ASI	
	PRI	Operate Control Rods to control ASI	
	PRI	Monitor and control primary parameters	
	SEC	Monitor and control RCS cold leg temperature and secondary parameters	
	SRO	Continue to coordinate PRI and SEC actions during power reduction	

Time	Position	Applicant's Actions or Behavior
Op-Test No.:	Scenario No.: 3	Event No.: 8, 9
Page 9 of 10		
Event Description: Loss of Coolant Accident with turbine trip failure		
	PRI	Identify and communicate lowering of pressurizer level and pressure.
	SRO	May direct RO to manually trip the reactor.
	PRI	Manually trip the reactor if directed by SRO.
	SRO	Direct Standard Post Trip Actions (SPTAs)
	PRI	Perform Standard Post Trip Actions: <ul style="list-style-type: none"> Verify control rod insertion, power lowering, negative startup rate
	SEC	Perform Standard Post Trip Actions: <ul style="list-style-type: none"> Verify turbine and generator trip Determines that stop and intercept valves have not closed Manually trips the turbine Place both EHC pumps in pullout
	SEC	Report that turbine did not trip
	PRI and SEC	Continue Standard Post Trip Actions: <ul style="list-style-type: none"> Verify electrical status – 4160, D/G, instrument power, 125V DC Verify instrument air status Verify CCW and raw water status Verify RCS inventory control Verify RCS pressure control Verify core heat removal Verify S/G feed Verify S/G pressure and T-cold Verify containment conditions
	SEC	Closes both MSIVs if steam generator pressure lowers to 500 psia
	PRI	Secure 1 RCP in each loop at 1350 psia.
	PRI	Secure remaining RCPs on loss of NPSH
	SRO	Transition to EOP-03 (LOCA).

Op-Test No.:	Scenario No.: 3	Event No.: 10	Page 10 of 10
Event Description: HPSI loop injection valves fail to open			
Time	Position	Applicant's Actions or Behavior	
	PRI	Monitor for automatic PPLS actuation.	
	PRI	Determine and report that HPSI loop injection valves did not open.	
	SRO	Direct PRI to manually open HPSI loop injection valves	
	PRI	Manually open HPSI loop injection valves	
	PRI	Verify and report meeting HPSI flow criteria.	
		Scenario ends with HPSI flow in progress	

Facility: Fort Calhoun		Scenario No: 4 (spare)		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC#1 100% Power BOC Ensure FW-5B and FW-5C are the running Heater Drain Pumps.				
Turnover: LPSI pump SI-1B is Out of Service for bearing replacement				
Event No.	Malf No.	Event Type*	Event Description	
1 (+3 min)	MFP NIS03F	I - pri	Power range nuclear instrumentation channel "C" fails (tech spec entry)	
2 (+10 min)	COP T:F1101	I - sec	FW flow channel on RC-2A fails low	
3 (+15 min)	MFP DSG06A	C - sec	Diesel Generator, D/G-1, radiator leak (tech spec entry)	
4 (+25 min)	COP T:T2897	I - pri	Letdown HX CCW outlet temperature transmitter fails low	
5 (+30 min)	MFP SWD02B	C -sec	Loss of 161 KV	
6 (+40 min)	MFP MSS01B 25% 300 sec ramp	M - all	Steam line break inside containment	
7 (preset)	RFP CWS10N	C -sec	CW-1C breaker fails to trip preventing D/G-2 breaker from closing	
8 (preset)	MFP ESF02A ESF 02B	C - pri	CPHS fails to actuate	

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

Op-Test No.:	Scenario No.: 4	Event No.: 2	Page 3 of 9
Event Description: FW flow channel on RC-2A fails low			
Time	Position	Applicant's Actions or Behavior	
	SEC	Respond to S/G-2B level low alarm	
	SEC	Identify and communicate rising FW flow and level in S/G "A" and lowering level in S/G "B"	
	SRO	Direct SEC to take manual control of feedwater	
	SEC	Take manual control and restore feedwater level	
	SEC	Identify FT-1101 as the failed instrument or channel	
	SRO	Inform OCC of failure of FT-1101	
	SEC	Continue to monitor and control S/G level	
	PRI	Monitor primary parameters	

Op-Test No.:	Scenario No.: 4	Event No.: 3	Page 4 of 9
Event Description: Diesel Generator, D/G-1, radiator leak (tech spec entry)			
Time	Position	Applicant's Actions or Behavior	
	PRI or SEC	Respond to "Diesel Trouble Alarm" and LS-4, "Tank Level Low" indicator light	
	PRI or SEC	Refer to ARP-AI-30A/A30	
	PRI or SEC	Dispatch Turbine Building Operator to determine status of D/G.	
	PRI or SEC	Inform SRO of report of water leak	
	SRO	Direct PRI or SEC operator to disable D/G-1	
	SRO	<p>Enter Technical Specifications 2.7 and 2.0.1(b)</p> <p>(Technical Specification 2.7 requires that the plant be placed in hot shutdown within 12 hours. However, Technical Specification 2.0.1 (b) also applies due to D/G-1 (1A3) and SI-1B (1A4) both being inoperable, and requires that the plant be placed in hot shutdown within 6 hours. Refer to Tech Spec Interpretation 96-13-1)</p>	
	SRO	Direct PRI and SEC to make preparations for plant shutdown	
	SRO	Notify Station Management of Tech Spec required shutdown	

Time	Position	Applicant's Actions or Behavior
Op-Test No.:	Scenario No.: 4	Event No.: 6, 7, 8
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Event Description: Steam line break inside Containment, No Power to either vital bus. Failure of CPHS.		
	ALL	<p>Recognizes that a HELB has occurred in S/G RC-2B:</p> <ul style="list-style-type: none"> \$ Lowering pressure in S/G RC-2B. \$ Initiation of a Steam Generator Low Signal (SGLS). \$ Lowering RCS Tav. \$ Raise in feedwater flow until Steam Generator Isolation Signal (SGIS) occurs. \$ Containment Isolation Actuation Signal (CIAS) due to raising containment pressure.
	SRO	Directs entry into EOP-00
	PRI and SEC	<p>Perform Standard Post Trip Actions:</p> <ul style="list-style-type: none"> • Verify control rod insertion, power lowering, negative startup rate • Verify turbine trip and generator trip • Verify electrical status – 4160, D/G, instrument power, 125V DC
	SEC	Reports no power to busses 1A3 and 1A4
		<p>Continue Standard Post Trip Actions</p> <ul style="list-style-type: none"> • Verify instrument air status • Verify CCW and raw water status • Verify RCS inventory control • Verify RCS pressure control • Verify core heat removal • Verify S/G feed • Verify S/G pressure and T-cold • Verify containment conditions
	SEC	Identify failure of CW-1C breaker to open
	SEC/SRO	Direct EONT to manually trip CW-1C breaker
	SRO	Direct SEC to verify restoration of power to bus 1A4
	SEC	Verify power to bus 1A4

Time	Position	Applicant's Actions or Behavior
Op-Test No.:	Scenario No.: 4	Event No.: 6,7,8 con't Page 8 of 9
Event Description: Steam line break inside Containment, No Power to either vital bus. Failure of CPHS.		
	PRI	Monitor containment pressure and determine that CPHS did not actuate at setpoint
	SRO	Direct PRI to manually actuate CPHS
	PRI	Manually actuate CPHS and verify containment spray flow
	SRO	Enters EOP-05 or EOP-20
	SEC	Verifies break location in accordance with EOP-20 to mitigate HELB.
	PRI	Verifies that all containment vent fans (VA-3A, 3B, 7C, 7D) have started and ensures that they are supplied from CCW.
	SEC	Ensures that SGIS valves have closed (e.g., MSIVs and FWIVs).
	PRI	Ensures that emergency boration is in progress by directing Aux Building Operator to open HCV-268 and/or close LCV-218-2
	SRO/PRI	Ensures that SI flow is acceptable PER Attachment 3, Safety Injection Flow vs. Pressurizer Pressure.
	PRI SEC	Maximizes safety injection and charging flows by operating: \$ HPSI Pumps SI-2A/B/C \$ LPSI Pumps SI-1A/B \$ Charging Pumps CH-1A/B/C
	PRI	Verifies normal CCW/RW system operation: \$ 2 CCW pumps operating \$ CCW pump discharge pressure \geq 60 psig \$ 2 RW pumps operating \$ 3 CCW heat exchangers in service \$ RCP cooler valves HCV-438A/B/C are open
	LSO SEC	Confirms that S/G RC-2B is affected S/G by downward trends in steam pressure, S/G level, and RCS Tc.

Time	Position	Applicant's Actions or Behavior
Op-Test No.:	Scenario No.: 4	Event No.: 6,7,8 con't Page 9 of 9
Event Description: Steam line break inside Containment, No Power to either vital bus. Failure of CPHS.		
	SRO	Direct SEC to establish steam flow from intact steam generator prior to dryout of faulted steam generator
	SEC	Establish steam flow from intact steam generator by opening MS-291 before WR level in S/G RC-2B reaches 10%
	SRO	Directs SEC to Isolate faulted S/G
	SEC	Isolate steam generator B, Close (or ensure SGIS has closed) the following: <ul style="list-style-type: none"> • HCV-1042A (B MSIV) • HCV-1042C (B MSIV bypass) • MS-292 (atmospheric steam safety valve) • FCV-1102 (FW reg valve) • HCV-1106 (FW reg bypass valve) • HCV-1385 (FW header isolation) • HCV-1104 (FW reg block valve) • HCV-1387A (blowdown isolation) • HCV-1387B (blowdown isolation) • HCV-1108A (AFW isolation) • HCV-1108B (AFW isolation) • YCV-1045B (supply to turbine driven AFW pump, FW-10) Direct the turbine building operator to close: <ul style="list-style-type: none"> • MS-298 (MSIV packing leakoff)
	SRO	Direct PRI to monitor and control RCS pressure to maintain subcooling between 20° and 200°F
	PRI	Monitor and control pressure to maintain subcooling between 20° and 200°F
		Scenario ends with D/G-2 supplying power to bus 1A4, Containment spray in progress and Steam Generator RC-2B isolated.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

JPM Title: Determine Dilution Volume for Power Change

Approximate Time: 10 minutes Actual Time: _____

Reference(s): TDB-II, Figure II.A.2 (R27)
TDB-V.12 (R6)
K/A 2.1.
25 (RO Imp 2.8)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

JPM Title: Determine Dilution Volume for Power Change

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: Calculator

Safety Considerations: None

Comments: Use the TDB sections provided for this JPM. The plant TDB may use different figures due to the power uprating.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

JPM Title: Determine Dilution Volume for Power Change

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

JPM Title: Determine Dilution Volume for Power Change

INITIATING CUE: The plant has been operating at 80% power for a week due to some limitations on the secondary side. Repairs have been made and power will be raised to 95%.

The CRS has asked you to determine how many gallons of water will be required for the power change. The ERF computer is not available.

The plant conditions are:

- Reactor Power = 80%
- RCS Boron Concentration = 512 ppm
- RCS T-cold is 540°F
- RCS T-hot is 581°F
- All CEAs are fully withdrawn
- Note: Ignore the effect of xenon concentration changes for this calculation.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Determines the boron concentration change for a power increase from 80% to 95% power.	Enters TDB-II, refers to figure II.A.2. Determines that boron concentration must be lowered approximately 50 ppm, from 512 ppm to 462 ppm
2	Determines the amount of dilution water required.	Enters TDB-V.12 Uses the dilution formula to determine that approximately 3880 gallons of water is required. Acceptable range is between 3680 – 4080 gallons

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

JPM Title: Determine Dilution Volume for Power Change

STEP	ELEMENT	STANDARD
------	---------	----------

$$\begin{aligned} \text{GAL WATER} &= [67250.044 - 52.562 \times (T\text{-avg})] \text{Ln} (C1/CF) \\ &= [67250.044 - 52.562 \times (540+581)/2] \text{Ln} (512/462) \\ &= 3883 \text{ gal} \end{aligned}$$

Termination Criteria: Determination of required dilution volume has been made.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-1

INITIATING CUE: The plant has been operating at 80% power for a week due to some limitations on the secondary side. Repairs have been made and power will be raised to 95%.

The CRS has asked you to determine how many gallons of water will be required for the power change. The ERF computer is not available.

The plant conditions are:

Reactor Power = 80%

RCS Boron Concentration = 512 ppm

RCS T-cold is 540°F

RCS T-hot is 581°F

All CEAs are fully withdrawn

Note: Ignore the effect of xenon concentration changes for this calculation.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-2

JPM Title: Diesel Generator Hot Weather Operability

Approximate Time: 10 min

Actual Time: _____

Reference(s): TDB-III.26A
K/A 2.1.32 (RO Imp 3.4)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-2

JPM Title: Diesel Generator Hot Weather Operability

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-2

JPM Title: Diesel Generator Hot Weather Operability

INITIATING CUE: It is night shift. Both Diesel Generators are operable. Both are using an Ethylene Glycol solution for cooling.

The forecasted high temperature for tomorrow is 103°F.

The CRS has asked you to determine if the high temperature will affect the operability of the diesel generators. If so, what action could be taken to ensure operability.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refer to TDB-III.26A	Enters TDB-III.26.A
2	Determines DG-1 Operability with Ethylene Glycol Coolant	Refers to Figure 1 Determines that DG-1 would be inoperable at 103°F.
3	Determines DG-1 Operability if Ethylene Glycol solution was replaced with water.	Refers to Figure 2 Determines that DG-1 would be operable with water coolant. Recommends coolant replacement
4	Determines DG-2 Operability with Ethylene Glycol Coolant	Refers to Figure 3 Determines that DG-2 would be operable at 103°F.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-2

JPM Title: Diesel Generator Hot Weather Operability

Termination Criteria: DG operability at 103°F has been determined and recommendation made to replace DG-1 coolant with water.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-2

INITIATING CUE: It is night shift. Both Diesel Generators are operable.
Both are using an Ethylene Glycol solution for cooling.

The forecasted high temperature for tomorrow is 103°F.

The CRS has asked you to determine if the high temperature will affect the operability of the diesel generators. If so, what action could be taken to ensure operability.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-3

JPM Title: Determine equipment affected by isolation of Instrument Air Valve

Approximate Time: 10 minutes Actual Time: _____

Reference(s): P&ID 11405-M 264 sheet 1
P&ID 11405-M 264 sheet 4
K/A 2.2.13 (RO Imp 3.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-3

JPM Title: Determine equipment affected by isolation of Instrument Air Valve

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-3

JPM Title: Determine equipment affected by isolation of Instrument Air Valve

INITIATING CUE: Maintenance has requested that instrument air valve, IA-525 be isolated for approximately 2 hours to repair a small leak. The CRS has asked you to provide him with a written list of equipment that would be affected by isolation of this valve.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		CUE: Provide candidate with a blank sheet of paper to list the equipment on.
1	Refers to P&ID to determine affected Instrument Air Riser.	Uses P&ID 11405-M 264 sheet 1, to determine that IA-525 isolates riser "AY".
2	Refers to P&ID to determine affected equipment.	Uses P&ID 11405-M 264 sheet 4 to determine equipment affected.
3	Provides list of equipment affected.	List includes: <ul style="list-style-type: none"> • HCV-818B • HCV-2603A • HCV-2604A • HCV-425B • HCV-425D • A/HCV-742 • B/HCV-742 • C/HCV-742 • D/HCV-742 • AI-161

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-3

JPM Title: Determine equipment affected by isolation of Instrument Air Valve

Termination Criteria: List of affected equipment has been provided.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-3

INITIATING CUE: Maintenance has requested that instrument air valve, IA-525 be isolated for approximately 2 hours to repair a small leak. The CRS has asked you to provide him with a written list of equipment that would be affected by isolation of this valve.

START

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-4

JPM Title: RCA Entry and Exit

Approximate Time: 10 minutes Actual Time: _____

Reference(s): GET-Radiation Worker Training
Standing Order G-101
K/A 2.3.1 (RO Imp 2.6)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-4

JPM Title: RCA Entry and Exit

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: This JPM will be performed during RCA entrance and exit during conduct of in-plant JPMs.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-4

JPM Title: RCA Entry and Exit

INITIATING CUE: You have been directed to enter Room 13 to ensure that blowdown tank transfer pump, FW-34A is operating properly.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide Initiating CUE to candidate prior to RCA entry.
1	Review RWP	Reads RWP
2	Determine Radiological Conditions in Room 13.	Checks survey maps and/or discusses radiological conditions with RP personnel.
3	Obtains Dosimetry	Verify TLD attached to security badge. Obtain EAD.
4	Sign in on appropriate RWP	Insert EAD in reader. Scan PID and RWP number
5	Enter RCA	RCA entered
6	Enter Room 13	Enters Room 13
		As soon as candidate clears shield wall while entering room 13: CUE: EAD is Alarming on high dose rate

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-4

JPM Title: RCA Entry and Exit

STEP	ELEMENT	STANDARD
7	Exits Room and Contacts RP	Leaves Room Immediately and Contacts RP CUE: RP will provide coverage for Room 13 entry. Examiner will act as RP Tech
8	Enter Room 13 with RP Tech	Enters room CUE: All parameters for FW-34A are normal
9	Exits Room 13 with RP Tech	Exits room Note to Examiner: In-plant JPMs that are conducted in the RCA may be performed at this time. Steps 10 and 11 are performed during RCA exit.
10	Monitor for personnel contamination prior to exiting RCA	Monitor for contamination using PCM
11	Sign out of RCA	Insert EAD in reader, enter PID number and confirm dose

Termination Criteria: RCA has been exited

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: RO-2004-4

INITIATING CUE: You have been directed to enter Room 13 to ensure that blowdown tank transfer pump, FW-34A is operating properly.

START

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-1

JPM Title: Review Shutdown Margin Calculation

Approximate Time: 15 minutes Actual Time: _____

Reference(s): TDB-V.9 (R35)
TDB-II (R27)
K/A 2.1.7 (SRO Imp 3.7)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-1

JPM Title: Review Shutdown Margin Calculation

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Use provided TDB sections. Plant values may have changed due to power uprating

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-1

JPM Title: Review Shutdown Margin Calculation

INITIATING CUE: CEA's 22 and 29 have just been declared inoperable (untrippable) following a surveillance test. The STA has determined that shutdown margin is adequate and has asked you to review his SDM calculation. The plant conditions are as follows:

Reactor Power: 50%
 CEA position: GRP 4 @ 100", all other CEAs fully withdrawn
 Boron concentration: 860 ppm
 Burnup: 6000 MWD/MTU

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		<p>Note to Examiner:</p> <p>Provide Shutdown Margin Calculation to candidate with initiating cue. Do NOT give him TDB-II until he identifies the need to use TDB-II.</p>
1	Reviews shutdown margin calculation	Determines that least conservative CEA worth was mistakenly used in step 9.c.(2) instead of the most conservative
2	Calculates shutdown margin using corrected values.	Determines that shutdown margin is between 2.93% and 3.33% and is not adequate.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-1

JPM Title: Review Shutdown Margin Calculation

Termination Criteria: SRO has determined that shutdown margin is not adequate

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-1

INITIATING CUE: CEA 22 and 29 have just been declared inoperable (untrippable) following a surveillance test. The STA has determined that shutdown margin is adequate and has asked you to review his SDM calculation. The plant conditions are as follows:

Reactor Power: 50%

CEA position: GRP 4 @ 100", all other CEAs fully withdrawn

Boron concentration: 860 ppm

Burnup: 6000 MWD/MTU

START

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-2

JPM Title: Raw Water Operability Determination

Approximate Time: 10 minutes Actual Time: _____

Reference(s): TDB III.41 (R1)
Technical Specifications
K/A 2.1.12 (SRO Imp 4.0)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-2

JPM Title: Raw Water Operability Determination

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-2

JPM Title: Raw Water Operability Determination

INITIATING CUE: The plant has entered a Technical Specification LCO due to the inoperability of Raw Water Heat Exchanger AC-1A and Raw Water Pump, AC-10C.

Raw Water Pump, AC-10A has just been declared inoperable. The river conditions are as follows:

River temperature = 64°F
River level = 984 feet

Determine the applicable Technical Specification and required actions, if any, to be taken.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refers to TDB-III.41	Enters TDB-III-41
2	Refers to Table and Chart number 4 to determine applicable LCO	Determines that T.S. 2.0.1 applies with these river conditions
3	Determines Tech Spec. 2.0.1 required Action Statement	Plant must be in Hot Shutdown within 6 hours

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-2

JPM Title: Raw Water Operability Determination

Termination Criteria: Technical Specification 2.0.1 has been entered.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-2

INITIATING CUE: The plant has entered a Technical Specification LCO due to the inoperability of Raw Water Heat Exchanger AC-1A and Raw Water Pump, AC-10C.

Raw Water Pump, AC-10A has just been declared inoperable. The river conditions are as follows:

River temperature = 64°F

River level = 984 feet

Determine the applicable Technical Specification and required actions, if any, to be taken.

START

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-3

JPM Title: Shift Manager Review of Surveillance Test Results

Approximate Time: 10 minutes Actual Time: _____

Reference(s): OP-ST-CCW-3002
K/A 2.2.12 (SRO Imp 3.4)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-3

JPM Title: Shift Manager Review of Surveillance Test Results

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-3

JPM Title: Shift Manager Review of Surveillance Test Results

INITIATING CUE: You are acting as the Shift Manager. OP-ST-CCW-3002, AC-3A Component Cooling Water Pump Inservice Test, has been completed today. The STA has completed his evaluation of the test data and forwarded the test procedure to you for approval. Review the test documentation and approve, if warranted. Take any required actions.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		CUE: Provide candidate with a partially filled out copy of the surveillance test procedure.
1	Reviews procedure for completion.	Procedure filled in up to point of Shift Manager approval.
2	Reviews the results in Attachment 1 and Figure 1.	Determines that the data point was incorrectly plotted on Figure 1. Results are in the High Required Action Range.
3	Applies acceptance criteria	Declares AC-3A inoperable

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-3

JPM Title: Shift Manager Review of Surveillance Test Results

Termination Criteria: Test results have been reviewed.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-3

INITIATING CUE: You are acting as the Shift Manager. OP-ST-CCW-3002, AC-3A Component Cooling Water Pump Inservice Test, has been completed today. The STA has completed his evaluation of the test data and forwarded the test procedure to you for approval. Review the test documentation and approve, if warranted. Take any required actions.

START

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-4

JPM Title: Determine Primary to Secondary Leak Rate

Approximate Time: 10 minutes Actual Time: _____

Reference(s): Standing Order G-105
 Standing Order O-43
 K/A 2.3.11 (SRO Imp 3.2)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-4

JPM Title: Determine Primary to Secondary Leak Rate

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments:

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-4

JPM Title: Determine Primary to Secondary Leak Rate

INITIATING CUE: The plant is operating at 100% power. The RCS chemistry is:

- Total RCS Activity = 4.4 mCi/g
- RCS Leak Check gas concentration = 3.8 mCi/cc
- DEI-131 Activity = 0.02 mCi/g
- Boron Concentration = 835 ppm
- RM-057 has increased from 1410 cpm to 1525 cpm over the last hour.

The Condenser Evacuation pumps are in recirc mode.

The Shift Manager directs you, the CRS, to estimate the primary to secondary leakrate and determine what actions, if any, are required.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Obtain copy of Standing Order G-105	Obtains copy of Standing Order G-105
2.	Use S.O. G-105 to estimate primary to secondary leakage	Estimates leakage between 75 and 80 gpd using G-105.
3	Determine Action level	Action level 3
4	Determine required actions	<ul style="list-style-type: none"> • Commence controlled plant shutdown using OP-4 • Align condenser evacuation discharge to aux building stack.
5	Obtain copy of Standing Order O-43	Obtains S.O. O-43

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-4

JPM Title: Determine Primary to Secondary Leak Rate

STEP	ELEMENT	STANDARD
6	Determine fuel action level	Action level 2
7	Determine desired blowdown operation	Blowdown Operation should be continued

Termination Criteria: A determination of primary to secondary leakrate and required actions has been performed.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-4

-
- INITIATING CUE:** The plant is operating at 100% power. The RCS chemistry is:
- Total RCS Activity = 4.4 mCi/g
 - RCS Leak Check gas concentration = 3.8 mCi/cc
 - DEI-131 Activity = 0.02 mCi/g
 - Boron Concentration = 835 ppm
 - RM-057 has increased from 1410 cpm to 1525 cpm over the last hour.

The Condenser Evacuation pumps are in recirc mode.

The Shift Manager directs you, the CRS, to estimate the primary to secondary leakrate and determine what actions, if any, are required.

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO 2004-5

JPM Title: Emergency Plan Classification and PARs

Approximate Time: 10 minutes

Actual Time: _____

Reference(s): EPIP-OSC-1
EPIP-EOF-7
K/A 2.4.41 (SRO Imp 4.1)
K/A 2.4.44 (SRO Imp 4.4)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO 2004-5

JPM Title: Emergency Plan Classification and PARs

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Do not perform this JPM before Simulator Scenario
 Number 1

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO 2004-5

JPM Title: Emergency Plan Classification and PARs

INITIATING CUE:

A 800 gpm steam generator tube rupture has occurred in RC-2A. EOP-00 and EOP-04 have been entered. The MSIV for RC-2A could not be closed. A plant cooldown is being performed using both steam generators. The EAGLE output is attached.

The meteorological indications are as follows:

- **Indicated 10m wind speed – 12 mph, 14 mph**
- **Indicated wind direction – 120°, 128°**
- **Indicated ΔT is -1.8°C/100m, -1.6°C/100m**
- **It is raining, 0.4 inches daily total**

You are directed to enter the Emergency Plan, classify the event and determine offsite Protective Action Recommendations.

Complete page 1 of form FC-1188.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Refer to Emergency Plan	Refer to EPIP -OSC-1
2	Classify the event	The event should be classified as a Site Area Emergency per EAL 2.7 (Primary to Secondary Leakage > 40 gpm with an ongoing release) on form FC-1188
3	Determine Protective Action Recommendations	Refer to EPIP-EOF-7 and determine that there are no PARs for this situation. Document on form FC-1188

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO 2004-5

JPM Title: Emergency Plan Classification and PARs

STEP	ELEMENT	STANDARD
4	Document other items on form FC-1188	<ul style="list-style-type: none">• Wind from – 120° - 128°• Wind Speed – 12 mph• Precipitation – yes• Stability class – C• There is an airborne radioactive release• Prognosis is unstable• Plant is shutdown

Termination Criteria: Event has been classified and PARs determined

Fort Calhoun Station – Operations Training
ADMINISTRATIVE JOB PERFORMANCE MEASURE

JPM No: SRO-2004-5

INITIATING CUE: A 800 gpm steam generator tube rupture has occurred in RC-2A. EOP-00 and EOP-04 have been entered. The MSIV for RC-2A could not be closed. A plant cooldown is being performed using both steam generators. The EAGLE output is attached.

The meteorological indications are as follows:

- Indicated 10m wind speed – 12 mph, 14 mph
- Indicated wind direction – 120°, 128°
- Indicated ΔT is -1.8°C/100m, -1.6°C/100m
- It is raining, 0.4 inches daily total

You are directed to enter the Emergency Plan, classify the event and determine offsite Protective Action Recommendations.

Complete page 1 of form FC-1188.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

Location: Simulator Control Room

Approximate Time: 15 minutes Actual Time: _____

Reference(s): EOP/AOP Attachment 9
EOP/AOP Attachment 10
K/A 006000 A4.05 (3.9/3.8)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Use JPM set#1 which has HCV-238 failed open
 This is an alternate path JPM.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

INITIATING CUE: A LOCA occurred 8.5 hours ago. Containment Spray is operating per TSC recommendation. All three HPSI pumps are operating.

The Control Room Supervisor has directed you to initiate Simultaneous Hot and Cold Leg Injection.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner:
		Do Not provide Attachment 10 to candidate until he makes the transition prior to step 4.
1	Enter EOP/AOP Attachment 9	Attachment 9 entered
2	Open at least one of the Charging Pumps HPSI Header Isolation Valves: <ul style="list-style-type: none"> • HCV-308 • HCV-2988 	<u>CB-1,2,3</u> At least one valve's control switch to OPEN with RED light lit.
3	Ensure HCV-238 and HCV-239 are closed	<u>CB-1,2,3</u> Determines that HCV-238 will not close. Goes to EOP/AOP Attachment 10.
4	Ensure both Charging Isolation valves are open. <ul style="list-style-type: none"> • HCV-247 • HCV-248 	<u>CB-1,2,3</u> RED lights lit GREEN lights off

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

STEP	ELEMENT	STANDARD
5	Ensure HCV-238 and HCV-239 are closed	<u>CB-1,2,3</u> Control switch to CLOSE GREEN lights lit RED lights off Determines that HCV-238 will not close.
6	Close both Charging Isolation valves: <ul style="list-style-type: none"> • HCV-247 • HCV-248 	<u>CB-1,2,3</u> Control switch to CLOSE GREEN lights lit RED lights off
7	Open at least one of the PZR Auxiliary Spray Isolation Valves <ul style="list-style-type: none"> • HCV-240 • HCV-249 	<u>CB-1,2,3</u> At least one valve's control switch to OPEN with RED light lit.
8	Close all of the following HPSI Loop Injection Valves: <ul style="list-style-type: none"> • HCV-315 • HCV-318 • HCV-312 • HCV-321 	<u>AI-30A/B</u> Control Switches to CLOSE (pull out, counter-clockwise) until GREEN lights lit.
9	Close HCV-2987 HPSI Header Isolation Valve	<u>AI-30A/B</u> Control Switch to CLOSE GREEN light lit RED light off

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

STEP	ELEMENT	STANDARD
10	Throttle HPSI Loop Injection Valves until all of the following criteria are satisfied: <ul style="list-style-type: none"> • Charging flow greater than 140 gpm on FIA-236 • Total HPSI flow greater than 140 gpm 	<u>AI-30A/B</u> Throttle one or more of the following valves: <ul style="list-style-type: none"> • HCV-314 • HCV-317 • HCV-311 • HCV-311 Greater than 140 gpm total flow on FI-313, FI-316, FI-319 and FI-322 <u>CB-1,2,3</u> Greater than 140 gpm flow on FIA-236 Note: Plant computer may also be used to verify flows

Termination Criteria: **Simultaneous Hot and Cold Leg Injection**
 Established with greater than 140 gpm flow through charging (Hot Leg) and greater than 140 gpm flow through HPSI Header (Cold Legs).

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: jpm-1135

INITIATING CUE: A LOCA occurred 8.5 hours ago. Containment Spray is operating per TSC recommendation. All three HPSI pumps are operating.

The Control Room Supervisor has directed you to initiate Simultaneous Hot and Cold Leg Injection.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

Location: Simulator Control Room

Approximate Time: 15 minutes Actual Time: _____

Reference(s): EOP/AOP Attachment 17 (R15)
K/A 064000 A4.07 (3.4/3.4)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: Use JPM setup # 1

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

INITIATING CUE: A reactor trip from 100% power and loss of offsite power has occurred. EOP-00 immediate actions have been carried out and plant conditions stabilized. DG #1 and DG#2 are running supplying power to busses 1A3 and 1A4. 161 KV is available.

You have been directed to restore offsite power to bus 1A3 using 161 KV per EOP/AOP Attachment 17

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide candidate with a copy of EOP/AOP Attachment 17 with the initiating cue.
1	Verify NONE of the following Lockout Relays are tripped: <ul style="list-style-type: none"> • 86/1A13 • 86/1A33 • 86/1A3-TFB 	<u>AI-24</u> Lockout relays in RESET position (switch handle vertical) OR <u>CB-20</u> Verify lockout relay indicating lights lit
2	Ensure both of the following breakers are tripped: <ul style="list-style-type: none"> • 1A13 • 1A33 	<u>CB-20</u> GREEN lights lit

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

STEP	ELEMENT	STANDARD
3	Ensure Transfer Switch 43/1A1-1A3 is in “Manual”	<u>CB-20</u> Switch in “Manual” position
4	Verify None of the following Lockout relays are tripped: <ul style="list-style-type: none"> • 86A/OPLS • 86B/OPLS 	Determines OPLS lockout relays are tripped <u>AI-30A/B</u> Relays in Trip position AMBER lights OFF
5	Place “CHAN “A” TEST AND BYPASS SW TS-A/OPLS” in “BYPASS”	<u>AI-30A</u> Keyswitch in bypass position
6	Place “CHAN “B” TEST AND BYPASS SW TS-B/OPLS” in “BYPASS”	<u>AI-30B</u> Keyswitch in bypass position
7	Place all of the following Condenser Evacuation Pump control switches in PULL-TO-LOCK: <ul style="list-style-type: none"> • FW-8A • FW-8B • FW-8C 	<u>CB-10,11</u> All three Condenser Evacuation Pump control switches turned counter-clockwise and pulled out to the PULL-TO LOCK position
8	Reset BOTH of the following lockout relays: <ul style="list-style-type: none"> • 86A/OPLS • 86B/OPLS 	<u>AI-30A</u> 86A/OPLS Lockout relay reset Amber light ON <u>AI-30B</u> 86B/OPLS Lockout relay reset Amber light ON

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

STEP	ELEMENT	STANDARD
		CUE: PCMMINT shows 161 KV @ 162.3 volts
9	Ensure Lockout Relay 86/161 is RESET	<u>AI-22</u> Lockout relay in RESET position
10	Ensure all of the following lockout relays are reset: <ul style="list-style-type: none"> • 861/T1A-4 • 86-2/TIA -4 • 861/T1A-3 • 86-2/TIA -3 • 86X/FT161 	<u>AI-25, AI-24, AI-46</u> Lockout relays in RESET position
11	Synchronize and close at least one of the following breakers: <ul style="list-style-type: none"> • Breaker 110 • Breaker 111 	<u>CB-20</u> Place synch switch in synch position One or both control switches to CLOSE RED light lit
12	Check that T1A3 secondary voltage greater than or equal to 4160V	<u>CB-20</u> Verify voltage on meters
13	Verify “TRANS T1A-3 Secondary Low Voltage” alarm is clear	<u>CB-20, A17, A2</u> Annunciator window OFF

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

STEP	ELEMENT	STANDARD
14	Ensure all of the following lockout relays are reset: <ul style="list-style-type: none"> • 86/1A33 • 86/1A13 • 86/1A3-TFB 	<u>AI-24</u> Lockout relays in RESET position (switch handle vertical) OR <u>CB-20</u> Verify lockout relay indicating lights lit
15	Synchronize and close breaker 1A33	<u>CB-20</u> Place synch switch in synch position Adjust D/G load as necessary Place control switch for breaker 1A33 in CLOSE position then release RED light lit CUE: Diesel Generator #1 load is 280 KW
15	Open Breaker 1AD1	<u>CB-20</u> Breaker control switch to trip GREEN light lit CUE: Another Operator will shutdown the Diesel-Generator

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

Termination Criteria: Bus 1A3 is power from 161 KV Offsite Power.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0026

INITIATING CUE: A reactor trip from 100% power and loss of offsite power has occurred. EOP-00 immediate actions have been carried out and plant conditions stabilized. DG #1 and DG#2 are running supplying power to busses 1A3 and 1A4. 161 KV is available.

You have been directed to restore offsite power to bus 1A3 using 161 KV per EOP/AOP Attachment 17

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

JPM Title: Operate the Containment Hydrogen Analyzer

Location: Simulator Control Room

Approximate Time: 15 minutes Actual Time: _____

Reference(s): EOP-AOP Attachment 16 (R15)
K/A 028000 A1.01 (3.4/3.8)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

JPM Title: Operate the Containment Hydrogen Analyzer

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM setup #1

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

JPM Title: Operate the Containment Hydrogen Analyzer

INITIATING CUE: A LOCA has occurred and an analysis for hydrogen concentration is required. You are directed to place the Hydrogen analyzers in service per the EOP/AOP Attachments and sample the upper level of containment via HCV-820C and HCV-883C.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Open HCV-820C	<u>AI-65A/B</u> Control switch to OPEN RED light lit
2	Open HCV-883C	<u>AI-65A/B</u> Control switch to OPEN RED light lit
3	Place all of the following switches in Override: <ul style="list-style-type: none"> • HCV-820A/821A • HCV-883A/884A • HCV-820B/821B • HCV-883B/884B 	<u>AI-43A/B</u> Control switches to O’RIDE RED lights lit
4	Place recorders, HR-81A/B in service	<u>AI-65A/B</u> Turn recorders on
5	Ensure Range Selector switches are in “0-10%”	<u>AI-65A/B</u> Selector switch in “0-10%” position

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

JPM Title: Operate the Containment Hydrogen Analyzer

STEP	ELEMENT	STANDARD
6	Place the Hydrogen Analyzer Power On Selector Switches to “ANALYZE”	<u>AI-65A/B</u> Switches to “ANALYZE” position
7	Ensure the Function Selector Switches are in “SAMPLE”	<u>AI-65A/B</u> Switches in “SAMPLE” position
8	Press “REMOTE” selector pushbuttons	<u>AI-65A/B</u> Depress pushbuttons
9	Verify the following: <ul style="list-style-type: none"> • Containment H₂ Sampling System Remote/Local Off Normal Annunciator in Alarm • 0-10% Range Amber indicating light is ON • The Sample Indicating light is ON 	<u>AI-65A/B</u> Alarm Window Lit AMBER light lit Light is lit
10	Press Alarm Reset Push buttons	<u>AI-65A/B</u> Depress push buttons CUE: 5 minutes have elapsed
11	Obtain hydrogen concentration reading	<u>AI-65A/B</u> Report reading from meters

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

JPM Title: Operate the Containment Hydrogen Analyzer

Termination Criteria: Containment hydrogen concentration has been determined

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0156

INITIATING CUE: A LOCA has occurred and an analysis for hydrogen concentration is required. You are directed to place the Hydrogen analyzers in service per the EOP/AOP Attachments and sample the upper level of containment via HCV-820C and HCV-883C.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

Location: Simulator Control Room

Approximate Time: 20 minutes Actual Time: _____

Reference(s): OP-ST-RPS-0008
K/A 012000 A4.01 (4.5/4.5)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM setup #2
 Ensure D/G trip links closed

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

INITIATING CUE: As a portion of the preparations for a Reactor Startup, you, the LO, are directed to verify the operation of the Reactor Protective System manual trip circuits by performing OP-ST-RPS-0008. All prerequisites and initial conditions are met.
 Both D/G's have been Barred over

START:

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide candidate with a copy of OP-ST-RPS-008 along with initiating cue.
1	Verify BW-20-TS and CW-20-TS switches are CLOSED.	<u>AI-31B AND AI-31C</u> Cue: Switches are CLOSED.
2	Display Y-3466 (Reactor Trip Digital Point) on ERF CRT.	<u>ERF CRT</u> Display DVD or GRA. "NORMAL"
3	Ensure Reactor is Reset.	<u>CB-4</u> Verify Reactor Trip Alarm is CLEAR
4	Push Manual Reactor Trip pushbutton on RPS.	<u>AI-31B/C</u> Push RED button.
5	Verify the following: CEDM clutch power supply breakers CB-AB and CB-CD are open	<u>AI-57</u> Both breakers mid position

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
6	Clutch power supplies are deenergized	<u>AI-3</u> RED trip light on for each power supply: <ul style="list-style-type: none"> • PS-1 • PS-2 • PS-3 • PS-4
7	Turbine Trip circuits are actuated	<u>AI-31B/C</u> K1, K2, K3 and K4 indicating lights are OFF
8	Diesel Generator Start Circuits are actuated: D/G-1: <ul style="list-style-type: none"> • 86A/D1 lockout relay tripped • 86B/D1 lockout relay tripped • YI-6048B at idle speed D/G-2: <ul style="list-style-type: none"> • 86A/D2 lockout relay tripped • 86B/D2 lockout relay tripped • YI-6148B at idle speed 	<u>AI-30A</u> Relays tripped AMBER lights off Tachometer @ 500 RPM <u>AI-30B</u> Relays tripped AMBER lights off Tachometer @ 500 RPM
9	REACTOR TRIP annunciator in ALARM	<u>CB-4, A20, A-7</u> Alarm panel lit

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
10	ERF Y3466 indicates tripped	<u>ERF terminal</u> Y-3466 tripped
11	Sequence of Events Log has printed	<u>PC-22 (line printer)</u> CUE: Post trip review printed
12	RESET and CLOSE Breakers CB-AB and CB-CD.	<u>AI-57</u> OPEN breaker and then CLOSE.
13	RESET Reactor Trip.	Depress Reactor Trip Reset Button on CB-4
14	Verify the following: Clutch power supplies are energized. Turbine trip reset. Reactor Trip Alarm CLEARS. Y-3466 RESETS	<u>On Panel AI-3</u> PS-1, 2, 3,& 4 trip lights OFF. <u>AI-31B (Behind Panel)</u> K1 & K3 lights lit <u>AI-31C (Behind Panel)</u> K2 & K4 lights lit. <u>On Panel CB-4,</u> Alarm A-20 A-7 Resets Y-3466 "NORMAL" on ERF CRT.
15	RESET: <ul style="list-style-type: none"> • 86A/D1 • 86B/D1 • 86A/D2 • 86B/D2 	<u>On Panel AI-30 A/B:</u> Reset Lockouts AMBER lights lit.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
16	Push Manual Reactor Trip on Main Control Board.	<u>CB-4</u> Depress RED Trip Button.
17	Attempt to RESET the Reactor.	<u>CB-4</u> Push Manual Reactor Trip Reset pushbutton. Verify system will <u>NOT</u> reset within ~ 30 seconds TRIP Annunciator does not clear

CUE: Operator at AI-3 reports that the trip lamps on the clutch power supplies stayed on for approximately 30 seconds.

18	Reset Reactor Trip.	<u>CB-4</u> Depress BLACK Reactor Trip Reset Pushbutton.
19	Push Manual Reactor Trip on Main Control Board.	<u>CB-4</u> Depress RED Trip Button.
20	Verify the following: M1, 2, 3 and 4 are deenergized.	<u>AI-3</u> Voltage indicates ZERO for M1, 2, 3 and 4.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
21	Clutch power supply PS 1, 2, 3 and 4 Trip Lights ON.	<u>AI-3</u> One RED trip light ON for each clutch power supply: <ul style="list-style-type: none"> • PS-1 • PS-2 • PS-3 • PS-4
22	Turbine Trip Circuit ACTUATED.	<u>Behind AI-31B/C</u> K1, K2, K3 and K4 indicating lights off
23	The Diesel Start Circuit ACTUATED: <ul style="list-style-type: none"> • 86A/D1 Tripped • 86B/D1 Tripped • 86A/D2 Tripped • 86A/D2 Tripped 	<u>AI-30A/B</u> Verify both diesels are at idle speed Lockout relays Tripped AMBER light out.
24	Reactor trip annunciator operated	Reactor Trip Alarm on CB 4. (A20, A7)
25	Y-3466 is Tripped.	ERF CRT Y-3466 TRIPPED.
26	Post Trip Review is printed.	<u>PC-22 (line printer)</u> CUE: Post trip review printed
27	RESET the reactor.	<u>CB-4</u> Push Reactor Trip Reset.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
28	Verify the following: Clutch power supplies are energized. Turbine trip reset. Reactor Trip Alarm Clears. Y-3466 Resets.	<u>On Panel AI-3:</u> PS-1, 2 ,3 & 4 trip lights OFF. <u>AI-31B/C (Behind Panel)</u> K1, K2, K3 and K4 lights ON <u>CB-4:</u> Alarm A-20, A-7 Resets. Alarm Point Y-3466 on the ERF CRT reset.
29	RESET: <ul style="list-style-type: none"> • 86A/D1 • 86B/D1 • 86A/D2 • 86B/D2 	<u>AI-30A/B</u> Reset Lockout relays AMBER lights lit.
		CUE: Another Operator will shutdown the Diesel Generators

Termination Criteria: Reactor Trip circuits have been tested.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0654

INITIATING CUE: As a portion of the preparations for a Reactor Startup, you, the LO, are directed to verify the operation of the Reactor Protective System manual trip circuits by performing OP-ST-RPS-0008. All prerequisites and initial conditions are met.
Both D/G's have been Barred over

START:

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

Location: Simulator Control Room

Approximate Time: 15 minutes Actual Time: _____

Reference(s): OI-VA-1, Attachment 8 (rev 49)
K/A 029000 A2.03 (2.7/3.1)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM set 2
 Alternate Path JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

INITIATING CUE: The plant is in a refueling shutdown condition. A containment purge permit has been delivered to the Shift Manager by the C/RP group. Maximum purge flow is not to exceed 20,000 SCFM. The Shift Manager has signed the permit and authorized the release.

You, the LO, are to start up a containment purge using VA-24A and VA-32A per OI-VA-1, attachment 8. Process monitors RM-050, RM-051, RM-052 (aligned to stack) and RM-062 are all operable, VA-3A is running and VA-40B is in service. This is a Step #3 Purge. All prerequisites are met and OI-VA-1, attachment 8 is complete through step 5. You are to begin at step 6.

START.

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide candidate with a copy of OI-VA-1, Attachment 8
1	Verify the following are closed: <ul style="list-style-type: none"> • HCV-749 • HCV-750 • HCV-753 • HCV-754 • HIC-751 	<u>AI-44</u> GREEN damper position lights lit
2	Ensure the following permissive key switches are in OPEN <ul style="list-style-type: none"> • HC-742-2C • HC-742-2D • HC-742-1C • HC-742-1D 	<u>AI-44</u> Key switches in OPEN position

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
3	Ensure the TOTAL display is selected on QQI-755	<u>AI-60</u>
4	Reset QQI-755	TOTAL selected <u>AI-60</u> Push RESET pushbutton
5	Turn on FR-755/6600/6601, Containment Purge Air Flow	<u>AI-60</u> Recorder FR-755 is ON and recording CUE: Recorder chart marking is complete
6	Place HC-745 to HAND	AI-44 Switch placed in HAND position
7	Station an Operator to monitor RM-052 and/or RM-062	CUE: Operator has been stationed
8	Place the following valves in OPEN: <ul style="list-style-type: none"> • PCV-742C • PCV-742D • PCV-742A • PCV-742B • HIC-751 	<u>AI-44</u> Switches on OPEN RED lights lit CUE: Operator monitoring RM-052 and RM-062 reports no change in count rate

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
9	Monitor for change in containment pressure	<u>AI-65A/B</u> Cue: PR-785 and PR-786 show steady containment pressure
10	Throttle the following purge fan dampers: <ul style="list-style-type: none"> • HCV-753 • HCV-749 	<u>AI-44</u> Rotate controllers to approximately 10% open
11	Start VA-24A and VA-32A	<u>AI-44</u> VA-24A control switch to start and RED light lit VA-32A control switch to start and RED light lit
12	Adjust following dampers as necessary to the desired flows: <ul style="list-style-type: none"> • HCV-753 • HCV-749 • HIC-751 	<u>AI-44</u> Adjust dampers, purge flow must remain below FC-212 maximum release rate. Containment pressure should remain steady
13	Ensure FI-756 Purge Air DIL Flow is greater than equal to FC-212 Dilution flow value	<u>AI-44</u> Indicated flow greater than FC-212 value CUE: Operator reports that RM-052 and RM-062 indications are rising and approaching the high alarm setpoint

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
14	Stop VA-32A and VA-24A	<u>AI-44</u> VA-24A control switch to stop and GREEN light lit VA-32A control switch to stop and GREEN light lit
15	Ensure the following dampers are closed: <ul style="list-style-type: none"> • HCV-753 • HCV-754 • HCV-749 • HCV-750 • HIC-751 • PCV-742C • PCV-742D • PCV-742A • PCV-742B • FCV-6601B • FCV-6600B • HCV-6602 • HCV-6603 	<u>AI-44</u> Control switches in CLOSE GREEN lights lit <u>AI-60</u> SP-6601 @ zero SP-6601 @ zero Control switches in CLOSE GREEN lights lit

Termination Criteria: Purge has been terminated due to observed rising count rate on RM-052 and RM-062

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0704

INITIATING CUE: The plant is in a refueling shutdown condition. A containment purge permit has been delivered to the Shift Manager by the C/RP group. Maximum purge flow is not to exceed 20,000 SCFM. The Shift Manager has signed the permit and authorized the release.

You, the LO, are to start up a containment purge using VA-24A and VA-32A per OI-VA-1, attachment 8. Process monitors RM-050, RM-051, RM-052 (aligned to stack) and RM-062 are all operable, VA-3A is running and VA-40B is in service. This is a Step #3 Purge. All prerequisites are met and OI-VA-1, attachment 8 is complete through step 5. You are to begin at step 6.

START.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0613M

JPM Title: Shutdown a Reactor Coolant Pump

Location: Simulator Control Room

Approximate Time: 5 minutes Actual Time: _____

Reference(s): OI-RC-9, Attachment 2 (R49)
K/A 003000 A4.06 (2.9/2.9)

JPM Prepared by: Jerry Koske Date: _____

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0613M

JPM Title: Shutdown a Reactor Coolant Pump

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM set #2 which has RC-3D's 90% speed switch failed

This is an Alternate Path JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0613M

JPM Title: Shutdown a Reactor Coolant Pump

INITIATING CUE: The reactor is in Hot Shutdown and is being cooled down to go into refueling. The RCS T-cold is 505°F and lowering approximately 30°F per hour.

You, the LO, are directed to shutdown Reactor Coolant Pump RC-3D.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
1	Ensure the reactor is shutdown prior to stopping a RCP.	<u>CB-4</u> Verify all trippable rods are inserted
2	Ensure Zero Power Mode Bypass switches are in Bypass	<u>AI-31 A/B/C/D</u> Keys installed and AMBER lights lit
3	Stop Reactor Coolant Pump RC-3D	<u>CB-1,2,3</u> Control switch to AFTER-STOP position and release GREEN light lit
4	Ensure the Oil Lift Pump starts automatically as pump speed lowers.	<u>CB-1,2,3</u> Determines pump did not start. Manually starts lift oil pump by placing control switch in START position and verifying RED light on.

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0613M

JPM Title: Shutdown a Reactor Coolant Pump

STEP	ELEMENT	STANDARD
5	Holds Lift Oil Pump control switch in the START position	If the control switch is released, the lift pump will stop. It should then be returned to the START position. The control switch should be held in the START position until the zero speed light comes on.
6	Ensure Reverse Rotation Annunciator is clear.	<u>CB-1,2,3, A6 D-5</u> Annunciator is OFF
7	Confirm Zero Speed light is on	<u>CB-1,2,3</u> RC-3D GREEN light on
8	Confirm RCP tachometer indicates zero	CUE: Local Operator reports RC-3D speed is zero rpm.
9	Stop oil lift pump.	<u>CB-1,2,3</u> Control switch to AFTER-STOP GREEN light lit

Termination Criteria: Reactor Coolant Pump RC-3D is secured

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0613M

INITIATING CUE: The reactor is in Hot Shutdown and is being cooled down to go into refueling. The RCS T-cold is 505°F and lowering approximately 30°F per hour.

You, the LO, are directed to shutdown Reactor Coolant Pump RC-3D.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

JPM Title: Raise RCS Pressure with a Steam Bubble in the Pressurizer

Location: Simulator Control Room

Approximate Time: 10 minutes Actual Time: _____

Reference(s): OI-RC-7, attachment 2 (rev 9)
K/A 010000 A2.03 (4.1/4.2)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

JPM Title: Raise RCS Pressure with a Steam Bubble in the Pressurizer

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM setup 3 Alternate path JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

JPM Title: Raise RCS Pressure with a Steam Bubble in the Pressurizer

INITIATING CUE: The plant is operating at 100% power when you, the LO, are directed to raise pressure to 2140 psia using manual controls. All prerequisites are met.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: When candidate identifies OI-RC-7, attachment 2 as the proper procedure, provide a copy to him
1	Verify PRC-103Y in MANUAL	<u>CB-1,2,3</u> Controller selected to MANUAL position
2	Ensure Spray Control Switches in AUTO	<u>CB-1,2,3</u> HC-103-1, HC-103-2 in AUTO
3	Ensure Proportional Heater Control in AUTO	<u>CB-1,2,3</u> HC-103-7 and HC-103-8 in AUTO RED lights lit
4	Energize Backup Heaters	<u>CB-1,2,3</u> Place any or all listed to ON with RED lights lit: <ul style="list-style-type: none"> • 225 KW Backup Htrs, Bank 1, Group 1/2/3

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

JPM Title: Raise RCS Pressure with a Steam Bubble in the Pressurizer

STEP	ELEMENT	STANDARD
		<ul style="list-style-type: none"> • 150 KW Backup Htrs, Bank 2, Group 4/5 • 150 KW Backup Htrs, Bank 3, Group 8/9 • 225 KW Backup Htrs, Bank 4, Group 10/11/12
5	Increase Proportional Heater Output	CB-1,2,3 Move Manual Control lever for PRC-103Y to the left Pressure raised to 2140 psia <u>When pressure raised to 2140 psia,</u> CUE: You are directed to return RCS pressure to 2100 psia.
6	Place Backup Heater Control in Auto or ON	CUE: Select AUTO <u>CB1,2,3</u> Switches in AUTO GREEN and AMBER lights lit
7	Adjust Manual Control Lever to return RCS pressure to Normal Operating Pressure.	CB-1,2,3 PRC-103Y output adjusted to approximately 67% When RCS pressure reaches 2120 psia, simulator operator will fail PCV-102-1 open
8	Respond to annunciator alarms	<u>CB-1,2,3/A4 A-2 and C-4</u> Refers to ARP CB-1,2,3/A4

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

JPM Title: Raise RCS Pressure with a Steam Bubble in the Pressurizer

STEP	ELEMENT	STANDARD
9	Closes block valves HCV-150 and HCV-151 one at a time. Identifies that PCV-102-1 has opened and ensures that HCV-151 is closed.	<u>CB-1,2,3</u> Control switch for HCV-151 to CLOSE GREEN light lit

Termination Criteria: Pressure is returning to 2100 psia and PORV PCV-102-1 is isolated by Block valve HCV-151

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0621M

INITIATING CUE: The plant is operating at 100% power when you, the LO, are directed to raise pressure to 2140 psia using manual controls. All prerequisites are met.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

Location: Simulator Control Room

Approximate Time: 10 minutes Actual Time: _____

Reference(s): AOP-02 (R2.1)
K/A 001000 A2.03 (3.5/4.2)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: JPM set 3
 Alternate Path JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

INITIATING CUE: The plant is operating at 50% power. During the performance of OP-ST-CEA-0003, CEA Partial Movement Check, a malfunction occurred which resulted in inserting CEA #41 to a position of 90 inches withdrawn. The other CEAs in the group are 110 inches withdrawn.

AOP-02 was entered and the malfunction has been repaired. The CEA has been misaligned for 25 minutes.

You have been directed to realign the CEA with its group using AOP-02, Section III Step 22. Another operator has been assigned to make any required changes in boron concentration.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide a copy of AOP-02 to the candidate with the initiating cue.
1	Determine group that misaligned CEA belongs to.	CEA #41 belongs to group "4"
2	Place Rod Control Mode Selector Switch in "Manual Individual" Position	<u>CB-4</u> Mode Selector Switch in "Manual Individual" Position
3	Select the group containing the misaligned CEA using the Control Rod Group Selector Switch	<u>CB-4</u> Control Rod Group Selector Switch selected to Group "4"

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

STEP	ELEMENT	STANDARD
4	Select the misaligned CEA using the Rod Selector Switch for the misaligned group.	CB-4 Group “4” Rod Selector Switch selected to CEA #41
5	Place the Rod Block Bypass Switch in Bypass	<u>CB-4</u> Switch in BYPASS position
6	Operate the Manual Rod Control Switch to move the selected CEA	<u>CB-4</u> Move the IN-OUT-HOLD to the OUT position is short increments (3 inches or less)
7	Monitor the CEA withdrawal	<u>CB-4</u> Verify CEA movement using both Primary (Dial) and Secondary (CRT) indications
8	Terminate CEA movement when the CEA has been realigned with its group.	<u>CB-4</u> IN-OUT-HOLD switch released Simulator Operator will insert a malfunction that causes an uncontrolled CEA withdrawal.
9	Places the Mode Selector Switch in “OFF” Position	<u>CB-4</u> Mode Selector Switch in “OFF” Position

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

STEP	ELEMENT	STANDARD
10	Manually Trips the Reactor	<u>CB-4</u> Presses RED Manual Reactor Trip Pushbutton
11	Verifies Reactivity Control Safety Function is satisfied.	<u>CB-4</u> Verifies: <ul style="list-style-type: none">• Trippable CEAs inserted.• Reactor Power is lowering.• Negative startup rate.

Termination Criteria: Reactor has been manually tripped and Reactivity Control Safety Function is satisfied.

JPM No: JPM-0003

INITIATING CUE: The plant is operating at 50% power. During the performance of OP-ST-CEA-0003, CEA Partial Movement Check, a malfunction occurred which resulted in inserting CEA #41 to a position of 75 inches withdrawn. The other CEAs in the group are 95 inches withdrawn.

AOP-02 was entered and the malfunction has been repaired. The CEA has been misaligned for 25 minutes.

You have been directed to realign the CEA with its group using AOP-02, Section III Step 22. Another operator has been assigned to make any required changes in boron concentration.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0450

JPM Title: Emergency Start of the Diesel Fire Pump

Location: Intake Structure

Approximate Time: 5 minutes Actual Time: _____

Reference(s): OI-FP-1 Attachment 3 (R53)
K/A 086000 A4.01 (3.3/3.3)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0450

JPM Title: Emergency Start of the Diesel Fire Pump

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: Potential tripping hazards
Do NOT operate any controls

Comments: Alternate path JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0450

JPM Title: Emergency Start of the Diesel Fire Pump

INITIATING CUE: The electric fire pump is out of service. Transformer deluge has activated due to a fire but the diesel fire pump did not start automatically.

You are directed to perform an emergency manual start of the diesel fire pump.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		Note to Examiner: Provide candidate with a copy of OI-FP-1
1	Ensure the following are on: <ul style="list-style-type: none"> • AI-183-CB1, Fire Pump FP-1B Batt 1 Switch • AI-183-CB2, Fire Pump FP-1B Batt 2 Switch 	<u>AI-183</u> Battery 1 is ON Battery 2 is ON
2	Place HC/FP-1B-MS control switch to Manual 1	<u>AI-183</u> Select Manual #1
3	Press HC/FP-1B-1, Crank 1 start button	<u>AI-183</u> Push Crank 1 pushbutton CUE: Engine did not turn over or start
4	Place HC/FP-1B-MS control switch to Manual 2	<u>AI-183</u> Select Manual #2

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0450

JPM Title: Emergency Start of the Diesel Fire Pump

STEP	ELEMENT	STANDARD
5	Press HC/FP-1B-1, Crank 2 start button	<u>AI-183</u> Push Crank 2 pushbutton CUE: Engine turned over but did not start
6	Open FO-169, Fuel Oil Solenoid Valve	<u>South side of Engine</u> Turn Knob clockwise to full in position
7	Open FP-161, Pressure control valve bypass valve	<u>South side of Engine</u> Cooling water bypass valve to OPEN
8	Engage the starter using either of the two starter contactors	<u>North side of Engine</u> Raise lever knob on either: <ul style="list-style-type: none"> • YS/FP-1B-1 • YS/FP-1B-1 CUE: Engine has started and is running Release lever

Termination Criteria: Diesel Fire Pump has been started

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0450

INITIATING CUE: The electric fire pump is out of service. Transformer deluge has activated due to a fire but the diesel fire pump did not start automatically.

You are directed to perform an emergency manual start of the diesel fire pump.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

Location: Switchgear Room, Turbine Building and Control Room

Approximate Time: 20 minutes Actual Time: _____

Reference(s): EOP/AOP Attachment 6 (R15)
K/A 063000 A1.01 (2.5/3.3) This is identified as a risk significant operator action in the Fort Calhoun PRA. Therefore, the FCS importance factor is significantly higher than the values given in NUREG-1122.

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: None

Safety Considerations: None

Comments: This is a Time Critical JPM

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

INITIATING CUE: The plant has tripped due to a station blackout event. The CRS has directed you to Minimize DC Loads using EOP/AOP Attachment 6.

Steps 1 through 3 are Time Critical.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		<p>Note to Examiner: provide copy of EOP/AOP Attachment 6 to candidate.</p> <p>EXAMINER NOTE START TIME _____</p>
1	Place BOTH of the following Breakers in OFF: <ul style="list-style-type: none"> • Computer 400 Cycle Cabinet • Emergency Lighting PNL Transfer Switch in OFF 	<p><u>Switchgear Room</u></p> <p>DC Bus 2 EE-8G-CB12 to OFF EE-8G-CB8 to OFF</p>
2	Place Emer Lighting PNL Transfer Switch in OFF	<p><u>Switchgear Room</u></p> <p>DC Bus 1 EE-8F-CB-11 to OFF</p>
3	Place 125 VDC Panel DC-PNL-1, Breaker 15, in OFF	<p><u>Turbine Building West Wall</u></p> <p>Breaker #15 to OFF</p> <p>Time Completed _____</p> <p>Elapsed time must be 15 minutes or less</p>

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

STEP	ELEMENT	STANDARD
		<p>Note: The remainder of this JPM is performed in the Control Room and is not time critical.</p> <p>Inform candidate that the remainder of this JPM is not time critical.</p> <p>CUE: The turbine has stopped rolling</p>
4	Stop LO-4, DC Oil Pump	<p><u>CB-10,11</u></p> <p>LO-4 Control Switch in Pull-Out, RED and GREEN lights OFF.</p>
		<p>CUE: Two hours have elapsed</p>
5	Ensure the following are closed: <ul style="list-style-type: none"> • Main Disconnect I1 -1 • Circuit #1 AI-53 Feed 	<p><u>AI-42A</u></p> <p>Switches in ON position</p>
6	Place ALL of the following breakers in OFF: <ul style="list-style-type: none"> • Circuit #2 AI-56 Feed • Circuit #3 AI-100 Feed • Circuit #4 IB -1A Feed • Circuit #5 CB-10,11 Feed • Circuit #7 CB-1,2,3 Feed • Circuit #8 AI-195 Feed • Circuit #9 AI-44 Feed • Circuit #10 AI-58 & AI-59 Feed • Circuit #11 CB-20 Feed 	<p><u>AI-42A</u></p> <p>Breakers in OFF</p>

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

STEP	ELEMENT	STANDARD
	<ul style="list-style-type: none"> • Circuit #12 AI-42 & AI-60 Feed • Circuit #13 CB-4 Feed • Circuit #18 AI-43A & AI-33C Feed 	
7	Ensure Both of the following breakers are closed: <ul style="list-style-type: none"> • Main Disconnect I2-1 • Circuit #1 AI-53 Feed 	<u>AI-42B</u> Switches in ON position
8	Place all of the following breakers in OFF: <ul style="list-style-type: none"> • Circuit #2 AI-50 Feed • Circuit #3 AI-105 & AI-107 Feed • Circuit #4 AI-55 Feed • Circuit #5 AI-101B Feed • Circuit #6 IB -2A Feed • Circuit #7 CB-10,11 Feed • Circuit #8 Nuclear Emergency Feed • Circuit #9 CB-4 Feed • Circuit #10 Fire Emergency Feed • Circuit #11 AI-44 Feed • Circuit #12 AI-187 Feed • Circuit #13 CB-1,2,3 Feed • Circuit #14 AI-195 Feed • Circuit #15 RC Pump Vibr. Sys • Circuit #16 AI-43A & AI-65B Feed • Circuit #17 CB-20 Feed 	<u>AI-42B</u> All listed breakers in OFF

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

STEP	ELEMENT	STANDARD
9	Stop LO-12B, DC Seal Oil Pump	<u>CB-10,11</u> LO-12B switch in Pull OUT, GREEN and RED lights OFF

Termination Criteria: DC Loads have been minimized

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0304

INITIATING CUE: The plant has tripped due to a station blackout event.
The CRS has directed you to Minimize DC Loads using
EOP/AOP Attachment 6.

Steps 1 through 3 are Time Critical.

START

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

Location: SI Pump Room 21

Approximate Time: 10 minutes Actual Time: _____

Reference(s): AOP-11 (R7)
K/A 076000 A4.04 (3.5/3.5)

JPM Prepared by: Jerry Koske Date: 2/25/2004

JPM Reviewed by: _____ Date: _____

JPM Approved by: _____ Date: _____

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

Operators' Name: _____ Employee # _____

All Critical Steps (shaded) must be performed or simulated in accordance with the standards contained in this JPM

The Operator's performance was evaluated as (circle one):

SATISFACTORY

UNSATISFACTORY

Evaluator's Signature: _____ Date: _____

Reason, if unsatisfactory:

Tools & Equipment: NONE

Safety Considerations: Requires RCA entry

Comments:

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

INITIATING CUE: The reactor has been tripped from 100% power. A total loss of CCW has occurred and one train of Safety Injection and Containment Spray Pumps are operating.

You are directed to establish Raw Water backup cooling to SI-3A, SI-1A, SI-2A and SI-2C.

The Control Room has placed the SI Pump AC Valves SIAS Override Switches, HC-2809/11/14/15 and HC-2808/10/12/13, in OVRRD.

START

Critical Steps shown in gray

STEP	ELEMENT	STANDARD
		<p>Note to Examiner: Provide a copy of AOP-11, pages 30-36 to the candidate with the initiating cue.</p> <p>Note: Keys located in AI-100 room. Some Operators may carry keys.</p>
	<u>Establish RW flow to CS Pump SI-3A</u>	<u>Room 21</u>
1	Control room closes HCV-2813A/B	CUE: Valves are closed
2	Unlock and release the hand jacks from: <ul style="list-style-type: none"> • HCV-2813C • HCV-2813D 	Remove locking device and back off valve operator wheel

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

STEP	ELEMENT	STANDARD
3	Locally open HCV-2813C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> • IA-HCV-2813C-TV • IA-HCV-2813D-TV 	Place 3-way instrument air supply valves in the OPEN position. CUE: Air vents and valve moves to open position
	<u>Establish RW flow to LPSI Pump SI-1A</u>	<u>Room 21</u>
4	Control Room closes HCV-2808A/B	CUE: Valves are closed
5	Unlock and release the hand jacks from: <ul style="list-style-type: none"> • HCV-2808C • HCV-2808D 	Remove locking device and back off valve operator wheel
6	Locally open HCV-2808C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> • IA-HCV-2808C-TV • IA-HCV-2808D-TV 	Place 3-way instrument air supply valves in the OPEN position. CUE: Air vents and valve moves to open position
	<u>Establish RW flow to HPSI Pump SI-2A</u>	<u>Room 21</u>
7	Control Room closes HCV-2810A/B	CUE: Valves are closed
8	Unlock and release the hand jacks from: <ul style="list-style-type: none"> • HCV-2810C • HCV-2810D 	Remove locking device and back off valve operator wheel

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

STEP	ELEMENT	STANDARD
9	Locally open HCV-2810C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> • IA-HCV-2810C-TV • IA-HCV-2810D-TV 	Place 3-way instrument air supply valves in the OPEN position. CUE: Air vents and valve moves to open position
	<u>Establish RW flow to HPSI Pump SI-2C</u>	<u>Room 21</u>
10	Control Room closes HCV-2812A/B	CUE: Valves are closed
11	Unlock and release the hand jacks from: <ul style="list-style-type: none"> • HCV-2812C • HCV-2812D 	Remove locking device and back off valve operator wheel
12	Locally open HCV-2812C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> • IA-HCV-2812C-TV • IA-HCV-2812D-TV 	Place 3-way instrument air supply valves in the OPEN position. CUE: Air vents and valve moves to open position

Termination Criteria: Raw Water backup cooling is being supplied to the HPSI, LPSI and CS Pumps located in room 21

Fort Calhoun Station – Operations Training
JOB PERFORMANCE MEASURE

JPM No: JPM-0010RW

INITIATING CUE: The reactor has been tripped from 100% power. A total loss of CCW has occurred and one train of Safety Injection and Containment Spray Pumps are operating.

You are directed to establish Raw Water backup cooling to SI-3A, SI-1A, SI-2A and SI-2C.

The Control Room has placed the SI Pump AC Valves SIAS Override Switches, HC-2809/11/14/15 and HC-2808/10/12/13, in OVRRD.

START
