

Facility: Fort Calhoun		Scenario No: 1		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC# 1    100% Power    MOC				
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	COP T:F908	I - sec	S/G steam flow transmitter output fails low	
2	COP T:122H2	I - pri	Hot leg RTD fails high (tech spec entry)	
3	ORP X10I227	C - sec	Heater Drain Pump, FW-5B, trips	
4	COP JLB218LL	I - pri	VCT level transmitter fails low	
5	MFP CRD06 1	C - pri	CEA drop (tech spec entry)	
6		R – pri N - sec	T. S. required power reduction	
7	ORP X01I392	C - pri	CCW pump, AC-3B, trips (tech spec entry)	
8	MFP CRD06 5	C - pri	Second CEA drops – Manual Reactor Trip Required	
9	MFP SGN01A	M - all	Steam Generator Tube Rupture	
10	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.: 3	Page 4 of 10
Event Description: Heater Drain Pump, FW-5B, trips			
Time	Position	Applicant's Actions or Behavior	
	SEC	Respond to "Heater Drain Pump A 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.: 1	Event No.: 8	Page 9 of 10
Event Description: Second CEA drops – Manual Reactor Trip Required			
Time	Position	Applicant’s Actions or Behavior	
	PRI	Respond to alarm. Inform SRO that second CEA has dropped.	
	SRO	Direct PRI to manually trip the reactor.	
	PRI	Manually trip the reactor	
	SRO	Following manual or auto reactor trip, direct standard post trip actions	
	PRI SEC	Perform Standard Post Trip Actions: <ul style="list-style-type: none"> <li>• Verify control rod insertion, power lowering, negative startup rate</li> <li>• Verify turbine trip and generator trip</li> <li>• Verify electrical status – 4160, D/G, instrument power, 125V DC</li> <li>• Verify instrument air status</li> <li>• Verify CCW and raw water status</li> <li>• Verify RCS inventory control</li> <li>• Verify RCS pressure control</li> <li>• Verify core heat removal</li> <li>• Verify S/G feed</li> <li>• Verify S/G pressure and T-cold</li> <li>• Verify containment conditions</li> </ul>	

Op-Test No.:	Scenario No.: 1	Event No.: 9, 10	Page 10 of 10
Event Description: Steam Generator A Tube Rupture			
Time	Position	Applicant's Actions or Behavior	
	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	
	SEC	Report failure of S/G A's MSIV to close	
	SRO or SEC	Direct Plant Operator to attempt local closure of MSIV	
	SRO	Direct RO to depressurize RCS to less than 1000 psia	
	PRI	Depressurize the RCS	
	PRI	Maintain subcooling	
	SEC	Monitor and control secondary parameters. Block SGLS during cooldown.	
	PRI	Monitor and control primary parameters	
		<b>Scenario ends with RCS cooldown and depressurization in progress and Steam Generator "A" isolated except for its MSIV</b>	

Facility: Fort Calhoun		Scenario No: 2		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC #1 100% Power MOC				
Turnover: Diesel driven FW pump, FW-54 and charging pump CH-1B are Out of Service. Maintain power.				
Event No.	Malf No.	Event Type*	Event Description	
1	COP T:P910	I - sec	PT-910 fails high causing turbine bypass valve to open	
2	COP NCVPCH 1C	C - pri	Charging Pump, CH-1C, Trips (tech spec entry)	
3	MFP TUR05F	C - sec	High turbine vibration caused by inadequate oil cooling	
4	MFP NIS02D	I - pri	Wide Range NI channel D fails (tech spec entry)	
5	COP T:P103Y	I - pri	Pressurizer Pressure channel, 103Y, fails low	
6	MFP SWD02A SWD02B	M - all	Loss of Offsite Power	
7	File ATWAS_ PLUS1	M - all	ATWS – manual trip required	
8	RFP AFW10A	C - sec	Emergency Feedwater Storage Tank line is blocked causing a total loss of Feedwater (once-through cooling required)	
9		M - all	Initiate Once-Through Cooling	

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

Op-Test No.:	Scenario No.: 2	Event No.: 1	Page 2 of 9
Event Description: PT-910 fails high causing turbine bypass valve to open			
Time	Position	Applicant's Actions or Behavior	
	SEC	Identify rapid decrease in RCS T cold (VOPT ANN will alarm if uncorrected)	
	SEC	Determine cause as turbine bypass valve being open (red light on CB-10,11)	
	SRO	Direct SEC to take manual control of PCV-910 and close valve	
	SEC	Take manual control of PCV-910 and close it	
	SEC	Monitor RCS Tc	
	PRI	Monitor and control RCS parameters	
	SRO	Notify I & C of failure	







Op-Test No.:	Scenario No.: 2	Event No.: 5	Page 6 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.:	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	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"> <li>• Verify control rod insertion, power lowering, negative startup rate</li> <li>• Verify turbine trip and generator trip</li> <li>• Verify electrical status – 4160, D/G, instrument power, 125V DC</li> <li>• Verify instrument air status</li> <li>• Verify CCW and raw water status</li> <li>• Verify RCS inventory control</li> <li>• Verify RCS pressure control</li> <li>• Verify core heat removal</li> <li>• Verify S/G Feed- <b>Report loss of feedwater</b></li> <li>• Verify S/G pressure and T-cold</li> <li>• Verify containment conditions</li> </ul>	
	SRO	Direct PRI or SEC to have EONT minimize DC loads	
	PRI or SEC	Direct EONT to minimize DC loads	
	SRO	Verify completion of SPTA's	





Facility: Fort Calhoun		Scenario No: 3		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC# 7 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	COP T:L101Y	I - pri	Controlling pressurizer level channel, 101Y, fails low	
2	COP T:L906Y	I - sec	Steam generator RC-2B level channel, 906Y, fails high	
3	MFP RCP09B	C - pri	Reactor Coolant Pump, RC-3B, lower seal failure	
4	COP T:P210	I - pri	Letdown pressure transmitter PCV-210 fails low	
5	MFP RCP10B	C - pri	Reactor Coolant Pump, RC-3B, middle seal failure	
6		R - pri N - sec	Emergency shutdown	
7	RFP BCW10A	C - sec	Running Bearing water pump, AC-9A, trips	
8	MFP RCS01C	M - all	Loss of Coolant Accident	
9	MFP EHC02	C - sec	Turbine trip failure	
10	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.: 5	Page 6 of 10
Event Description: Reactor Coolant Pump, RC-3B, middle seal failure			
Time	Position	Applicant's Actions or Behavior	
	PRI	Monitor RCP seal pressures and determine that the lower and middle seals on RCP B have failed	
	SRO	Direct Emergency Shutdown and enter AOP-05 (Emergency Shutdown)	
	SEC	Monitor secondary parameters	









Facility: Fort Calhoun		Scenario No: 4 (spare)		Op-Test No. _____
Examiners: _____ _____			Operators: _____ _____	
Initial Conditions: IC#1 100% Power MOC 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	MFP NIS03F	I - pri	Power range nuclear instrumentation channel "C" fails (tech spec entry)	
2	COP T:F1101	I - sec	FW flow channel on RC-2A fails low	
3	MFP DSG06A	C - sec	Diesel Generator, D/G-1, radiator leak (tech spec entry)	
4	COP T:T2897	I - pri	Letdown HX CCW outlet temperature transmitter fails low	
5	MFP SWD02B	C -sec	Loss of 161 KV	
6	MFP MSS01B	M - all	Steam line break inside containment	
7	RFP CWS10N	C -sec	CW-1C breaker fails to trip preventing D/G-2 breaker from closing	
8	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.: 1	Page 2 of 9
Event Description: Power range nuclear instrumentation channel "C" fails (tech spec entry)			
Time	Position	Applicant's Actions or Behavior	
	PRI	Identify the failure from numerous alarms on CB-4, panel A20 and Trip Units 9 and 12 on channel "C"	
	SRO	Reference AOP-15	
	SRO	Determine the need to place "C" channel trip units 1,9 & 12 in the bypassed condition, 1 hour LCO, and 48 hour LCO for repair of one channel (T.S. 2.15)	
	SRO	Obtain the keys and direct the PRI to place the 1, 9 & 12 trip units on "C" RPS channel in "bypass"	
	PRI	Place 1, 9 and 12 trip units in bypass	
	SEC	Enter channel bypass in control room log	
	SEC	Monitor Secondary 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	Refer to Technical Specification 2.7. Enter Technical Specification 2.0.1 due to D/G-1 (1A3) and SI-1B (1A4) both being inoperable. Plant must be placed in hot shutdown within 6 hours	
	SRO	Direct PRI and SEC to make preparations for plant shutdown	
	SRO	Notify Station Management of Tech Spec required shutdown	

Op-Test No.:	Scenario No.: 4	Event No.: 4	Page 5 of 9
Event Description: Letdown HX CCW outlet temperature transmitter fails low			
Time	Position	Applicant's Actions or Behavior	
	PRI	Respond to "Letdown Heat Exchanger Tube Outlet Temp HI" Alarm on CB-1,2,3 panel A2	
	PRI	Determine that TCV-211-2 has repositioned to bypass ion exchangers	
	PRI	Determine high temperature due to reduced CCW flow to letdown heat exchanger following closure of TCV-2897	
	SRO	Direct PRI to manually control CCW flow to letdown HX using TCV-2897	
	PRI	Manually control TCV-2897 to restore letdown temperature using TIC-211 for indication	
	SRO	May direct PRI to reposition TCV-211-2 and maintain 100°F – 120°F	
	PRI	Reposition TCV-211-2 if directed	
	PRI	Monitor primary parameters	
	SEC	Monitor secondary parameters	



Op-Test No.:	Scenario No.: 4	Event No.: 6, 7, 8	Page 7 of 9
Event Description: Steam line break inside Containment, No Power to either vital bus. Failure of CPHS.			
Time	Position	Applicant's Actions or Behavior	
	ALL	Recognizes that a HELB has occurred in S/G RC-2B: \$ Lowing 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	
	SEC	Reports no power to busses 1A3 and 1A4	
	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	
	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	

Op-Test No.:	Scenario No.:	Event No.:	Page 8 of 9
Event Description: CW-1C breaker fails to trip preventing D/G-2 breaker from closing			
Time	Position	Applicant's Actions or Behavior	
	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.	
	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 and control RCS temperature.	



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: \_\_\_\_\_

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

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**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**

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**Critical Steps shown in gray**

STEP	ELEMENT	STANDARD
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"
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

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

STEP	ELEMENT	STANDARD
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  <b>Simulator Operator will insert a malfunction that causes an uncontrolled CEA withdrawal.</b>
9	Places the Mode Selector Switch in "OFF" Position	<u>CB-4</u>  Mode Selector Switch in "OFF" Position
10	Manually Trips the Reactor	<u>CB-4</u>  Presses RED Manual Reactor Trip Pushbutton

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0003

JPM Title: Realign Misaligned CEA

STEP	ELEMENT	STANDARD
11	Verifies Reactivity Control Safety Function is satisfied.	<u>CB-4</u>  Verifies: <ul style="list-style-type: none"><li>• Trippable CEAs inserted.</li><li>• Reactor Power is lowering.</li><li>• Negative startup rate.</li></ul>

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

JPM No: JPM-0003

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**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**

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Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

Location: SI Pump Rooms

Approximate Time: 5 minutes Actual Time: \_\_\_\_\_

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

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-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 all of the Safety Injection Pumps and Containment Spray Pumps are operating.

You are directed to establish Raw Water backup cooling to the HPSI, LPSI and CS pumps in both of the SI Pump Rooms.

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
	<u>Establish RW flow to CS Pump SI-3A</u>	<u>Room 21</u>
1	Close HCV-2813A/B	Close valves fully
2	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2813C</li> <li>• HCV-2813D</li> </ul>	Remove locking device and back off valve operator wheel
3	Locally open HCV-2813C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> <li>• IA-HCV-2813C-TV</li> <li>• IA-HCV-2813D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

STEP	ELEMENT	STANDARD
	<u>Establish RW flow to LPSI Pump SI-1A</u>	<u>Room 21</u>
4	Close HCV-2808A/B	Close valves fully
5	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2808C</li> <li>• HCV-2808D</li> </ul>	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"> <li>• IA-HCV-2808C-TV</li> <li>• IA-HCV-2808D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
	<u>Establish RW flow to HPSI Pump SI-2A</u>	<u>Room 21</u>
7	Close HCV-2810A/B	Close valves fully
8	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2810C</li> <li>• HCV-2810D</li> </ul>	Remove locking device and back off valve operator wheel
9	Locally open HCV-2810C/D by placing the following 3-way valves in “OPEN” <ul style="list-style-type: none"> <li>• IA-HCV-2810C-TV</li> <li>• IA-HCV-2810D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
	<u>Establish RW flow to HPSI Pump SI-2C</u>	<u>Room 21</u>
10	Close HCV-2812A/B	Close valves fully



Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

STEP	ELEMENT	STANDARD
11	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2812C</li> <li>• HCV-2812D</li> </ul>	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"> <li>• IA-HCV-2812C-TV</li> <li>• IA-HCV-2812D-TV</li> <li>•</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
<u>Establish RW flow to CS Pump SI-3B</u>		<u>Room 22</u>
13	Close HCV-2814A/B	Close valves fully
14	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2814C</li> <li>• HCV-2814D</li> </ul>	Remove locking device and back off valve operator wheel
15	Locally open HCV-2814C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> <li>• IA-HCV-2814C-TV</li> <li>• IA-HCV-2814D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
<u>Establish RW flow to CS Pump SI-3C</u>		<u>Room 22</u>
16	Close HCV-2815A/B	Close valves fully
17	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2815C</li> <li>• HCV-2815D</li> </ul>	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
18	Locally open HCV-2815C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> <li>• IA-HCV-2815C-TV</li> <li>• IA-HCV-2815D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
	<u>Establish RW flow to LPSI Pump SI-1B</u>	<u>Room 22</u>
19	Close HCV-2809A/B	Close valves fully
20	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2809C</li> <li>• HCV-2809D</li> </ul>	Remove locking device and back off valve operator wheel
21	Locally open HCV-2809C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> <li>• IA-HCV-2809C-TV</li> <li>• IA-HCV-2809D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.
	<u>Establish RW flow to HPSI Pump SI-2B</u>	<u>Room 22</u>
22	Close HCV-2811A/B	Close valves fully
23	Unlock and release the hand jacks from: <ul style="list-style-type: none"> <li>• HCV-2811C</li> <li>• HCV-2811D</li> </ul>	Remove locking device and back off valve operator wheel
24	Locally open HCV-2811C/D by placing the following 3-way valves in "OPEN" <ul style="list-style-type: none"> <li>• IA-HCV-2811C-TV</li> <li>• IA-HCV-2811D-TV</li> </ul>	Place 3-way instrument air supply valves in the OPEN position.

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0010RW

JPM Title: Establish RW Backup Cooling to SI Pumps

---

**Termination Criteria: Raw Water backup cooling is being supplied to all of the HPSI, LPSI and CS Pumps**

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0010RW

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

You are directed to establish Raw Water backup cooling to the HPSI, LPSI and CS pumps in both of the SI Pump Rooms.

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**

---

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: 10 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: \_\_\_\_\_

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:                 JPM set # 1

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

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**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
1	Verify NONE of the following Lockout Relays are tripped: <ul style="list-style-type: none"><li>• 86/1A13</li><li>• 86/1A33</li><li>• 86/1A3-TFB</li></ul>	<u>AI-24</u>  Lockout relays in RESET position
2	Ensure both of the following breakers are tripped: <ul style="list-style-type: none"><li>• 1A13</li><li>• 1A33</li></ul>	<u>CB-20</u>  GREEN lights lit
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"><li>• 86A/OPLS</li><li>• 86B/OPLS</li></ul>	<u>AI-30A/B</u>  Relays in RESET position AMBER lights lit

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

STEP	ELEMENT	STANDARD
		<b>CUE: System Operations reports offsite power is stable. PCMMINT shows 161 KV @ 162.3 volts</b>
5	Ensure Lockout Relay 86/161 is RESET	<u>AI-22</u>  Lockout relay in RESET position
6	Ensure all of the following lockout relays are reset: <ul style="list-style-type: none"> <li>• 861/T1A-4</li> <li>• 86-2/TIA -4</li> <li>• 861/T1A-3</li> <li>• 86-2/TIA -3</li> <li>• 86X/FT161</li> </ul>	<u>AI-25, AI-24, AI-46</u>  Lockout relays in RESET position
7	Synchronize and close at least one of the following breakers: <ul style="list-style-type: none"> <li>• Breaker 110</li> <li>• Breaker 111</li> </ul>	<u>CB-20</u>  Place synch switch in sync position  One or both control switches to CLOSE RED light lit
8	Check that T1A3 secondary voltage greater than or equal to 4160V	<u>CB-20</u>  Verify voltage on meters
9	Verify “TRANS TiA-3 Secondary Low Voltage” alarm is clear	<u>CB-20, A17, A2</u>  Annunciator window OFF
10	Ensure all of the following lockout relays are reset: <ul style="list-style-type: none"> <li>• 86/1A33</li> <li>• 86/1A13</li> </ul>	<u>AI-24</u>  Lockout relays in RESET position



Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0026

JPM Title: Restoration of Offsite Electrical Power

STEP	ELEMENT	STANDARD
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- 86/1A3-TFB

11	Synchronize and close breaker 1A33	<p><u>CB-20</u></p> <p>Place synch switch in synch position</p> <p>Adjust D/G load as necessary</p> <p>Place control switch for breaker 1A33 in CLOSE position then release</p> <p>RED light lit</p>
----	------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**CUE: Diesel Generator #1 load is 280 KW**

12	Open Breaker 1AD1	<p><u>CB-20</u></p> <p>Breaker control switch to trip GREEN light lit</p>
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**CUE: Another Operator will shutdown the Diesel-Generator**

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

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0026

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**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 or 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: \_\_\_\_\_

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 set #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"> <li>• HCV-820A/821A</li> <li>• HCV-883A/884A</li> <li>• HCV-820B/821B</li> <li>• HCV-883B/884B</li> </ul>	<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"> <li>• Containment H<sub>2</sub> Sampling System Remote/Local Off Normal Annunciator in Alarm</li> <li>• 0-10% Range Amber indicating light is ON</li> <li>• The Sample Indicating light is ON</li> </ul>	<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  <b>CUE: 5 minutes have elapsed</b>
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-0304

JPM Title: Minimizing DC Loads

Location: Switchgear Room, Turbine Building and Control Room

Approximate Time: 15 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: \_\_\_\_\_

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.

**START**

**Critical Steps shown in gray**

STEP	ELEMENT	STANDARD
		<b>EXAMINER NOTE START TIME</b>
1	Place BOTH of the following Breakers in OFF: <ul style="list-style-type: none"> <li>• Computer 400 Cycle Cabinet</li> <li>• Emergency Lighting PNL Transfer Switch in OFF</li> </ul>	<u>Switchgear Room</u>  DC Bus 2 EE-8G-CB12 to OFF EE-8G-CB8 to OFF
2	Place Emer Lighting PNL Transfer Switch in OFF	<u>Switchgear Room</u>  DC Bus 1 EE-8F-CB-11 to OFF
3	Place Emerg Lighting at Panel NO 5 in OFF	<u>Turbine Building West Wall</u>  Breaker #15 to OFF  <b>Elapsed time must be 15 minutes or less</b>

**Note: The remainder of this JPM is performed in the Control Room and is not time critical.**

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

STEP	ELEMENT	STANDARD
		<b>CUE: The turbine has stopped rolling</b>
4	Stop LO-4, DC Oil Pump	<u>CB-10,11</u>  LO-4 Control Switch in Pull-Out, RED and GREEN lights OFF.
		<b>CUE: Two hours have elapsed</b>
5	Ensure the following are closed: <ul style="list-style-type: none"> <li>• Main Disconnect I1 -1</li> <li>• Circuit #1 AI-53 Feed</li> </ul>	<u>AI-42A</u>  Switches in CLOSED position
6	Place ALL of the following breakers in OFF: <ul style="list-style-type: none"> <li>• Circuit #2 AI-56 Feed</li> <li>• Circuit #3 AI-100 Feed</li> <li>• Circuit #4 IB -1A Feed</li> <li>• Circuit #5 CB-10,11 Feed</li> <li>• Circuit #7 CB-1,2,3 Feed</li> <li>• Circuit #8 AI-195 Feed</li> <li>• Circuit #9 AI-44 Feed</li> <li>• Circuit #10 AI-58 &amp; AI-59 Feed</li> <li>• Circuit #11 CB-20 Feed</li> <li>• Circuit #12 AI-42 &amp; AI-60 Feed</li> <li>• Circuit #13 CB-4 Feed</li> <li>• Circuit #18 AI-43A &amp; AI-33C Feed</li> </ul>	<u>AI-42A</u>  Breakers in OFF

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

STEP	ELEMENT	STANDARD
7	Ensure Both of the following breakers are closed: <ul style="list-style-type: none"> <li>• Main Disconnect I2-1</li> <li>• Circuit #1 AI-53 Feed</li> </ul>	<u>AI-42B</u>  Switches in CLOSED position
8	Place all of the following breakers in OFF: <ul style="list-style-type: none"> <li>• Circuit #2 AI-50 Feed</li> <li>• Circuit #3 AI-105 &amp; AI-107 Feed</li> <li>• Circuit #4 AI-55 Feed</li> <li>• Circuit #5 AI-101B Feed</li> <li>• Circuit #6 IB -2A Feed</li> <li>• Circuit #7 CB-10,11 Feed</li> <li>• Circuit #8 Nuclear Emergency Feed</li> <li>• Circuit #9 CB-4 Feed</li> <li>• Circuit #10 Fire Emergency Feed</li> <li>• Circuit #11 AI-44 Feed</li> <li>• Circuit #12 AI-187 Feed</li> <li>• Circuit #13 CB-1,2,3 Feed</li> <li>• Circuit #14 AI-195 Feed</li> <li>• Circuit #15 PC Pump Vibr. Sys</li> <li>• Circuit #16 AI-43A &amp; AI-65B Feed</li> <li>• Circuit #17 CB-20 Feed</li> </ul>	<u>AI-42B</u> All listed breakers in OFF
9	Stop LO-12B, DC Seal Oil Pump	<u>CB-10,11</u>  LO-12B switch in Pull OUT, GREEN and RED lights OFF

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0304

JPM Title: Minimizing DC Loads

---

**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.

**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: \_\_\_\_\_

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:

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
1	Ensure the following are on: <ul style="list-style-type: none"><li>AI-183-CB1, Fire Pump FP-1B Batt 1 Switch</li><li>AI-183-CB2, Fire Pump FP-1B Batt 2 Switch</li></ul>	<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	AI-183 Push Crank 1 pushbutton <b>CUE: Engine did not start</b>
4	Place HC/FP-1B-MS control switch to Manual 2	<u>AI-183</u> Select Manual #2
5	Press HC/FP-1B-1, Crank 2 start button	AI-183 Push Crank 2 pushbutton <b>CUE: Engine did not start</b>

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0450

JPM Title: Emergency Start of the Diesel Fire Pump

STEP	ELEMENT	STANDARD
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 1 or 2  <b>CUE: Engine has started</b>  Release lever

---

**Diesel Fire Pump has been started**

**Termination Criteria:**

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

---

**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

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: \_\_\_\_\_

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 set 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

**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
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"> <li>• HC-103-3</li> <li>• HC-103-4</li> <li>• HC-103-5</li> <li>• HC-103-6</li> </ul>
5	Increase Proportional Heater Output	<u>CB-1,2,3</u>  Move Manual Control lever for

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
		PRC-103Y to the left
		<b>CUE: Return RCS pressure to 2100 psia.</b>
6	Place Backup Heater Control in Auto or ON	<b>CUE: Select AUTO</b>  <u>CB1,2,3</u>  Switches in AUTO GREEN and AMBER lights lit
7	Adjust Manual Control Lever to maintain RCS pressure. Returns to Normal Operating Pressure.	CB-1,2,3  PRC-103Y output adjusted to approximately 67%  <b>Simulator Operator will fail PCV-102-1 open</b>
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
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

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**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

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**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**

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Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

Location: Simulator Control Room

Approximate Time: 15 minutes Actual Time: \_\_\_\_\_

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

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-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 set #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
1	Verify BW-20-TS and CW-20-TS switches are CLOSED.	<u>AI-31B AND AI-31C</u>  <b>Cue: Switches are CLOSED.</b>
2	Display Y-3466 (Reactor Trip Digital Point) on ERF CRT.	<u>ERF CRT</u>  Display DVD or GRA.
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
6	Clutch power supplies are deenergized	<u>AI-3</u>  RED trip light on for each power supply

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
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"> <li>• 86A/D1 lockout relay tripped</li> <li>• 86B/D1 lockout relay tripped</li> <li>• YI-6048B at idle speed</li> </ul> D/G-1: <ul style="list-style-type: none"> <li>• 86A/D2 lockout relay tripped</li> <li>• 86B/D2 lockout relay tripped</li> <li>• YI-6148B at idle speed</li> </ul>	AI-30A  Relays tripped AMBER lights off  Tachometer @ 500 RPM  AI-30A  Relays tripped AMBER lights off  Tachometer @ 500 RPM
9	REACTOR TRIP annunciator in ALARM	<u>CB-4, A20, A-7</u>  Alarm panel lit
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>  Post trip review printed
12	RESET and CLOSE Breakers CB-AB and CB-CD.	<u>AI-57</u>  OPEN breaker and then CLOSE.

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
13	RESET Reactor Trip.	Depress Reactor Trip Reset Button on CB-4
14	Verify the following:  Clutch power supplies are energized.  Turbine trip reset.	<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 & K3 lights lit.
	Reactor Trip Alarm CLEARS.	<u>On Panel CB-4,</u> Alarm A-20 A-7 Resets
	Y-3466 RESETS	Y-3466 Reset on ERF CRT.
15	RESET:  <ul style="list-style-type: none"> <li>• 86A/D1</li> <li>• 86B/D1</li> <li>• 86A/D2</li> <li>• 86B/D2</li> </ul>	<u>On Panel AI-30 A/B:</u>  Reset Lockouts AMBER lights lit.
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

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
		<b>CUE: Operator at AI-3 reports that the trip lamps on the clutch power supplies stayed on for approximately 30 seconds.</b>
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.
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
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"> <li>• 86A/D1 Tripped</li> <li>• 86B/D1 Tripped</li> <li>• 86A/D2 Tripped</li> <li>• 86A/D2 Tripped</li> </ul>	<u>AI-30A/B</u>  Verify both diesels are at idle speed Lockout relays Tripped AMBER light out.

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

STEP	ELEMENT	STANDARD
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.	Line Printer.
27	RESET the reactor.	<u>CB-4</u>  Push Reactor Trip Reset.
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"> <li>• 86A/D1</li> <li>• 86B/D1</li> <li>• 86A/D2</li> <li>• 86B/D2</li> </ul>	<u>AI-30A/B</u>  Reset Lockout relays AMBER lights lit.

**CUE: Another Operator will shutdown the Diesel Generators**

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

JPM Title: Perform Manual Trip Check

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**Termination Criteria: Reactor Trip circuits have been tested.**

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0654

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**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:**

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Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

Location: 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: \_\_\_\_\_

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. . 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.

**START.**

**Critical Steps shown in gray**

STEP	ELEMENT	STANDARD
1	Record the FC-212 count rate limit for the in service Containment Radiation Monitor	Records count rate for RM-050/51
2	Set the FC-212 count rate limits	<b>CUE: Setpoints have been entered</b>
3	Perform check source test on the following radiation monitors: <ul style="list-style-type: none"> <li>• RM-051</li> <li>• RM-052</li> <li>• RM-062</li> </ul>	<u>AI-33</u>  Depress check source button and verify rising count rate for each monitor.
4	Verify Alert and Alarm setpoints.	<b>CUE: Setpoints have been verified</b>
5	Ensure FR-758, Ventilation Stack Flow, is less than or equal to the FC-212 value	<u>AI-44</u>  Verify Stack Flow on FR-758

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
6	Verify the following are closed: <ul style="list-style-type: none"> <li>• HCV-749</li> <li>• HCV-750</li> <li>• HCV-753</li> <li>• HCV-754</li> <li>• HIC-751</li> </ul>	<u>AI-44</u>  GREEN damper position lights lit
7	Ensure the following permissive key switches are in OPEN <ul style="list-style-type: none"> <li>• HC-742-2C</li> <li>• HC-742-2D</li> <li>• HC-742-1C</li> <li>• HC-742-1D</li> </ul>	<u>AI-44</u>  Key switches in OPEN position
8	Ensure the TOTAL display is selected on QQI-755	<u>AI-60</u>  TOTAL selected
9	Reset QQI-755	<u>AI-60</u>  Push RESET pushbutton
10	Turn on FR-755/6600/6601, Containment Purge Air Flow	<u>AI-60</u>  Recorder FR-755 is ON and recording
11	Record FC-212 initial readings and mark recorders with date, time and release number <ul style="list-style-type: none"> <li>• RR-049A</li> <li>• FR-758</li> <li>• PR-745</li> <li>• FR-755/6600/6601</li> </ul>	Recorder charts marked as specified RR-049A (AI-31E) FR-758 (AI-44) PR-745 (AI-44) FR-755 (AI-60)
12	Place HC-745 to HAND	AI-44

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
		Switch placed in HAND position
13	Station an Operator to monitor RM-052 and/or RM-062	<b>CUE: Operator has been stationed</b>
14	Place the following valves in OPEN: <ul style="list-style-type: none"> <li>• PCV-742C</li> <li>• PCV-742D</li> <li>• PCV-742A</li> <li>• PCV-742B</li> <li>• HIC-751</li> </ul>	<u>AI-44</u>  Switches on OPEN RED lights lit
		<b>CUE: Operator monitoring RM-052 and RM-062 reports no change in count rate</b>
15	Monitor for change in containment pressure	<u>AI-65A/B</u>  <b>Cue: PR-785 and PR-786 show steady containment pressure</b>
16	Throttle the following purge fan dampers: <ul style="list-style-type: none"> <li>• HCV-753</li> <li>• HCV-754</li> <li>• HCV-749</li> <li>• HCV-750</li> </ul>	<u>AI-44</u>  Rotate controllers to approximately 10% open
17	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

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
18	Adjust following dampers as necessary to the desired flows: <ul style="list-style-type: none"> <li>• HCV-753</li> <li>• HCV-749</li> <li>• HIC-751</li> </ul>	<u>AI-44</u>  Adjust dampers, purge flow must remain below FC-212 maximum release rate. Containment pressure should remain steady
19	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  <b>CUE: Operator reports that RM-052 and RM-062 indications are rising and approaching the high alarm setpoint</b>
20	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
21	Ensure the following dampers are closed: <ul style="list-style-type: none"> <li>• HCV-753</li> <li>• HCV-754</li> <li>• HCV-749</li> <li>• HCV-750</li> <li>• HIC-751</li> <li>• PCV-742C</li> <li>• PCV-742D</li> <li>• PCV-742A</li> <li>• PCV-742B</li> <li>• FCV-6601B</li> </ul>	<u>AI-44</u>  Control switches in CLOSE GREEN lights lit  <u>AI-60</u> SP-6601 @ zero SP-6601 @ zero

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: JPM-0704

JPM Title: Start up the Containment Purge System

STEP	ELEMENT	STANDARD
	<ul style="list-style-type: none"> <li>• FCV-6600B</li> <li>• HCV-6602</li> <li>• HCV-6603</li> </ul>	Control switches in CLOSE GREEN lights lit
		<b>CUE :</b>
		<b>RCS temperature will be maintained below 200°F.</b>
22	Notify shift RP that containment purge has been secured	<b>CUE: Shift RP notified</b>
23	Place HC-745 to AUTO	<u>AI-144</u>
24	Turn off FR-755/6600/6601, Containment Purge Air Flow	Switch in AUTO <u>AI-60</u> Recorder FR-755 is OFF

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**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

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**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. . 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.

**START.**

---

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

Location: 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: 12/29/2003

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 Large LOCA occurred 8.5 hours ago. RAS is in progress. 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
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"> <li>• HCV-308</li> <li>• HCV-2988</li> </ul>	<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	Determines that HCV-238 is open. Goes to EOP/AOP Attachment 10.
4	Ensure both Charging Isolation valves are open. <ul style="list-style-type: none"> <li>• HCV-247</li> <li>• HCV-248</li> </ul>	<u>CB-1,2,3</u>  RED lights lit
5	Ensure HCV-238 and HCV-239 are closed	Determines that HCV-238 and HCV-239 are open.
6	Close both Charging Isolation valves are open. <ul style="list-style-type: none"> <li>• HCV-247</li> <li>• HCV-248</li> </ul>	<u>CB-1,2,3</u>  Control switch to CLOSE GREEN lights lit

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

STEP	ELEMENT	STANDARD
7	Open at least one of the PZR Auxiliary Spray Isolation Valves <ul style="list-style-type: none"> <li>• HCV-240</li> <li>• HCV-249</li> </ul>	<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"> <li>• HCV-315</li> <li>• HCV-318</li> <li>• HCV-312</li> <li>• HCV-321</li> </ul>	<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
10	Throttle HPSI Loop Injection Valves until all of the following criteria are satisfied: <ul style="list-style-type: none"> <li>• Charging flow greater than 140 gpm</li> <li>• Total HPSI flow greater than 140 gpm</li> </ul>	<u>AI-30A/B</u>  One or more control switches toward open  Greater than 140 gpm total flow on FI-313, FI-316, FI-319 or 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

Fort Calhoun Station – Operations Training  
**JOB PERFORMANCE MEASURE**

JPM No: jpm-1135

JPM Title: Simultaneous Hot and Cold Leg Injection

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**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

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**INITIATING CUE:** A Large LOCA occurred 8.5 hours ago. RAS is in progress. 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**

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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

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

---

**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
		<b>CUE: Provide candidate with a blank sheet of paper to list the equipment on.</b>
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"><li>• HCV-818B</li><li>• HCV-2603A</li><li>• HCV-2604A</li><li>• HCV-425B</li><li>• HCV-425D</li><li>• A/HCV-742</li><li>• B/HCV-742</li><li>• C/HCV-742</li><li>• D/HCV-742</li></ul>

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 in the Training Center.  
Entry into Room 29 (VCT Room) will be simulated.

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 29 to ensure that CH-216, VCT to gas analyzer, is OPEN.

**START**

**Critical Steps shown in gray**

STEP	ELEMENT	STANDARD
1	Review RWP	Reads RWP
2	Determine Radiological Conditions in Room 29.	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 29	Enters simulated Room 29  <b>CUE: EAD is Alarming on high dose rate</b>
7	Exits Room and Contacts RP	Leaves Room Immediately and Contacts RP  <b>CUE: RP will provide coverage for Room 29 entry.</b>



Fort Calhoun Station – Operations Training  
**ADMINISTRATIVE JOB PERFORMANCE MEASURE**

JPM No: RO-2004-4

JPM Title: RCA Entry and Exit

STEP	ELEMENT	STANDARD
8	Enter Room 29 with RP Tech	Enters room <b>CUE: CH-216 is OPEN</b>
9	Exits Room 29 with RP Tech	Exits room
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 29 to ensure that CH-216, VCT to gas analyzer, is OPEN.

**START**

---



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 (untripable) 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
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 not adequate. (SDM is 3.13%)

---

**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 (untripable) 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
		<b>CUE: Provide candidate with a partially filled out copy of the surveillance test procedure.</b>
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

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 3500 cpm to 4000 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"> <li>• Commence controlled plant shutdown using OP-4</li> <li>• Align condenser evacuation discharge to aux building stack.</li> </ul>
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 3500 cpm to 4000 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  $\Delta T$  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"><li>• Wind from – 120° - 128°</li><li>• Wind Speed – 12 mph</li><li>• Precipitation – yes</li><li>• Stability class – C</li><li>• There is an airborne radioactive release</li><li>• Prognosis is unstable</li><li>• Plant is shutdown</li></ul>

---

**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  $\Delta T$  is  $-1.8^{\circ}\text{C}/100\text{m}$ ,  $-1.6^{\circ}\text{C}/100\text{m}$
- 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.

---