Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Place RCS HPU Subloop In Service And Reset FCV Lockout Revision: NRC 2008

Task Number: N2-202001-01001 N2-202001-01023

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X____Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 15 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

1. Reset to IC 181

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

1. N2-OP-29, Rev 12, Sect. E.1.0
2. NUREG K/A 202002 A4.02

Tools and Equipment:

1. None

Task Standard:

Hydraulic Power Unit "A" has been placed in service with Subloop 2 is in "LEAD" operation. FCV A motion inhibit is reset and all P602 annunciators associated with FCV A are clear.

Initial Conditions:

1. The plant is operating at rated power.
2. Recirc FCV HPU "A" tripped due to a hot oil condition 1 hour ago.
3. HPU "A" hot oil condition is now cleared, oil temperature is 100°F and the HPU is ready to be placed in service.
4. LOOP A HYDR FLUID OUTSIDE ISOL valves are closed to reduce flow control valve drifting.

Initiating cue:

"(Operator's name), Place HPU "A" Subloop 2 in operation and reset the flow control valve lockup per N2-OP-29, Section E.1.0."

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-OP-29 obtained. Precautions & limitations reviewed & section E.1.0 referenced.	Sat/Unsat
3. NOTE: The LOOP A(B) HYDR FLUID OUTSIDE ISOL valves may be closed, to reduce flow control valve from drifting closed during an HPU/Control System failure. They can be left closed until after their HPU is restored to operation. CAUTION: IF a standby HPU Subloop remains pressurized (greater than 500 psig) when removed from service and is restarted without the other subloop in operation, this could cause RECIRC FCV motion. This should be avoided.	Reviews Note and Caution	Sat/Unsat
4. For the HPU being started, perform the following: • IF any of the following conditions exist, isolate 2RCS*SOV65A(B),	Reviews Procedure Step	Sat/Unsat

Performance Steps	*Standard*	*Grade*

2RCS*SOV66A(B), 2RCS*SOV67A(B), 2RCS*SOV68A(B), for the affected HPU by taking the LOOP A(B) HYDR FLUID OUTSIDE ISOL switch to CLOSE:

- Unexpected pressure (greater than 400 psig) WHILE the subloop is in standby
- Associated solenoid valve 2RCS-SOV106A(B) OR 2RCS-SOV107A(B) is known to be sticking partially open OR is NOT able to be over-ridden WHILE the solenoid coils are de-energized
- It is known that EITHER "OPERATE" OR "ISOLATE" coil is burned out
- FUSE BLOWN indicator is lit on the Modicon I/O module inside panel 2CEC-PNL634 at any of the following:
  - Subloop A1 - MTBA-2, west panel, left column, 2nd from top (total of 8)
  - Subloop A2 - MTBA-10, west panel, right column, 2nd from top (total of 8)
  - Subloop B1 - MTBB-2, east panel, left column, 2nd from top (total of 8)
  - Subloop B2 - MTBB-10, east panel, right column,2nd from top (total of 8)

Cue: Valves were previously closed. None of these conditions currently exist

5. IF the HPU has been idle for less than 2 hours OR controls on the HPU have NOT been repositioned since the last shutdown, perform the following:

Performance Steps	*Standard*	*Grade*
Cue/Note: Initial Conditions state that one hour has elapsed		
a. Verify open 2RCS-V2011A(B) AND V2011C(D), Return Filter Isolation.	Dispatches operator to verify local valve positions.	Sat/Unsat
Cue: 2RCS-V2011A and V2011C are open.		
b. Continue at Step E.1.14.	Continues to step E.1.14	Sat/Unsat
6. At 2CEC-PNL634 (South), Rack 1 for HPU A AND Rack 2 for HPU B, NEST 5, CARD 1, (R/C/L, labeled B35-K686A(B)) verify the red indicating lights for Channel 1 and 2 are NOT lit. IF lit depress the reset pushbuttons. **Cue: Red indicating lights for Channel 1 and 2 are extinguished.**	Verifies red indicating lights are NOT lit	Sat/Unsat
7. Momentarily depress BOTH READY pushbuttons	Depresses BOTH READY pushbuttons	**Pass/Fail**
Verify the following: o READY light illuminates. o MAINTENANCE light extinguishes. o Annunciator 602103(104), RECIRC FCV A(B) BACKUP HYDR INOPERABLE clears.	Verifies lights and annunciator	Sat/Unsat
8. Unless isolated per Step E.1.1.1 verify the following valves open: o 2RCS*SOV65A(B) o 2RCS*SOV66A(B) o 2RCS*SOV67A(B) o 2RCS*SOV68A(B)	At P602, opens valves using LOOP A HYDR FLUID OUTSIDE ISOL switch. Observes green “closed” lights extinguish and the red “open” lights are lit for the four outside isolation valves.	**Pass/Fail**

Note: Not isolated per E1.1.1

Performance Steps	*Standard*	*Grade*
9. NOTE: Step 1.17 does not apply if I&C is to use the Standby Unit (SBU) at 2CEC-PNL634 to reduce % SERVO ERROR to zero or have verified that the signal to the servo valve is approximately zero. **Cue: If asked, I&C will NOT be using SBU to reduce % SERVO ERROR.**	Reads Note	Sat/Unsat
Using 2RCS-HC1603A(B), RECIRC LOOP A(B) FLOW CONTROL at 2CEC*PNL602, reduce % SERVO ERROR to zero. NOTE: Failure to zero the % SERVO ERROR will result in an unplanned reactivity transient, as the FCV opens.	At P602, Reduces % SERVO ERROR to ZERO using Loop A controller	**Pass/Fail**
10. Decide which subloop is to control the actuator AND depress its PUMP/FAN MTR RUN pushbutton.	Depresses PUMP/FAN MTR RUN pushbutton for HPU "A", Subloop 2	**Pass/Fail**
Verify the following: • PUMP/FAN MTR STOP light extinguishes. • PUMP/FAN MTR RUN light illuminates. • Selected loop LEAD light is illuminated AND other loop LEAD light is extinguished. • PRESSURIZED light illuminates OR 2RCS-PI1001A(B)-1(2) locally indicates 1850-1950 psi. • Annunciator 602101(102), RECIRC FCV A(B) HYDRAULICS INOPERABLE clears.	Verifies indications	Sat/Unsat
11. At 2CEC*PNL602, verify:		

Performance Steps	*Standard*	*Grade*
• Annunciator 602111(112), RECIRC FCV A(B) HYDRAULICS MAINT REQ'D cleared. • Annunciator 602103(104), RECIRC FCV A(B) BACK UP HYDR INOPERABLE cleared. • Annunciator 602127(128), DRYWELL HIGH PRESSURE SWITCH A(B) TEST POSITION cleared. • Annunciator 602133(134), DRYWELL HIGH PRESSURE SYSTEM A(B) INTERLOCK cleared. • Annunciator 602105(106), RECIRC FCV A(B) MOTION INHIBIT, in alarm condition.	Verifies annunciators clear, with the exception of 602105	Sat/Unsat
12. Depress the applicable FCV MOTION INHIBIT RESET pushbutton at 2CEC*PNL602:	Depresses FCV MOTION INHIBIT RESET pushbutton	**Pass/Fail**
Verify the following: • LEAD subloop OPERATIONAL light illuminated • Annunciator 602105(106), RECIRC FCV A(B) MOTION INHIBIT extinguishes.	Verifies light illuminated and annunciator clear	Sat/Unsat
13. Report completion.	Report completion.	Sat/Unsat

TERMINATING CUE: Hydraulic Power Unit "A" Subloop 2 is in "operation" and FCV A motion inhibit is reset with all annunciators associated with FCV A cleared.

RECORD STOP TIME_____

Initial Conditions:

1. The plant is operating at rated power.
2. Recirc FCV HPU “A” tripped due to a hot oil condition 1 hour ago.
3. HPU “A” hot oil condition is now cleared, oil temperature is 100°F and the HPU is ready to be placed in service.
4. LOOP A HYDR FLUID OUTSIDE ISOL valves are closed to reduce flow control valve drifting.

Initiating cue:

“(Operator’s name), Place HPU “A” Subloop 2 in operation and reset the flow control valve lockup per N2-OP-29, Section E.1.0.”

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Shifting Feedwater Pumps at Power65% power when 2 pumps are in service Revision: NRC 2008

Task Number: N2-259001-01004

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X_____Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: YES

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

2. Reset to IC ????-182
3. 65% Power with malfunction FW10C preset.

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

3. N2-OP-3, Rev 21, Sect. F.13.0
4. NUREG K/A 259001 A4.02 3.7

Tools and Equipment:

1. None

Task Standard:

“C” Feedwater Pump is in service and level is under control in the normal band via MANUAL controller operation. “A” Feedwater Pump is secured with LV10A in manual and closed.

Initial Conditions:

5. The plant is operating at 65% power.
6. “C” Feedwater Pump “C” is ready to be placed in service.
7. Pre-start checks are complete.

Initiating cue:

“(Operator’s name), Place “C” Feedwater Pump in service, and rRemove “A” Feedwater Pump “A” from service and place Feedwater Pump “C” in service, IAW N, per N2-OP-3, Section F.13.0”.

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-OP-3 obtained. Precautions & limitations reviewed & section F.13.0 referenced.	Sat/Unsat
3. NOTES: 1. All actions in this Subsection are performed at 2CEC*PNL851 and PNL603 unless otherwise noted. 2. Shifting Feedwater Pumps will be performed at approximately 65% power by securing one pump and starting the standby. 3. IF re-starting 2FWS-P1A (B,C) from operating temperatures (D.4.0), Electrical Maintenance should perform an inspection of windings at first opportunity. 4. Feedwater minimum flow setpoint will be lowered to 4 Kgpm for all three Feedwater Pumps and then restored to 8 Kgpm after pump swap(s) are complete. 5. Fourth Point Heater Drain Pumps may remain pumping forward during this evolution if	Reads notes. Obtains Key 18	Sat/Unsat

Performance Steps	*Standard*	*Grade*
feedwater heater level controllers are stable at 65% power, with the permission of the Shift Manager. 6. Steps 13.1 AND 13.2 may be performed simultaneously. 7. The following step requires key # 18 from the SM key locker. CAUTION Throughout this section if a plant casualty occurs such that Feedwater Pumps will remain on minimum flow for greater than 15 minutes, Reactor Power should be immediately reduced below 55% AND Feedwater Pump minimum flow should be returned to 8 Kgpm on all three Feedwater Pumps.		
4. Adjust ALL three Feedwater Pump minimum flow valve setpoints as follows: At 2CEC-PNL827, verify in auto AND lower tape setting for 2CNM-HIC68A, RX FD WTR P1A RECIRC controller, to 4 Kgpm. At 2CEC-PNL827, verify in auto AND lower tape setting for 2CNM-HIC68B, RX FD WTR P1B RECIRC controller, to 4 Kgpm. At 2CEC-PNL827, verify in auto AND lower tape setting for 2CNM-HIC68C, RX FD WTR P1C RECIRC controller, to 4 Kgpm. ***CUE: Min flow valve setpoints for all three feedwater pumps are set at 4 Kgpm.***	Dispatches operator to Aadjust s setpoints of all 3 minimum flow valves.	Pass/Fail Sat/Unsat
5. Perform pre-start checks locally for the associated Feedwater pump to be started ONLY per step F.13.2.1 through F.13.2.7. **NOTE: Pre-Start checks are complete**	Reviews step	Sat/Unsat

Performance Steps	*Standard*	*Grade*
6. Using N2-OP-101D, verify Reactor power has been reduced ≤ 65%.	Reviews step and determines power is at 65%	Sat/Unsat
NOTE: Power is at 65%. Rated MWth is 3467 and 65% power is 2253 MWth.		
7. Secure one of the two operating Feedwater Pumps 2FWS-P1A (B,C) as follows:		
Depress Manual (M) pushbutton on 2FWS-LV10A (B,C) controller.	Depresses M pushbutton on 2FWS-LV10A controller 2FWS-HIC1010A and yellow M light is lit.	**Pass/Fail**
DURING this evolution, verify that the remaining level control valve 2FWS-LV10B (C,A) maintains desired water level.	Verifies remaining LCV maintains level on an on-going basis during evolution.	Sat/Unsat
8. Slowly close 2FWS-LV10A (B,C) to the 2 to 4% valve position by using the slow CLOSE detent pushbutton on 2FWS-LV10A (B,C) controller.	Locates Using 2FWS-HIC1010A slow detent close PBpushbutton and , depresses until about 2-4% shown.	**Pass/Fail**
9. Close 2FWS-LV10A (B,C) to the 0% valve position by depressing the fast CLOSE detent pushbutton on 2FWS-LV10A (B,C) controller.	Using 2FWS-HIC1010A fast detent close pushbutton, Locates fast close PB and depresses until 0% shown.	**Pass/Fail**
10. Secure 2FWS-P1A (B,C), REACTOR FW PMP 1A (B,C), by placing its control switch to Normal-After-STOP (Green flagged).	Places FW Pump “A” in green flagged position	**Pass/Fail**
11. Verify 2FWL-P2A (B,C), AUX LUBE OIL PMP 2A (B,C), auto starts.	Determines Aux Lube Oil Pump starts by observing AUX LUBE OIL PMP 2A red light ON.	Sat/Unsat
12. Confirm 2FWR-FV2A (B,C), REACTOR FD P1A (B,C) RECIRC VLV, closes immediately.	Determines valve closes by observing REACTOR FD P1A RECIRC VLV POSN meter indication goes to 0% VALVE POSITION.	Sat/Unsat

Performance Steps	*Standard*	*Grade*
13. At 2FWS-P1A (B,C), place the Auxiliary Lube Oil Pump control switch 2FWL-LCS752 (753, 754) to START AND verify 2FWL-P2A (B,C) remains running. BOOTH OPERATOR: Activate remote to start aux oil pump.	Dispatches operator to Pplaces Aux Lube Oil Pump control switch to START, determines pump remains running	Pass/Fail Sat/Unsat
14. IF 2FWS-P1A (B,C) is being placed in standby, open 2FWS-V25A (B,C) FD WTR PUMP 1A (B,C) WRMUP LN ISOLATION. ***CUE: If directed, report 2FWS-V25A is open.***	Dispatches operator to Oopen s warmup line isolation.	Pass/Fail Sat/Unsat
15. NOTE: The following step requires key # 18 from the SM key locker. IF the plant will remain at 65 % power for more than a shift, adjust ALL Feedwater Pump minimum flow valve setpoints as follows: At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68A, RX FD WTR P1A RECIRC controller to 8 k gpm. At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68B, RX FD WTR P1B RECIRC controller to 8 k gpm. At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68C, RX FD WTR P1C RECIRC controller to 8 k gpm. ***CUE: The Unit plant will remain at 65% power for LESS than a shift.***	Determines step is N/A	
16. NOTE: The following step will be performed prior to starting the standby feed pump.	Determines Step is N/A	

Performance Steps	*Standard*	*Grade*
Perform Feedwater Pump Warmup for the pump being started per subsection F.14.0. ***CUE: Another Operator has performed the warmup***		
NOTE: Min flow valve setpoints are at 4 Kgpm from previous steps.		
17. Adjust ALL three Feedwater Pump minimum flow valve setpoints as follows: At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68A, RX FD WTR P1A RECIRC controller to 4 k gpm. At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68B, RX FD WTR P1B RECIRC controller to 4 k gpm. At 2CEC-PNL827, verify in auto AND raise tape setting for 1CNM-HIC68C, RX FD WTR P1C RECIRC controller to 4 k gpm.	Adjusts all 3 controllers	Pass/Fail Sat/Unsat
18. Start the stand by Feedwater Pump 2FWS-P1A (B,C) as follows:		**Pass/Fail**
Verify open 2FWS-MOV47A (B,C), REACTOR FW PMP 1A (B,C) DISCH BLOCK VLV.	Verifies Discharge Block Valve is open by observing REACTOR FW PMP 1C DISCH BLOCK VLV FWS-MOV47C red light is ON and green light is OFF.	Sat/Unsat
19. IF applicable, verify open 2FWS-V103A (B), FEEDWATER PUMP 1A (B) LOW FLOW LINE ISOL.	Determines valve is openstep is NA, since Feedwater Pump C is being started.	Sat/Unsat

Performance Steps	*Standard*	*Grade*
20. IF required, start the standby Condensate pump by placing 2CNM-P1A (B,C) control switch in Normal-After-START (Red-flagged). **Note: NOT required, since all Condensate Pumps are running.**	Determines three Condensate Pumps running.	Sat/Unsat
21. Verify sufficient Condensate Iron Prefilters are in service to support the maximum expected Condensate System flow rate. Refer to N2-OP-5A, Attachment 1. ***CUE: If asked, Ssufficient Iron Prefilters are in service***	Determines sufficient Condensate Iron Prefilters are in service	Sat/Unsat
22. NOTE: Nine Condensate Demineralizers in service is the preferred lineup in the next step. Verify at least eight Condensate Demineralizers are in service in accordance with N2-OP-5. ***CUE: 8Nine demineralizers are in service***	Dispatches operator to determine at least eight demineralizers are in service.	Sat/Unsat
23. IF all three Heater Drain pumps are NOT pumping forward, start the standby Condensate Booster pump as follows: Using 2CNM-PI39A (B,C), locally confirm condensate booster pump suction pressure is > 150 psig. Start 2CNM-P2A (B,C), CONDENSATE BOOSTER PMP 2A (B,C), by placing the control switch to Normal-After-START (Red-flagged). At 2CNM-P2A (B,C), place the Auxiliary Lube Oil Pump control switch 2CNO-LCS706 (707, 708) to AUTO AND verify 2CNO-P2A (B,C) stops.	Determines step is N/A because heater drain pumps are pumping forward.	Sat/Unsat

Performance Steps	*Standard*	*Grade*
CUE: Heater Drain Pumps are pumping forward		
24. For the Feedwater pump to be started, verify the level controllers are in Manual (M) AND valve positions are at 0% open.	Determines that controller 2FWS-HIC-1010C is in manual by observing yellow M light is lit and % VALVE POSITION metervalve position i indicates 0.	Pass/Fail Sat/Unsat
25. CAUTION The next two steps shall be performed concurrently. IF feedwater pump suction pressure drops to 220 psig, start the third Condensate Booster pump if NOT already operating.	Reviews Caution	Sat/Unsat
26. NOTE: IF 2FWS-P1C is selected to start, the preferable power supply is from 2NPS-SWG003 if 2FWS-P1A will be left running, or 2NPS-SWG001 if 2FWS-P1B is to be left running.	NOTE: Since 2FWS-P1B is to be left running, the preferable power supply for 2FWS-P1C is 2NPS-SWG001.	
Start 2FWS-P1A (B,C) REACTOR FD P1A (B,C), by placing the control switch to Normal-After-Start (red flagged).	Rotates control switch REACTOR FW PMP 1C FROM BUS 001 FWS-P1C to red flagged position.	**Pass/Fail**
27. Confirm 2FWR-FV2A (B,C), REACTOR FD P1A (B,C) RECIRC VLV, starts to open.	Determines valve starts to openDetermines valve starts to open by observing REACTOR FD P1C RECIRC VLV POSN meter indication goes past 15% VALVE POSITION.	Sat/Unsat
28. WHEN 2FWR-FV2A (B,C) is ≥ 15% open, confirm 2FWS-P1A (B,C) starts.	When REACTOR FD P1C RECIRC VLV POSN meter indication goes past 15% VALVE POSITION, observe pump start by observing red light and ammeter FWS-P1C BUS 001 CURRENT indication.Verifies valve position and pump start	Sat/Unsat

Performance Steps		*Standard*	*Grade*
29.	Using 2CNM-FI68A (B,C), RX FD WTR P1A (B,C) FLOW meter, confirm 2FWS-P1A (B,C) flow is approximately 4000 gpm.	Determines flow on 2CNM-FI68C, RX FD WTR P1C FLOW meter is about 4000 gpm	Sat/Unsat
30.	NOTES: 1. The following two steps are performed locally at the associated Feedwater pump just started. 2. The feedwater pump may be loaded as 2FWS-V25A (B,C) is shut.	Reviews notes	
	Place the Auxiliary Lube Oil Pump control switch 2FWL-LCS752 (753, 754) to AUTO AND verify 2FWL-P2A (B,C) stops.	Places Aux Lube Oil Pump Control Switch in AUTO and verifies pump stops	Pass/Fail Sat/Unsat
31.	Close 2FWS-V25A (B,C), FD WTR PUMP 1A (B,C) WRMUP LN ISOLATION. ***CUE: If asked, report 2FWS-V25C is closed.***	Dispatches operator to Ccloses warmup line isolation.	**Pass/Fail** Sat/Unsat
	NOTES: 1. When opening 2FWS-LV10A (B,C) from a fully shut position, the initial 2 seconds of valve open signal serve only to “wake up” the control circuit computer with no additional action. Pressing the valve open push button for an additional 10 seconds in manual slow detent (2% position per second) serves to take the control circuit from the minus (–) 20% position to the 0% position PRIOR to any actual valve position indicator movement taking place. 2. Once the LV10 valve circuitry reaches the 0% position, the first 1.5% to 2% of the valve stroke, as indicated by the position indicator, is used to release the seating force held	Reviews Notes and Caution	Sat/Unsat

Performance Steps	Standard	Grade
by the compression of the SB spring. Therefore, the valve stem will not be lifted to establish flow until approximately 2% valve indication is reached. Reactor water level should be closely monitored during this evolution. CAUTION The fast detent position (20% position per second) should NOT be used to take the control circuit from the minus (--) 20% to 0% position as the LV10 will likely open beyond the desired position as the valve can only physically open at 6% per second, and will continue to open once the operator releases the open pushbutton if the demand signal is beyond the 0% position until valve position "catches up" to the circuit controller demand.		
32. Throttle open 2FWS-LV10A (B,C), Feedwater Pump 1A (B,C) Level Control Valve, by using the OPEN detent pushbutton on 2FWS-LV10A (B,C) controller.	Throttles LCV by depressing the OPEN pushbuttonOPEN detent pushbutton for controller 2FWS-HIC-1010C and observes % VALVE POSITION meter.	**Pass/Fail**
33. Verify 2FWS-LV10B (C,A) closes gradually as 2FWS-LV10A (B,C) slowly opens.	Determines valve is closing by observing % VALVE POSITION meter for 2FWS-LV10B.	Sat/Unsat
34. Continue to slowly open 2FWS-LV10A (B,C) UNTIL the input signal (vertical) AND output signal (horizontal) read the same on 2FWS-LV10A (B,C) controller.	Adjusts position using 2FWS-HIC-1010C until vertical and horizontal signals are equal.	**Pass/Fail**
35. Place 2FWS-LV10A (B,C) in Auto by momentarily depressing the Auto (A) pushbutton on 2FWS-LV10A (B,C) controller.	Depresses 2FWS-HIC-1010C AUTO pushbutton and observe green AUTO light is lit.	**Pass/Fail**
Booth Operator: Insert MMalfunction (or preset) FW10C is preset and when AUTO		

Performance Steps	*Standard*	*Grade*
pushbutton is depressed, the malfunction becomes effective causing LV10C to go full open.		
As FWS-LV10C opens due to failure, FW flow and RPV water level will rise. Annunciator 603139 REACTOR WATER LEVEL HIGH/LOW alarms.	Observe and report 2FWS-LV10C is opening unexpectedly.	Sat/Unsat
36. Auto controller fails requiring manual control	Recognizes controller failure and takes returns 2FWS-HIC-1010C to manual control using controller pushbutton IAW per N2-SOP-6 and stabilize RPV level to avoid Level 3 and Level 8 protective functions.	**Pass/Fail**
37. Report status to CRS	Status reported	Sat/Unsat

TERMINATING CUE: JPM is complete when level is being controlled manually in the normal band (between the low and high water level alarm setpoints).

RECORD STOP TIME_____

Initial Conditions:

1. The plant is operating at 65% power.
2. “C” Feedwater Pump is ready to be placed in service.
3. Pre-start checks are complete.

Initiating cue:

“(Operator’s name), Remove Feedwater Pump “A” from service and place Feedwater Pump “C” in service, per N2-OP-3, Section F.13.0Place “C” Feedwater Pump in service, and remove “A” Feedwater Pump from service, IAW N2-OP-3, Section 13.0”

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Initiate RCIC and Respond To Overspeed Trip (Alternate) Revision: NRC 2008

Task Number: N2-217000-01048

Approvals:

_____	NA EXAMINATION SECURITY _____
General Supervisor Operations Training (Designee) Date	General Supervisor Operations (Designee) Date

NA EXAMINATION SECURITY _____
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X__Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 15 minutes Time Critical Task: NO Alternate Path Task: YES

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

1. Reset to IC 183 Post Scram
2. Set remote RC01, RCIC Mech OS Trip to actuate when zarctum1 (RCIC speed) > 0.5 (3000 rpm)

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

1. N2-OP-35
2. N2-ARP-01 601305
3. NUREG K/A 217000 A4.02

Tools and Equipment:

1. None

Task Standard:
RCIC Trip/Throttle valve (2ICS*MOV150) is reset and injection established from P602.

Initial Conditions:
1. The plant has experienced a reactor scram and loss of feedwater.
2. N2-EOP-RPV is being implemented.

Initiating cue:
"(Operator's name), Initiate RCIC and maintain RPV water level between 160 inches and 200 inches".

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary* **RECORD START TIME ___**	❑ Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
2. Obtain a copy of the reference procedure and review/utilize the correct section.	❑ N2-EOP-HC-2 Attachment 5, Automatic RCIC Injection is obtained/referenced.	Sat/Unsat
3. ARM and DEPRESS RCIC MANUAL INITIATION pushbutton.	❑ ARM and DEPRESS RCIC MANUAL INITIATION pushbutton.	**Pass/Fail**
4. Verify system startup	❑ GLAND SEAL SYSTEM AIR COMPRESSOR starts. Red light ON. Green light OFF.	Sat/Unsat
	❑ ICS*MOV116 Cooling Water MOV opens. Red light ON. Green light OFF.	Sat/Unsat
*When 2ICS*MOV120 Steam Admission Valve opens, turbine speed and pump discharge pressure rise.*	❑ ICS*MOV120 Steam opens. Red light ON. Green light OFF.	Sat/Unsat
*When turbine speed exceeds 3000 RPM, 2ICS*MOV150 Trip Throttle Valve closes due to unexpected overspeed trip.*	❑ ICS*MOV126 opens. Red light ON. Green light OFF.	Sat/Unsat
5. Observes RCIC Turbine trip ***Cue: When informed of RCIC Turbine trip, instruct candidate to "Reset the RCIC Turbine from P601 and reestablish injection to the RPV"***	❑ Observes Annunciators 601305 lit.	Sat/Unsat
	❑ Observes TURBINE TRIPPED amber postage stamp lit.	Sat/Unsat
	❑ Recognizes RCIC Turbine tripped	Sat/Unsat
	❑ Reports RCIC Turbine Tripped to SM	Sat/Unsat

Performance Steps	Standard	Grade
Cue: If directed to investigate, report overspeed trip mechanism is tripped.	❑ Dispatches operator to RCIC Room to investigate.	Sat/Unsat
6. Reset ICS*MOV150 at P601 per N2-OP-35 H.1.0, RCIC Turbine Reset.		
7. Verify cause is understood and corrected.	❑ Verify cause is understood and corrected.	Sat/Unsat
8. Places ICS*MOV150 switch to CLOSED until BOTH valve positions indicate valve is closed	❑ Places ICS*MOV150 switch to CLOSED until BOTH valve positions indicate valve is closed.(P601)	**Pass/Fail**
	❑ Observes ICS*MOV150 Green light **ON** (P601 Apron)	Sat/Unsat
	❑ Observes ICS*MOV150 Red light **OFF** (P601 Apron)	Sat/Unsat
	❑ Observes Trip/Throttle valve Green light **ON** (P601 verical)	Sat/Unsat
	❑ Observes Trip/Throttle valve Red light **OFF** (P601 vertical)	Sat/Unsat
9. Verify turbine speed is less than 3500 RPM.	❑ Verify turbine speed is less than 3500 RPM.	Sat/Unsat
10. IF RCIC turbine tripped on overspeed OR was locally tripped. Locally reset trip mechanism. **BOOTH OPERATOR: REMOTE RC01 to RESET.** **CUE: Report trip mechanism is reset.**	Directs operator to locally reset the overspeed trip mechanism.	Sat/Unsat
11. IF an initiation signal is sealed in, perform the following:		
a. Throttle open ICS*MOV150	❑ Places ICS*MOV150 switch to OPEN (P601)	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
	❑ Observes ICS*MOV150 Green light **OFF** (P601 Apron)	Sat/Unsat
	❑ Observes ICS*MOV150 Red light **ON** (P601 Apron)	Sat/Unsat
	❑ Observes Trip/Throttle valve Green light **OFF** (P601 verical)	Sat/Unsat
	Observes Trip/Throttle valve Red light **ON** (P601 vertical)	Sat/Unsat
b. At 2ICS*MOV150, verify proper latching of the latch lever and trip hook. **CUE: Report trip mechanism is properly latched.**	❑ Directs operator to verify proper latching.	Sat/Unsat
c. Verify RCIC restarts	❑ Observe turbine speed and pump discharge pressure are rising.	Sat/Unsat
12. Establish RPV Injection	❑ Places ICS*MOV126 switch to OPEN (P601)	**Pass/Fail**
	❑ When RCIC flow is > 220 gpm, observe ICS*MOV143 Min Flow closes.	Sat/Unsat
	❑ When RCIC discharge pressure > reactor pressure, ICS*MOV156 and 157 Injection Check Valves open.	Sat/Unsat
	❑ RCIC Injection controlled at 600 gpm.	Sat/Unsat
13. Report completion.	❑ Report RCIC injecting.	Sat/Unsat

TERMINATING CUE: RCIC Trip/Throttle valve (2ICS*MOV150) is reset and injection established from P602.

RECORD STOP TIME_____

Initial Conditions:

1. **The plant has experienced a reactor scram and loss of feedwater.**
2. **N2-EOP-RPV is being implemented.**

Initiating cue:
"(Operator's name), Initiate RCIC and maintain RPV water level between 160 inches and 200 inches".

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Shift RBCLCW and TBCLCW Pumps Revision: NRC 2008

Task Number: N2-SOP-14-01001

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X_____Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: YES

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

4. Reset to IC 184
5. Remote CW-27 103.9^{o}F, triggered from stopping CCS-P1A

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

5. N2-OP-13, Rev 07
6. N2-OP-14, Rev 05
7. ARP 601244
8. NUREG K/A 400000 A4.01

Tools and Equipment:

1. None

Task Standard:

RBCLCW and TBCLCW pumps are swapped and temperature is being controlled manually.

Initial Conditions:

8. The plant is operating at full power.

Initiating cue:

"(Operator's name), shift running RBCLCW Pumps from "A" to "C", then shift running TBCLCW Pumps from "A" to "C" to support equipment rotation".

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-OP-13 & N2-OP-14 obtained. Precautions & limitations reviewed	Sat/Unsat
3. For the Main CCP pump to be started, verify the pump casing is free of air as follows: Uncap AND throttle open 2CCP-V195 (V196, V197), P1A (B,C) VENT. WHEN a steady stream of water is observed, close AND recap 2CCP-V195 (V196, V197).	Ensures checked by local operator	Sat/Unsat
CUE: Checked by local operator		
4. For the Main CCP pump to be started, at panel 2CEC*P601, start 2CCP-P1A (B,C), PMP 1A (B,C), by placing control switch in Normal-After-START (red flagged).	Places control switch in red flagged position	**Pass/Fail**
Note: The applicant will check board indications for amps and discharge pressure		
5. Confirm normal operating indications in accordance with Subsection F.1.0.	Ensures checked by local operator	Sat/Unsat

Performance Steps	*Standard*	*Grade*
CUE: Local indications are normal		
6. At 2CEC*PNL601, secure 2CCP-P1A (B,C), PMP 1A (B,C), by placing control switch in Normal-After-STOP. (Green flagged)	Places control switch in green flagged position	**Pass/Fail**
7. IF required, place 2CCP-P1A (B,C) control switch in PULL TO LOCK.	May request required status	Sat/Unsat
8. Confirm normal operating indications in accordance with Subsection F.1.0.	Ensures local checks are made	Sat/Unsat
CUE: Another operator will check local indications		
Examiner Note: The applicant will now refer to N2-OP-14 for TBCLCW operations		
NOTES: 1. CCS system flow of greater than 8000 gpm requires more than one heat exchanger in service. 2. Actions in this Subsection are performed at 2CEC*PNL601 unless otherwise specified.		
9. IF time permits, perform the following: Dispatch an Operator to the pump to perform prestart inspection AND observe pump during start. For the pump to be started, close 2CCS-V303A(B,C), TBCLC PUMP 1A(B,C) STOP CHECK.	Dispatched operator or determines task has been performed	Sat/Unsat
CUE: Pre-start checks complete; the stop-check valve is CLOSED		

Performance Steps	*Standard*	*Grade*
10. Start 2CCS-P1A(B,C), PMP 1A(B,C), by placing the control switch to Normal-After-START (red flagged).	Places control switch in red flagged position	**Pass/Fail**
11. Slowly open 2CCS-V303A(B,C).	Directs local operator to open valve	Sat/Unsat
CUE: Valve has been opened		
12. Confirm normal operating indications in accordance with Subsection F.1.0.	Ensures checked by local operator	Sat/Unsat
CUE: Local indications are normal		
13. NOTES: 1. Actions in this Subsection are performed at 2CEC*PNL601 unless otherwise specified. 2. CCS Pump runout is 8,500 gpm. If system flow is greater than 8,000 gpm for one pump operations or 16,000 gpm for two pump operations, then starting an additional pump increases the probability of damaging tube vibrations in the CCS heat exchangers. Three CCS pump operation shall be avoided unless shifting of pumps is required. Confirm the CCS pump is NOT required for CCS System flow as follows: Computer Point CCSFA01 — Number of Running Pumps 1,000 - 8,200 GPM — 1 8,200 - 16,400 GPM — 2	Checks indications	Sat/Unsat
14. NOTE: 2CCS-V303A (B,C) is located at 2CCS-P1A (B,C) on TB Elev 250 Southwest. Close 2CCS-V303A (B,C), TBCLC PUMP 1A (B,C) STOP CHECK.	Directs a local operator to close valve	Sat/Unsat
Cue: Valve is closed		

Performance Steps		Standard	Grade
15.	Secure 2CCS-P1A (B,C), PMP 1A (B,C), by placing the control switch in Normal-After-STOP. (Green flagged)	Places control switch in green flagged position	**Pass/Fail**
Booth Operator: Malfunction to fail temperature controller REMOTE CW-27 103.9°F when CCS-P1A is stopped.			
16.	IF required, place 2CCS-P1A (B,C) control switch in PULL TO LOCK.	May request required status of control switch	Sat/Unsat
17.	Confirm normal operating indications for the running CCS Pump(s) in accordance with Subsection F.1.0.	Ensures checked by local operator	Sat/Unsat
Examiner Note: Applicant will respond to annunciator 601244 and Computer Point CCSTC04 for TBCLCW HX DISCH TEMP			
18.	Determines temp controller is failed and refers to ARP 601244	Determines ARP 601244 actions apply	Sat/Unsat
19.	Places 2CCS-TIK104 in “M” Manual	Places controller TBCLC HEAT EXCHANGER TEMP CONTROLLER 2CCS-TIK104 in “M” Manual by depressing M button.	**Pass/Fail**
20.	Manually controls temperature	Adjusts temperature downward to approximately 85°F (80 to 95), indicated on TBCLC HEAT EXCHANGER TEMP CONTROLLER 2CCS-TIK104	**Pass/Fail**
21.	Report status to CRS	Report status.	Sat/Unsat

TERMINATING CUE: RBCLCW and TBCLCW pumps are swapped and temperature is being controlled manually.

RECORD STOP TIME_____

Initial Conditions:

1. The plant is operating at full power.

Initiating cue:

“(Operator’s name), shift running RBCLCW Pumps from “A” to “C”, then shift running TBCLCW Pumps from “A” to “C” to support equipment rotation”.

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Depressurize the RPV to the Main Condenser Revision: NRC 2008

Task Number:

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X_____Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: YES

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

6. Reset to IC 185
7. Malfunction MS-13 “MSIV Isolation Failure”

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a “•”.
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

9. EOP-6 Attachment 18
10. NUREG K/A 239001 A4.09

Tools and Equipment:

1. None

Task Standard:

RPV is depressurizing to Main Condenser using Bypass Valves or Drain valves

Initial Conditions:

9. A LOCA has occurred and an RPV Blowdown was required
10. Only 5 SRVs could be opened
11. EOP-6, Attachment 18 is in progress.

Initiating cue:

"(Operator's name), Continue in N2-EOP-6, Attachment 18 at step 3.1.2 and depressurize the RPV to the Main Condenser

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	EOP-6, Attachment 18 obtained.	Sat/Unsat
3. IF a LOCA signal is present OR expected, using PA235 key, place the following LOCA override switches to OVERRIDE: (2CEC*PNL851)	Determines LOCA is present.	Sat/Unsat
LOCA OVERRIDE VLV IAS*SOV166	Using key, places switch in OVERRIDE	Sat/Unsat
LOCA OVERRIDE VLV IAS*SOV184	Using key, places switch in OVERRIDE	Sat/Unsat
Annunciators 601517 and 601519 alarms when switches are placed in OVERRIDE.		
4. Verify open the following valves (2CEC*PNL851)		
IAS*SOV166, PRIMARY CNTMT OUTBD ISOL VLV TO SRV	Open IAS*SON166 and observe red light ON and green light OFF.	Sat/Unsat
IAS*SOV184, PRIMARY CNTMT INBD ISOL VLV TO SRV	Open IAS*SON184 and observe red light ON and green light OFF.	Sat/Unsat

Performance Steps	*Standard*	*Grade*
5. Record differential pressure across the MSIVs using C33-R605 on 2CEC*PNL603 AND one or more of the following Trip Units: B22-N676A, STM LINE PRESS LO (2CEC*PNL609) B22-N676C, STM LINE PRESS LO (2CEC*PNL609) B22-N676B, STM LINE PRESS LO (2CEC*PNL611) B22-N676D, STM LINE PRESS LO (2CEC*PNL611) Note: PNL609 trip units are not within the scope of simulation. ***CUE: Differential Pressure is <150 psid***	Determines differential pressure is within 150 psid.	Sat/Unsat
6. IF differential pressure across the MSIVs is > 150 psid, open at least one pair of MSIVs by performing N2-OP-1, Section H.4.0 AND THEN continue at Step 3.1.7 N/A, differential pressure across the MSIVs is < 150 psid	Determines step is N/A, based on differential pressure.	Sat/Unsat
7. IF differential pressure across the MSIVs is < 150 psid, open at least one pair of MSIVs as follows: N/A, a pair of MSIVs will be opened per N2-OP-1, Section H.4.0 Verify MSIV isolation signals reset by performing the following: (2CEC*PNL602)		
Place control switches for the following to CLOSE: • MSS*AOV6A, MSIV • MSS*AOV6B, MSIV	Places all eight MSIV control switches in CLOSE	Sat\Unsat

Performance Steps	Standard	Grade
• MSS*AOV6C, MSIV • MSS*AOV6D, MSIV • MSS*AOV7A, MSIV • MSS*AOV7B, MSIV • MSS*AOV7C, MSIV • MSS*AOV7D, MSIV		
Booth Operator: Insert malfunction MS-13 when MSIVs are closed		
8. Depress pushbutton B22H-S33, INBD ISOL LOGIC RESET	Depresses pushbutton	Sat\Unsat
9. Depress pushbutton B22H-S32, OUTBD ISOL LOGIC RESET	Depresses pushbutton	Sat\Unsat
10. Open one pair of MSIVs as follows: (2CEC*PNL602) Place the control switch for ANY outboard MSIV to AUTO Place the control switch for the corresponding inboard MSIV to AUTO.	Places control switches for one pair of MSIVs to AUTO. MSIVs will not open	Sat/Unsat
Examiner Note: Applicant must continue in procedure because MSIVs will not open		
11. IF a pair of MSIVs can NOT be opened, align steam line drains to depressurize the RPV as follows: N/A, a pair of MSIVs are open		
Verify open MSS*MOV207, INSIDE MSIV'S UPSTREAM DRAIN VLV. (2CEC-PNL824)	Opens MSS*MOV207 and observe red light ON and green light OFF.	**Pass/Fail**
Verify open MSS*MOV111, MAIN STM LINE DRAIN ISOL VLV. (2CEC*PNL602)	Opens MSS*MOV111 and observe red light ON and green light OFF.	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
12. NOTE: A CAT 60 key may be required for entry to 2EHS*MCC102.		
Place 2EHS*MCC102-7A, 2MSS*MOV112 MAIN STEAM LINE DRAIN OUTBD to ON (Aux Bay-North El 240)	Directs operator to locally close 2EHS*MCC102-7A AND place alarm circuit to enable.	Sat/Unsat
BOOTH OPERATOR: Enter Remote MS05B, 2MSS*MOV112 APP R CKT BKR, CLOSE		
CUE: Report the breaker is closed and alarm circuit is enabled.		
Place 2EHS*MCC102-7A, ALARM CIRCUIT control switch to ENABLE		
Verify open 2MSS*MOV112 (2CEC*PNL602)	Open 2MSS*MOV112 and observe red light ON and green light OFF.	**Pass/Fail**
Verify open MSS-MOV187, MAIN STM LINE PRESS EQL/WARMING (2CEC*PNL602)	Open 2MSS-MOV187 and observe red light ON and green light OFF.	**Pass/Fail**
13. Using BYPASS VALVE OPENING JACK SELECTOR, depress AND hold the INCREASE pushbutton UNTIL bypass valves are full open (2CEC*PNL851) N/A, Turbine Bypass Valves will NOT open	Depresses and holds to attempt to open bypasses	**Pass/Fail/ NA**
14. IF Bypass Valves are unavailable, verify open as many of the following steam line drains as possible to depressurize the RPV to the condenser: N/A, Turbine Bypass Valves are available Open Turbine Stop Valve Drains (2CEC-PNL824): MSS-MOV21A, TURBINE STOP VLV MSV3 DRAIN VLV	Performs if bypass valves would not open	**Pass/Fail/ NA**

Performance Steps	Standard	Grade
MSS-MOV21B, TURBINE STOP VLV MSV4 DRAIN VLV MSS-MOV21C, TURBINE STOP VLV MSV1 DRAIN VLV MSS-MOV21D, TURBINE STOP VLV MSV2 DRAIN VLV **Examiner Note: Step only performed if bypass valves could not be opened. Degrading vacuum may have caused closure**		
15. Open MSS-MOV147, TURBINE CONTROL VLVS DRAIN VLV (2CEC-PNL824)	Performs if bypass valves did not open	**Pass/Fail/ NA**
16. Open Main Steam Line Drains (2CEC-PNL824): MSS-AOV191, MAIN STM LINE HEADER DRAIN VLV MSS-AOV194, MAIN STM LINE HEADER DRAIN VLV MSS-AOV203, MAIN STM LINE HEADER DRAIN VLV MSS-AOV205, MAIN STM LINE HEADER DRAIN VLV MSS-AOV209, MAIN STM LINE HEADER DRAIN VLV MSS-AOV87A MSL A LOW POINT DRAIN VALVE MSS-AOV87B MSL B LOW POINT DRAIN VALVE MSS-AOV87C MSL C LOW POINT DRAIN VALVE MSS-AOV87D MSL D LOW POINT DRAIN VALVE	Performs if bypass valves did not open	**Pass/Fail/ NA**

Performance Steps	*Standard*	*Grade*
MSS-AOV88A MSL DRAIN HEADER ISOL VALVE MSS-A0V88B MSL DRAIN HEADER ISOL VALVE		
17. Open MSL Drain Orifice Bypass (2CEC-PNL824): MSS-AOV85A, MAIN STM LINE DRAIN VLV MSS-AOV85B, MAIN STM LINE DRAIN VLV MSS-AOV85C, MAIN STM LINE DRAIN VLV MSS-AOV85D, MAIN STM LINE DRAIN VLV	Performs if bypass valves did not open	**Pass/Fail/ NA**

TERMINATING CUE: RPV is depressurizing to Main Condenser via Bypass valves or Drain valves

RECORD STOP TIME_____

Initial Conditions:

12. A LOCA has occurred and an RPV Blowdown was required
13. Only 5 SRVs could be opened
14. N2-EOP-6, Attachment 18 is in progress.

Initiating cue:

Continue in N2-EOP-6, Attachment 18 at step 3.1.2 and depressurize the RPV to the Main Condenser

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Energize Reserve Station Transformer 1B and NPS-SWG003. Revision: NRC 2008
Task Number: N2-262000-01002, N2-SOP-03-01001

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X____Perform _____Simulate

Evaluation Location:_____Plant ___X__Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if any critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

Reset to IC 186

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

4. N2-SOP-03

Tools and Equipment:

1. None

Task Standard:

Reserve Transformer 1B energized from Line 6. NPS-SWG003 energized from Reserve Transformer 1B. NNS-SWG013 and NNS-SWG015 energized from NPS-SWG003.

Initial Conditions:
3. The plant experienced a Loss of Line 6.
4. The plant was manually scrammed.
5. Immediate and Subsequent Actions of N2-SOP-3 are complete.
6. Fault Identification and Isolation per Attachment 1 Section 1.6 are complete.
7. Power has been restored to Line 6 and Power Control has verified its reliability.
8. Ask the operator for any questions.

Initiating cue:
" (Operator's name), Energize Reserve Station Transformer 1B from Line 6 per N2-SOP-3. Then restore power to 2NPS-SWG003 from Transformer 1B, NNS-SWG013 and NNS-SWG015 from 2NPS-SWG003 per N2-SOP-3."

Performance Steps	*Standard*	*Grade*
12. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	❑ Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
13. Obtain a copy of the reference procedure and review/utilize the correct section.	❑ N2-SOP-3 obtained. Precautions & Limitations are reviewed and Attachment 1 Section 1.7 referenced.	Sat/Unsat
14. Review Attachment 1 Section 1.7 Power Restoration to determine applicable Attachment to Energize Reserve Transformer 1B	❑ Per step 1.7.2, determines performance of Attachment 6 is required.	Sat/Unsat
4. At Panel 808 (CB 288'), verify reset 86-2SPRY01 (RES STA SER XFMR 1B PRIM PROT LO RELAY).	❑ Verifies 86 device is reset	Sat/Unsat
Cue: If asked, inform the candidate that 86-SPRY01 is reset.		
5. At Panel 809 (CB 288'), verify reset 86-2SPRZ08 (RES STA SER XFMR 1B BU PROT LOCKOUT RELAY).	❑ Verifies 86 device is reset	Sat/Unsat
Cue: If asked, inform the candidate that 86-SPRZ08 is reset.		
6. Determine step 6.2 is N/A	❑ Marks N/A block for step 6.2	Sat/Unsat
7. Determine section 6.3 is applicable	❑ Carries out the actions of section 6.3	Sat/Unsat

Performance Steps	*Standard*	*Grade*
8. Close MDS2 - (115 KV MOD SWITCH 63) LINE 6.	❑ Places MDS2 control switch to CLOSE ❑ Observes MDS2 red light – ON ❑ Observes MDS2 green light – OFF	**Pass/Fail** Sat/Unsat Sat/Unsat
9. Close MDS4 - (115 KV CIRCUIT SWITCHER CKT SWITCH 38).	❑ Places MDS4 control switch from PULL-TO-LOCK to NORMAL-AFTER-OPEN ❑ Places MDS4 control switch to CLOSE ❑ Observes MDS4 red light – ON ❑ Observes MDS4 green light – OFF The following annunciators clear with no required action: ❑ 852421 “MOT Operator CKT 2YUC-MDS4” ❑ 852435 “RES STA SER XFMER 1B Loss of Voltage”	**Pass/Fail** **Pass/Fail** Sat/Unsat Sat/Unsat
10. IF required, place in Normal-After-Trip 2NPS-SWG003-1.	❑ Places 3-1 control switch from PULL-TO-LOCK to NORMAL-AFTER-TRIP. ❑ Observes 3-1 green light – ON	**Pass/Fail** Sat/Unsat
11. Return to Attachment 1 Section 1.7.	❑ Per step 1.7.8, determines performance of Attachment 7 is required.	Sat/Unsat
12. Step 7.1 Prerequisites **Cue: If asked, 7.1.4 lockouts have been verified reset. Step 7.1, Prerequisites, are completed**		
12. Determines section 7.2 is applicable	❑ Carries out the actions of section 7.2	Sat/Unsat
13. Place 3-14 in Pull-to-Lock.	❑ Places 3-14 control switch in PULL-TO-LOCK ❑ Observes 3-14 green/red lights – OFF The following annunciator clears with no required action: ❑ 852560 “13.8KV Bus NPS003 ACB 3-1/14/16 Auto Trip/FTC	**Pass/Fail** Sat/Unsat
14. Place the SYNC switch to ON (SYNCHRONIZE RES STA SVCE XFMR 1B).	❑ Rotates the SYNC switch to ON	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
15. Close 3-1.	❑ Rotates 3-1 control switch to CLOSE ❑ Observes 3-1 red light – ON ❑ Observes 3-1 green light – OFF Numerous annuciators clear. Numerous annunciators alarm. Numerous annunciators reflash. None of these requires action.	**Pass/Fail** Sat/Unsat Sat/Unsat
16. Place the SYNC switch to OFF.	❑ Rotates the SYNC switch to OFF	**Pass/Fail**
17. Close 13-6.	❑ Rotates 13-6 control switch from PULL-TO-LOCK to NORMAL-AFTER-TRIP. ❑ Observes 13-6 green light – ON ❑ Rotates 13-6 control switch to CLOSE ❑ Observes 13-6 red light – ON ❑ Observes 13-6 green light – OFF The following annunciator clears with no required action: ❑ 852527 “4KV Bus NNS 013 Undervoltage”	**Pass/Fail** Sat/Unsat **Pass/Fail** Sat/Unsat Sat/Unsat
18. Return to Attachment 1 Section 1.7.	❑ Per step 1.7.10, determines performance of Attachment 9 is required.	Sat/Unsat
19. Step 9.1 Prerequisites **Cue: If asked, 9.1.4 lockout is verified reset.** **Step 9.1, Prerequisites, are completed**		
20. Determines section 9.2 is applicable	❑ Carries out the actions of section 7.2	Sat/Unsat
21. Verify closed 3-6.	❑ Rotates 3-6 control switch from PULL-TO-LOCK to NORMAL-AFTER-TRIP. ❑ Observes 3-6 green light – ON ❑ Rotates 3-6 control switch to CLOSE ❑ Observes 3-6 red light – ON ❑ Observes 3-6 green light – OFF	**Pass/Fail** Sat/Unsat **Pass/Fail** Sat/Unsat Sat/Unsat
22. Close 15-3	❑ Rotates 15-3 control switch from PULL-TO-LOCK to NORMAL-AFTER-TRIP. ❑ Observes 15-3 green light – ON ❑ Rotates 15-3 control switch to CLOSE	**Pass/Fail** Sat/Unsat **Pass/Fail**

Performance Steps	*Standard*	*Grade*
	❑ Observes 15-3 red light – ON	Sat/Unsat
	❑ Observes 15-3 green light – OFF	Sat/Unsat

23. Reports that Reserve Station Transformer 1B is energized from Line 6, and 2NPS-SWG003 & NNS-SWG013 are energized from Reserve Station Transformer 1B

Cue: Acknowledge report.

TERMINATING CUE: Reserve Transformer 1B energized from Line 6. NPS-SWG003 energized from Reserve Transformer 1B. NNS-SWG013 and NNS-SWG015 energized from NPS-SWG003.

RECORD STOP TIME_____

Initial Conditions:

1. The plant experienced a Loss of Line 6.
2. The plant was manually scrammed.
3. Immediate and Subsequent Actions of N2-SOP-3 are complete.
4. Fault Identification and Isolation per Attachment 1 Section 1.6 are complete.
5. Power has been restored to Line 6 and Power Control has verified its reliability.
6. Ask the operator for any questions.

Initiating cue:

RO- " (Operator's name), Energize Reserve Station Transformer 1B from Line 6, then restore power to 2NPS-SWG003 and NNS-SWG013 per N2-SOP-3 Attachment 1 Section 1.7 Power Restoration."

Initial Conditions:

1. The plant experienced a Loss of Line 6.
2. The plant was manually scrammed.
3. Immediate and Subsequent Actions of N2-SOP-3 are complete.
4. Fault Identification and Isolation per Attachment 1 Section 1.6 are complete.
5. Power has been restored to Line 6 and Power Control has verified its reliability.
6. Ask the operator for any questions.

Initiating cue:
" (Operator's name), Energize Reserve Station Transformer 1B from Line 6 per N2-SOP-3. Then restore power to 2NPS-SWG003 from Transformer 1B, NNS-SWG013 and NNS-SWG015 from 2NPS-SWG003 per N2-SOP-3."

Candidate: *Direct ALL communications and announcements through the JPM Evaluator, first.*

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Initiate Suppression Chamber Cooling And Spray using RHS "A" Revision: NRC 2008

Task Number: N2-205000-01013

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: __X____Perform _____Simulate

Evaluation Location:____Plant ___X__Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Simulator

Simulator Set-up:

8. Reset to IC 187

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

11. EOP-6 Attachment 22
12. NUREG K/A 226001 A4.01

Tools and Equipment:

1. None

Task Standard:

Suppression Pool Cooling & Spray initiated using RHS “A”

Initial Conditions:

15. A Small Break LOCA has occurred.
16. Primary Containment Control EOP has been entered.

Initiating cue:

"(Operator's name), Place RHR Loop A in Suppression Pool Cooling and Spray operation per N2-EOP-6, Attachment 22".

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	EOP-6, Attachment 22 obtained. Step 3.1 identified	Sat/Unsat
3. Start Suppression Chamber Spray:		
N/A, Suppression Chamber Spray is NOT required	Determines Suppression Chamber Spray is required	Sat/Unsat
IF Drywell Sprays are required concurrently with Suppression Chamber Sprays, perform Subsection 3.2		
N/A, Drywell Spray is NOT required	Determines step N/A	
Suppression Chamber Spray using RHS A. (2CEC*PNL601)	Determines step to be used	
N/A, RHS A will NOT be used		
4. IF a LOCA signal is present AND suppression chamber spray operation is directed WITH drywell pressure less than 1.68 psig, perform the following to bypass the high drywell pressure interlock for 2RHS*MOV33A:	Determines bypass not required because DWP is >1.68 psig.	Sat/Unsat

Performance Steps	*Standard*	*Grade*
N/A, high drywell pressure interlock will NOT be bypassed NOTE: A L660 key may be needed to gain entry to 2CEC*PNL629. Remove relay E12A-K108A in 2CEC*PNL629, Bay B (Figure 22-4) Install EOP Jumper #42 on terminal points BBB-49 AND AA-119 in 2CEC*PNL629, Bay B (Figure 22-4) Deliver relay E12A-K108A to SM		
5. NOTE: Verifying SWP*MOV90A open may be delayed until after sprays are in service. **This step is NOT sequence critical.**		
Verify open SWP*MOV90A, HEAT EXCHANGER 1A, SVCE WTR INLET VLV	Open SWP*MOV90A, HEAT EXCHANGER 1A, SVCE WTR INLET VLV	**Pass/Fail/ NA**
6. Verify closed AND IF possible overridden, RHS*MOV24A, LPCI A INJECTION VLV	Determines valve is closed by green light ON and red light OFF indication.	Sat/Unsat
Failure to override injection valve closed can result in pump runout, if the valve auto opens with FV38A open during Suppression Pool Cooling operation.	Places control switch to CLOSE to obtain the amber override light lit.	**Pass/Fail**
7. Verify running RHS*P1A, PMP 1A	Determines pump is running by red light ON, green light OFF OR motor amps indication.	Sat/Unsat
8. IF operation in Containment Spray mode AND a trip of 2RHS*P1A occurs, perform emergency refill per Section 3.3	Determines step N/A	Sat/Unsat
9. Open RHS*MOV33A, OUTLET TO	Open RHS*MOV33A, OUTLET TO	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
SUPPR POOL SPRAY	SUPPR POOL SPRAY	
10. Verify ≥450 gpm on SUPPR SPRAY HEADER FLOW. (2RHS*FI64A)	Determines flow is acceptable	Sat/Unsat
11. IF Suppression Pool Cooling is directed, throttle open RHS*FV38A, RETURN TO SUPPR POOL COOLING to establish a flow of approximately 7450 gpm (E12-R603A) N/A, Suppression Pool Cooling was NOT directed	Throttle open RHS*FV38A, RETURN TO SUPPR POOL COOLING to attain desired flow rate (7400 to 7500 gpm).	**Pass/Fail**
12. Verify RHS*MOV4A, PMP 1A MINIMUM FLOW VLV position as follows: IF RHS A is in Suppression Pool Cooling/Spray, verify closed 2RHS*MOV4A OR IF RHS A is in Suppression Chamber Spray ONLY, verify open RHS*MOV4A	Verifies RHS*MOV4A, PMP 1A MINIMUM FLOW VLV valve is closed by green light ON and red light OFF indication.	Sat/Unsat
13. Verify open SWP*MOV90A, HEAT EXCHANGER 1A, SVCE WTR INLET VLV	Verify open SWP*MOV90A, HEAT EXCHANGER 1A, SVCE WTR INLET VLV by red light ON and green light OFF indication. If valve was previously opened, this is not a critical step.	**Pass/Fail/ NA**
14. NOTE: Post LOCA, in order to supply greater than 2000 gpm SWP to RHR Heat Exchangers with less than 5 SWP pumps in service it may be necessary to isolate Turbine Bldg. loads IAW N2-OP-31 Section H.12.0.		
Throttle open SWP*MOV33A, HEAT EXCHANGER 1A SVCE WTR OUTLET VLV to establish Service Water flow to RHR Heat Exchanger 1A NOT to exceed 7400 gpm. (E12-R602A)	Throttles open SWP*MOV33A, HEAT EXCHANGER 1A SVCE WTR OUTLET VLV and verifies flow remains less than 7400 GPM	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
15. NOTE: 2RHS*MOV8A is interlocked in the open position for 10 minutes following a Division I ECCS initiation. WHEN possible, close RHS*MOV8A, HEAT EXCHANGER 1A INLET BYPASS VLV	If possible, close RHS*MOV8A, HEAT EXCHANGER 1A INLET BYPASS VLV OR determines step is N/A	Sat/Unsat/ NA
16. Report completion.	Report completion.	Sat/Unsat

TERMINATING CUE: Suppression Pool Cooling and Spray is in operation

RECORD STOP TIME_____

Initial Conditions:

1. A Small Break LOCA has occurred.
2. Primary Containment Control EOP has been entered.

Initiating cue:

"(Operator's name), Place RHR Loop A in Suppression Pool Cooling and Spray operation per N2-EOP-6, Attachment 22".

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Align Service Water to SFC Heat Exchanger 1A Revision: NRC 2008

Task Number:

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: _____Perform ___X__Simulate

Evaluation Location:___X___Plant _____Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Plant

Simulator Set-up:

9. NA

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

13. N2-SOP-38, Rev 04
14. NUREG K/A 233000 K1.02

Tools and Equipment:

1. None

Task Standard:

Service Water is aligned to SFC 1A

Initial Conditions:

17. The Control Room has been evacuated
18. A loss of Spent Fuel Pool Cooling has occurred

Initiating cue:

"(Operator's name), Align Service Water to SFC Heat Exchanger 1A per N2-SOP-38, Attachment 5".

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-SOP-38 obtained.	Sat/Unsat
3. Obtain SM permission to supply Service Water Cooling to SFC Heat Exchanger 1A UNLESS directed otherwise by the SM, verify Chemistry has sampled (C1) the CCP system AND sample results meet SPDES AND ODCM requirements for discharge N/A, the SM directs sampling to be performed later	Requests SM permission	**Sat/Unsat**
CUE: SM has granted permission and Chemistry sample is satisfactory		
4. In the Division I Switchgear Room, place the following breakers in OFF:		
2EHS*MCC103-4A, CL LOOP CLG WTR TO SFP CLG HE A SPLY V 2CCP*MOV14A	Locates breaker and places in OFF	**Pass/Fail**
2EHS*MCC103-4B, CL LOOP CLG WTR FR SFP CLG HE A RTN V 2CCP*MOV18A	Locates breaker and places in OFF	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
5. In North Aux Bay Elev 240, place the following breakers in OFF:		
2EHS*MCC102-2A, SWP TO SPENT FUEL POOL HE 2SWP*MOV17A	Locates breaker and places in OFF	**Pass/Fail**
2EHS*MCC102-2B, SWP FROM SPENT FUEL POOL HE 2SWP*MOV18A	Locates breaker and places in OFF	**Pass/Fail**
6. NOTE: 2CCP*MOV14A and MOV18A are located on RB Elev 215 outside the 2SFC*E1A Room. Manually close the following valves:		
2CCP*MOV14A, SFC HEAT EXCHANGER RBCLC INLET	Locates and closes valve	**Pass/Fail**
2CCP*MOV18A, SFC HEAT EXCHANGER RBCLC OUTLET	Locates and closes valve	**Pass/Fail**
7. NOTE: 2SWP*MOV17A and MOV18A are located on RB Elev 196 by the North stairwell. Manually open the following valves:		
2SWP*MOV17A, SFC HEAT EXCHANGER SERVICE WTR INLET	Locates and manually opens valve	**Pass/Fail**
2SWP*MOV18A, SFC HEAT EXCHANGER SERVICE WTR OUTLET	Locates and manually opens valve	**Pass/Fail**
8. Throttle 2CCP*V12, SFC HX 1A OUTLET ISOL, to maintain Spent Fuel Pool temperature 80 – 100°°F CUE/NOTE: The applicant should state that temperature can be monitored at_____. Provide feedback that the appropriate temperature has been reached once satisfied that the appropriate location to monitor	Throttles valve while monitoring temperatures until desired range is reached until desired temperature is reached	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
temperature has been determined		
9. IF not previously done, contact Chemistry to sample the CCP System AND determine if sample meets requirements for discharge	Requests Chemistry provide sample	Sat/Unsat

Examiner Note: JPM may be terminated at this point

TERMINATING CUE: Service Water is providing cooling to SFC Heat Exchanger 1A

RECORD STOP TIME_____

Initial Conditions:

1. The Control Room has been evacuated
2. A loss of Spent Fuel Pool cooling has occurred

Initiating cue:

Align Service Water to SFC Heat Exchanger 1A per N2-SOP-38, Attachment 5

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Isolating An HCU With Cooling Water Flow Revision: NRC 2008

Task Number:

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: _____Perform ___X___Simulate

Evaluation Location:___X__Plant _____Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Plant

Simulator Set-up:

10. NA

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

15. N2-OP-30, Rev 14
16. NUREG K/A 201001 A1.06

Tools and Equipment:

1. None

Task Standard:

HCU 34-23 is isolated with cooling water maintained.

Initial Conditions:

19. HCU 34-23 was declared inoperable and must be isolated for maintenance.

Initiating cue:

"(Operator's name), Isolate HCU 34-23 WITH cooling water per N2-OP-30".

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-OP-30 obtained. Section F.8.2 identified for use	Sat/Unsat
3. IF an RDS Pump is in service, verify ≤79 HCUs are isolated. **CUE: NO other HCUs are isolated**	Determines criteria is met	Sat/Unsat
4. Close 2RDS*V101, (34-23) Insert Isolation.	Locates and closes valve	**Pass/Fail**
5. Close 2RDS*V102, (34-23) Withdraw Isolation.	Locates and closes valve	**Pass/Fail**
6. Close 2RDS-V113, (34-23) Charging Water Isolation.	Locates and closes valve	**Pass/Fail**
7. CAUTION Rx water will drain out of 2RDS*V107 if a Reactor Scram occurs. ATTACH drain line to HCU at 2RDS*V107, (34-23) Accumulator	Locates and attaches drain line	Sat/Unsat

Performance Steps		*Standard*	*Grade*
	Drain AND route to floor/equipment drain. (Lubricant use N/A for Swagelok Fittings)		
8.	Slowly open 2RDS*V107 (34-23) to depressurize accumulator.	Opens valve and observes accumulator pressure lowering	**Pass/Fail**
9.	Close 2RDS*V107 (34-23).	Locates and closes valve	**Pass/Fail**
10.	Open 2RDS*V107 (34-23) one turn.	Locates and opens valve	**Pass/Fail**
11.	Close 2RDS-V103, (34-23) Drive Water Isolation.	Locates and closes valve	**Pass/Fail**
12.	Close 2RDS-V105, (34-23) Exhaust Water Isolation.	Locates and closes valve	**Pass/Fail**
13.	Open 2RDS*V101, (34-23) Insert Isolation.	Locates and opens valve	**Pass/Fail**
14.	If the HCU is to have maintenance OR is to be out of service for an extended period of time perform the following: Close 2RDS*V111, (34-23) Gas Accumulator Charging Valve.	Locates and closes valve	**Pass/Fail**
15. AND	Using two wrenches, slowly loosen remove the cap from connector P6.	Loosens and removes cap from connector	Sat/Unsat
16.	Connect nitrogen charging rig.	Connects rig	Sat/Unsat

Performance Steps		*Standard*	*Grade*
17.	Open 2RDS*V111, (34-23) AND, utilizing the nitrogen charging rig vent valve, slowly bleed off nitrogen.	Locates and opens valve	**Pass/Fail**
18.	Verify Nitrogen pressure on the accumulator pressure gauge is at 0 psig.	Verifies pressure is 0	Sat/Unsat
19.	Disconnect charging rig.	Disconnects rig	Sat/Unsat
20.	NOTE: While torquing cap, use a wrench on P6 connector to prevent connector movement at instrument block. Apply thin coat of Nickel NEVER SEEZ on P6 connector threads, THEN reinstall the cap AND torque the cap to 150-200 in-lbs.	Reinstalls Cap	Sat/Unsat

TERMINATING CUE: HCU 34-23 is isolated with cooling water maintained and charging rig has been disconnected.

RECORD STOP TIME_____

Initial Conditions:

1. HCU 34-23 was declared inoperable and must be isolated for maintenance.

Initiating cue:

Isolate HCU 34-23 WITH cooling water per N2-OP-30

Constellation Energy Group
OPERATOR JOB PERFORMANCE MEASURE

Title: Off Gas Recovery After Automatic Shutdown Revision: NRC 2008

Task Number:

Approvals:

_____	NA EXAMINATION SECURITY
General Supervisor Date	General Supervisor Date
Operations Training (Designee)	Operations (Designee)

NA EXAMINATION SECURITY
Configuration Control Date

Performer:_____(RO/SRO)

Trainer/Evaluator:_____

Evaluation Method: _____Perform ___X___Simulate

Evaluation Location:___X__Plant _____Simulator

Expected Completion Time: 20 minutes Time Critical Task: NO Alternate Path Task: NO

Start Time: _____ Stop Time:_____ Completion Time:_____

JPM Overall Rating: Pass Fail

NOTE: A JPM overall rating of fail shall be given if <u>any</u> critical step is graded as fail. Any grade of unsat or individual competency area unsat requires a comment.

Comments:

Evaluator Signature:_____ Date:_____

Recommended Start Location:

Plant

Simulator Set-up:

11. NA

Directions to Operators:

Read Before Every JPM Performance:

For the performance of this JPM, I will function as the SM, CSO, and Auxiliary Operators. Prior to providing direction to perform this task, I will provide you with the initial conditions and answer any questions. During task performance, I will identify the steps to be simulated, or discuss and provide cues as necessary.

Read Before Each Evaluated JPM Performance:

This evaluated JPM is a measure of your ability to perform this task independently. The Control Room Supervisor has determined that a verifier is not available and that additional / concurrent verification will not be provided; therefore it should not be requested.

Read Before Each Training JPM Performance:

During this Training JPM, applicable methods of verification are expected to be used. Therefore, either another individual or I will act as the additional / concurrent verifier.

Notes to Instructor / Evaluator:

1. Critical steps are identified as **Pass/Fail**. All steps are sequenced critical unless denoted by a "•".
2. During Evaluated JPM:
   - Self-verification shall be demonstrated.
3. During Training JPM:
   - Self-verification shall be demonstrated.
   - No other verification shall be demonstrated.

References:

17. N2-OP-42, Rev 09
18. NUREG K/A 271000 A1.08

Tools and Equipment:

1. None

Task Standard:

Off Gas system operating in a stable manner

Initial Conditions:

20. The plant is operating at 30% power.
21. OffGas has automatically shut down
22. Recombiner temperature is 390°F
23. H2 concentration is 1%
24. The Off Gas High Radiation trip has NOT occurred

Initiating cue:

"(Operator's name), Recover Off Gas after an automatic shutdown per N2-OP-42, Step H.1.5.4

Performance Steps	*Standard*	*Grade*
1. Provide repeat back of initiating cue. *Evaluator Acknowledge repeat back providing correction if necessary*	Proper communications used for repeat back (GAP-OPS-O1)	Sat/Unsat
RECORD START TIME ____		
2. Obtain a copy of the reference procedure and review/utilize the correct section.	N2-OP-42 obtained. Section 1.0 identified for use	Sat/Unsat
Note: Action begins at procedure step 1.5.4		
3. Reset the Offgas circuits by depressing AND releasing the following RESET pushbuttons: RESET RE13A&B red pushbutton RESET SYSTEM A black pushbutton RESET SYSTEM B black pushbutton RESET VAC PUMP VP-1A black pushbutton RESET VAC PUMP VP-1B black pushbutton	Resets pushbuttons identified	**Pass/Fail**
4. Open 2OFG-LV20A(B), CONDENSER 1A(B) LEVEL CONTROLLER, to allow process flow to recycle back to the Main Condenser.	Opens level controller	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
5. Open 2OFG-AOV1A(B), PREHTR E1A(B) INLET ISOL, by placing the control switch to STARTUP.	Locates and opens valve	**Pass/Fail**
6. Verify open 2OFG-AOV103, OFFGAS EXHAUST TO MAIN STACK.	Determines valve is open	Sat/Unsat
7. NOTE: When both 2OFG-AOV1A and AOV1B are open, 2CCS-MOV45A and MOV45B will each automatically open to mid position. If only 2OFG-AOV1A(B) is open, the associated 2CCS-MOV45A(B) will automatically open fully. The valves are located in the OFG Bldg El 261' Hallway. Locally, verify 2CCS-MOV45A(B), OFFGAS CONDENSER 1A(B) OUTLET ISOLATION, is in the proper position. **CUE: Isolation is in the proper position**	Determines valve in proper position	Sat/Unsat
8. Verify one Dryer is in service with its associated valve control switch in OPEN (2OFG-AOV4A/5A, 4B/5B, 4C/5C).	Determines one dryer is in service and associated switch in OPEN	Sat/Unsat
9. IF required, start 2OFG-P1A AND P1B, VACUUM PUMP VP-1A(B).	Locates and places control switch in START	**Pass/Fail**
10. WHEN recombination is occurring, as indicated by OFG Recombiner temperature rising, place 2OFG-LV20A(B) control switch in AUTO. **CUE: Temperature is slowly rising**	Determines temperature rising. Places control switch in AUTO	**Pass/Fail**
11. Open 2OFG-AOV11A(B),	Places control switch to STARTUP and	**Pass/Fail**

Performance Steps	*Standard*	*Grade*
CONDENSER 1A(B) OUTLET ISOLATION, by placing the control switch to STARTUP.	observes valve open	
12. WHEN the OFG System stabilizes, perform the following: Push the RESET SYSTEM A(B) pushbutton. Return the Recombiner Train Isolation AOV control switches to AUTO.	Determines system stable. Locates and pushes SYSTEM RESET button and returns AOV control switches to AUTO	**Pass/Fail**

CUE: System has stabilized

TERMINATING CUE: When Off Gas system is operating and stable, this JPM is complete

RECORD STOP TIME_____

Initial Conditions:

1. The plant is operating at 30% power.
2. OffGas has automatically shut down
3. Recombiner temperature is 390°F
4. H2 concentration is 1%
5. The Off Gas High Radiation trip has NOT occurred

Initiating cue:

"(Operator's name), Recover Off Gas after an automatic shutdown IAW N2-OP-42, Step 1.5.4