JOB PERFORMANCE MEASURE #1

POWER INCREASE TO CRITICALITY

Student Name: _____ Badge #: _____

Evaluator Name: _____

Evaluator Signature: _____ Date: _____

JPM RESULTS

SAT UNSAT
(Circle One)

USNRC Initial Licensing Exam
Seabrook Station
June 2003

1.0 Task Number and Description:

Task number is N/A.

Applicant is to enter a power increase to criticality in progress. Shut down banks have been withdrawn. Applicant should take actions to bring reactor critical. Reactor will achieve criticality before reaching the -500 pcm rod height.

2.0 Conditions:

- Plant is in mode 3.
- All shutdown banks are withdrawn.
- Control banks A and B are withdrawn.
- Control bank C is at _____ steps.
- All steps of OS1000.07 are complete up to and including 4.3.
- Procedure is currently in step 4.4 (WITHDRAW control banks to criticality)

3.0 Standards:

Perform rod shims and monitor boration necessary to safely achieve criticality. Identify early criticality. Take necessary corrective actions for criticality prior to the -500 pcm point.

4.0 Student Materials:

Copy of the Tear-Off Sheet.
ECP and boration paperwork.
Procedure OS1000.07, "Approach to Criticality".

5.0 Limitations on performance:

The evaluator will function as the peer checker. The peer checker will only concur with the applicant and acknowledge his/her actions.

6.0 References:

OS1000.07, "Approach to Criticality".

Rod Control Detailed System Text

7.0 Setting

Simulator

7.0 Safety Considerations:

None

8.0 Approximate Completion Time:

10.0 Initial Cue

A. You were called in to take the place of a reactor operator that has been sent to the hospital due to sickness. You are to continue a reactor startup to criticality in accordance with OS1000.07, "Approach to Criticality".

B. Your task is to raise reactor power in accordance with OS1000.07 until you reach 10^{-8} amps on one of the intermediate range power channels.

C. Plant conditions:
The plant is in mode 3.
Control Bank 'C' is at _____ steps.

D. The ECP, boration, and 1/M calculation is available for you.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
1. P	Start time_____	Initiating cue read.			_____

CUE: The candidate should review the ECP, boration calculations and possibly the 1/M plot. Inform the applicant that reactor engineering is present performing the 1/M plot. Applicant will inform US of various steps through the procedure such as rod movements, start up rate and power level. The applicant may also request permission for reactivity additions. Acknowledge the candidate's statements as the US.

2.	S	Step 4.4.1 1/M plot verification	Asks for status of 1/M plot.
*3.	P	Step 4.4.6 Commence rod withdrawal of the control banks IAW 1007.01 step 4.3	Verifies all shutdown banks withdrawn and goes to OUT on the full length rod movement switch

Note: as rods are withdrawn, the RO will verify rod speed is 48 steps per minute and proper overlap is taking place when applicable. The RO will verify that the rods in the group are within 1 step of each other and that DRPI is within 12 steps of the group demand counter.

4.	P	Step 4.4.7 monitor nuclear instrumentation and do NOT exceed a STABLE start up rate of 1 decade per minute.	Does not achieve a stable SUR greater than 1 DPM during approach to criticality.

CUE: Acknowledge RO as he/she reports status of count level and rod position following Step 4.4.9.

5.	P	Step 4.4.9 STOP control bank withdrawal when the count rate doubles OR approximately every 50 steps, whichever occurs first.	Stops rod withdrawal at appropriate time. Verifies proper rod alignment and reports count level to be plotted on 1/M plot.

CUE : Give permission to RO to continue rod withdrawal when requested. Inform the applicant that the 1/M plot indicates that the control bank height at criticality will be above the rod insertion limit.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion.

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE

NOTE: The applicant will repeat step 4.4.9 until criticality or until a problem exists.

6.	P	Criticality is achieved.	Applicant declares criticality when with no rod motion there is a constant positive startup rate.
7.	P	Criticality is outside of +/- 500 pcm limit.	Applicant determines that the criticality was achieved outside of the allowed 500 pcm band. Goes to step 4.5.2.

CUE: When applicant informs shift supervision that criticality was achieved outside +/-500 pcm, **inform them: "The JPM is complete"**

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion.

PERFORMANCE SUMMARY

A. You were called in to take the place of a reactor operator that has been sent to the hospital due to sickness. You are to continue a reactor startup to criticality in accordance with OS1000.07, "Approach to Criticality".

B. Your task is to raise reactor power in accordance with OS1000.07 until you reach 10^{-8} amps on one of the intermediate range power channels.

C. Plant conditions:

The plant is in mode 3.
Control Bank 'C' is at _____ steps.

D. The ECP, boration, and 1/M calculation is available for you.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion.

JOB PERFORMANCE MEASURE WORKSHEET

JPM #2: TRANSFER SI TO COLD LEG RECIRCULATION (CBS-V14 FAILS)

ALTERNATE PATH

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 006A4.05 Ability to manually operate and monitor in the control room: Transfer of ECCS flowpaths prior to recirculation.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

JOB PERFORMANCE MEASURE WORKSHEET

1.0 Task Number and Description:

Position: RO

0050500601 Align RH For SI Recirculation, Cold Leg
0060500301 Transfer SI To Cold Leg Recirculation

2.0 Conditions:

A. A reactor trip with SI occurred from 100% power.
B. The US has transitioned through E-0 to E-1, and is ready to transition to ES-1.3.
C. RWST level is decreasing toward the RWST LEVEL LO-LO setpoint.

3.0 Standards:

A. Align ECCS equipment to the Cold Leg Recirculation Mode within the time limits specified in the body of this JPM. The time limits were determined in DCR 00-0013, "Manual Transfer to Cold Leg Recirculation Timing".

B.

4.0 Student Materials:

Copy of the Tear-Off Sheet.
Copy of ES-1.3, "Transfer To Cold Leg Recirculation", Rev. 19

5.0 Limitations On Performance:

Simulate/Perform all steps. Verbalize all actions to the evaluator.

6.0 References:

CR 01-07468-01 [DCR 00-0013, Manual Transfer to Cold Leg Recirculation Timing (Entire JPM)]

Procedures:

- ES-1.3, Transfer To Cold Leg Recirculation
- OGP-1, Control Switch Operation

Sys	KA	Description	Value RO/SRO
013	A1.06	Predict/monitor changes in RWST levels.	3.6/3.9
013	A1.08	Predict/monitor changes in Ctmt sump level.	3.7/3.8
013	A3.02	Monitor operation of actuated equipment.	4.1/4.2
013	A4.03	Manually operate ESFAS initiation.	4.5/4.7

7.0 Setting:

Simulator:

A. The simulator can be initialized to any mode 1 IC, or to a snapshot IC for the JPM.
B. Insert the following overrides to simulate inability to open CBS-V14.
   1. ON (CBS–V14 S signal reset lamp for RWST lo-lo, pg. PBF11)
   2. RESET (CBS-V14 S signal reset switch, pg. PBF11)
   3. CLOSE (CBS-V-14 control switch, pg. PBF12)
C. Insert the double-ended RCS Cold Leg malfunction.
D. Run the simulator while performing the following per E-0 and E-1:
   1. Trip RCPs.
   2. Reset SI.
   3. Throttle EFW.
   4. Shutdown both EDGs by stopping both, shutting SW-V16, and 18, resetting both diesels.
   5. Place the simulator in freeze when the RWST is approximately 130,000 gallons to ensure the automatic swap-over signal has not actuated.

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

20 minutes

10.0 Initiating Cue

A. Initial Conditions:

- A reactor trip with SI occurred from 100% power.
- The US has transitioned through E-0 to E-1, and is ready to transition to ES-1.3.
- RWST level has decreased to approximately 130,000 gallons.

B. You are the Primary Operator. You are going to transfer ECCS to the cold leg recirculation mode when we receive the RWST LEVEL LO-LO alarm.

C. Perform the task using ES-1.3, Transfer to Cold Leg Recirculation.

US to Primary Operator, **"Primary Operator (or student's name), let me know when we receive the RWST LEVEL LO-LO alarm, then you will transfer the Emergency Core Cooling System to Cold Leg Recirculation per ES-1.3."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE

This JPM is faulted - CBS-V14 fails to open. The student must use the RNO Column in Step 2 of ES-1.3. Under this condition, certain ES-1.3 actions have time limits that must be met to pass the JPM. The actions and time limits are:

1. **RH-P-8B & CBS-P-9B in PTL: ≤ 3 min. from "RWST LEVEL LO-LO" alarm actuation;**
2. **CBS-V2 & CBS-V5 CLOSED: ≤ 5 min. 48 sec. from "RWST LEVEL LO-LO" alarm actuation;**
3. **All CCPs and SIPs STOPPED: ≤ 11 min. from "RWST EMPTY" alarm actuation.**

NOTE: VERIFY THAT THE CONTROL SWITCH FOR CBS-V14 IS IN THE "AUTO" POSITION!

NOTE: Ensure that the person reading the procedure reads the caution prior to step 1 of ES 1.3 to the student.

1.	P	Start time: _____	Initiating cue read.	_____

CUE: If the student requests a Peer Check at any time during the JPM, respond: **"No one is available to peer check your actions. Please continue with the task".**

		"RWST LEVEL LO-LO" alarm actuation:	**Record time:**_____	
*2.	P	Reset SI.	*Verifies SI reset.	
*3.	P	Verify Containment sump recirc. valves - FULL OPEN:		
		• TRAIN A – CBS-V8	*• Verifies CBS-V-8 is open.	
		• TRAIN B – CBS-V14	*• Verifies CBS-V-14 is NOT open.	
		a. Perform RNO – manually open valves.	*a. Attempts to open CBS-V14.	
		b. If a valve cannot be fully opened then place corresponding RHR and CBS pumps in PTL.	*b. Places CBS-P-9B and RH-P-8B in PTL.	
		P-8B & P-9B in PTL	* **Time**	
			* **Δ Time**	**≤ 3 min.**
*4.	P	Simultaneously close RWST		

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
	suction valves.			
	• TRAIN A – CBS-V2	*• Closes CBS-V-2.		
	• TRAIN B – CBS-V5	*• Closes CBS-V-5.		
	CBS-V2 & V5 Fully Closed	* **Time**		
		* **Δ Time**	**≤ 5 min. 48 sec.**	

NOTE: If the RWST EMPTY alarm occurs prior to opening RH-V35 & 36, the student is expected to stop all pumps taking suction from the RWST (CCPs & SIPs). The student must leave the Train A RHR and CBS pumps running.

If the RWST EMPTY alarm does not actuate, the following two times are not applicable.

		"RWST EMPTY" alarm actuation	**Time**	
		All CCPs & SIPs stopped	* **Time**	
			* **Δ Time**	**≤ 11 min. after "RWST EMPTY"**
*5.	P	Align ECCS for Cold Leg recirculation:	Aligns ECCS for Cold Leg recirculation:	
		a. Verify RHR Pumps – at least one running.	*a. Verifies RH-P-8A running.	
		b. Place running RHR pump switches in NA-START.	*b. Places RH-P-8A switch in NA-START.	
		c. Close SI pump mini-flow valves: • SI-V89 • SI-V90 • SI-V93	*c. Closes: • SI-V89 • SI-V90 • SI-V93	
		d. Energize MCC-E522 and 622.	*d. Energizes MCC-522 and 622.	

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
	e. Close RH-V14, RHR discharge to cold legs 1 and 2.	*e. Closes RH-V-14.			
	f. Open SI and CCP suction cross-connects: • CS-V460 • CS-V461 • CS-V475	*f. Opens/ checks open: • CS-V460 • CS-V461 • CS-V475			
	g. Open RHR supplies to SI and CCP suctions: • RH-V35 • RH-V36	*g. Opens: * • RH-V35 • RH-V36 interlock with CBS-V14 keeps it shut.			
	h. Start any pump that was stopped due to RWST empty alarm.	*h. No action required since the empty alarm should not come in.			
*6. P	Isolate RWST feed to CCPs and SI pumps.	Isolates RWST feed to CCPs and SI pumps.			
	a. Close SI pump suction valves: • CBS-V47 • CBS-V51	*a. Closes: • CBS-V47 • CBS-V51			
	b. Close CCP suction valves: • CS-LCV-112D • CS-LCV-112E	*b. Closes: • CS-LCV-112D • CS-LCV-112E			
CUE:	**"The JPM is complete."**				
7.	Stop time Evaluator calculates time to complete task.	Time to complete the task ≤ 20 minutes.			_____

Tear-Off Sheet for Applicant

A. Initial Conditions:

- A reactor trip with SI occurred from 100% power.
- The US has transitioned through E-0 to E-1, and is ready to transition to ES-1.3.
- RWST level has decreased to approximately 130,000 gallons.

B. You are the Primary Operator. You are going to transfer ECCS to the cold leg recirculation mode when we receive the RWST LEVEL LO-LO alarm.

C. Perform the task using ES-1.3, Transfer to Cold Leg Recirculation.

A. The simulator can be initialized to any mode 1 IC, or to a snapshot IC for the JPM.

B. Insert the following overrides to simulate inability to open CBS-V14.

- ON (CBS–V14 S signal reset lamp for RWST lo-lo, pg. PBF11)
- RESET (CBS-V14 S signal reset switch, pg. PBF11)
- CLOSE (CBS-V-14 control switch, pg. PBF12)

C. Insert the double-ended RCS Cold Leg malfunction.

D. Run the simulator while performing the following per E-0 and E-1:

- Trip RCPs.
- Reset SI.
- Throttle EFW.
- Shutdown both EDGs by stopping both, shutting SW-V16, and 18, resetting both diesels.
- Place the simulator in freeze when the RWST is approximately 130,000 gallons to ensure the automatic swap-over signal has not actuated.

JOB PERFORMANCE MEASURE WORKSHEET

JPM #3: DEPRESSURIZE THE RCS DURING A NATURAL CIRCULATION COOLDOWN

ALTERNATE PATH

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 004A4.09 Ability to manually operate and monitor in the control room: PZR spray and heater controls.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

1.0 Task Number and Description:

Task number is N/A.

Applicant is to depressurize the RCS during a natural circulation cooldown in accordance with ES-0.2, "Natural Circulation Cooldown". The letdown system will fail/isolate forcing an alternate method of depressurization in the procedure. The JPM is complete when the applicant depressurizes the RCS to 1900 psig in accordance with step 8 of ES-0.2.

2.0 Conditions:

A. The crew is performing ES-0.2, "Natural Circulation Cooldown".
B. Steps 1-7 are complete or are in progress.
C. The reactor is tripped. RCPs are secured.
D. RCS pressure is 2300 psig.

3.0 Standards:

The applicant is to reduce RCS pressure to 1900 psig using both the auxiliary spray followed by using the PZR PORVs when the letdown system fails.

4.0 Student Materials:

- ES-0.2, "Natural Circulation Cooldown"
- OS1202.01, "Loss of Letdown"

5.0 Limitations on performance:

Peer checks will be performed by the examiner. A Peer check will only consist of an acknowledgement or concurrence of the action peer checked.

6.0 References:

Procedures

- ES-0.2, "Natural Circulation Cooldown"
- OS1202.01, "Loss of Letdown"

Detailed Systems

- CS
- PPLC

7.0 Setting

Simulator

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

15 minutes

10.0 Initial Cue

Initial Conditions:

- The crew is performing ES-0.2, "Natural Circulation Cooldown".
- Steps 1-7 are complete or are in progress.
- The reactor is tripped. RCPs are secured.
- RCS pressure is 2300 psig.

You are the primary reactor operator. The crew is cooling down and depressurizing the plant in accordance with ES-0.2, "Natural Circulation Cooldown". Steps 1-7 are complete. Your task is to complete step 8 of ES-0.2, "Depressurize RCS to 1900 PSIG".

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
1.	P	Start time	_____Initiating cue read.			_____
2.	P	Step 8.b. Turn PZR heaters OFF.	Turns all PZR heaters OFF.			
*3.	P	Step 8.c. Use auxiliary spray per ATTACHMENT A.	Lines up auxiliary spray IAW attachment A. Uses auxiliary spray to reduce RCS pressure. Place normal PZR spray valves controller(s) in manual and open normal PZR spray valves OPEN CS-V142, CHG TO REGEN ISO OPEN CS-V143, CHG TO REGEN ISO OPEN CS-V185, PZR AUX SPRAY Close normal charging loop isolation valves: CLOSE CS-V177 CLOSE CS-V180 Place CS-FK-121 in manual and charge at desired rate Control RCS pressure as follows: Throttle normal PZR spray valves, as necessary. Adjust charging flow, as necessary. Adjust seal injection			

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
		flow as necessary using CS-HCV-182.			

Note: When applicant completes spray lineup and initiates spray, letdown will be isolated and remains unavailable.

CUE: After applicant informs US of letdown isolation, inform applicant that letdown will remain unavailable for the remainder of the procedure.

5.	P	Blocks SI actuation before 1950 psig.	If pressure drops below 1950 psig then rises above 1950 psig, the SI PZR pressure block will have to be reset.

Note: the above step may be not applicable if PZR pressure does not rise above 1950 psig during the performance of this procedure.

*6.	P	WHEN auxiliary spray is no longer required, then perform the following:	OPEN desired normal charging loop isolation valve: OPEN CS-V177 OR OPEN CS-v180 CLOSE CS-V185, PZR AUX SPRAY Place CS-FK-121 in AUTO Close normal PZR spray valves as necessary.

CUE: the operator may not execute the RNO without instruction from the US. If required, allow the RO to inform you that letdown is isolated. If necessary, order the RO to reduce pressure to 1900 psig using the PZR PORV in accordance with the step 8 RNO column.

*7.	P	Step RNO 8.a. IF letdown can NOT be established, THEN use one PZR PORV.	Use one PZR PORV to reduce pressure to 1900 psig.

CUE: When pressure is reduced to 1900 psig using PZR PORVs, inform the applicant: **"The JPM is complete."**

Tear-Off Sheet for Applicant

Initial Conditions:

- The crew is performing ES-0.2, "Natural Circulation Cooldown".
- Steps 1-7 are complete or are in progress.
- The reactor is tripped. RCPs are secured.
- RCS pressure is 2300 psig.

You are the primary reactor operator. The crew is cooling down and depressurizing the plant in accordance with ES-0.2, "Natural Circulation Cooldown". Steps 1-7 are complete. Your task is to complete step 8 of ES-0.2, "Depressurize RCS to 1900 PSIG".

Establish plant conditions for the cooldown (post-trip). Snap the IC the first day of exam week for exam security reasons. Save the IC and password protect it.

IC: _____

When the applicant complete the auxiliary spray line-up and initiates spray, fail letdown isolation valve CS-V150.

Sim Diagram CS1

cpCSV150 AOV Fails Closed

JOB PERFORMANCE MEASURE WORKSHEET

JPM #4: MANUAL START AND LOAD OF EDG AFTER LOSS OF ALL AC POWER

ALTERNATE PATH

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 064A4.01 Ability to manually operate and monitor in the control room: local and remote operation of the EDG.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

1.0 Task Number and Description:

Task number is N/A.

Applicant is to restore power to at least one AC bus by restoring the 'A' EDG in accordance with ECA-0.0 step 5. Both EDGs will fail to start automatically. EDG 1B will not start under any circumstance. EDG 1A's output breaker will fail to close automatically upon manual start. EDG 1A will not be able to start via the emergency start pushbutton but will start with the normal start pushbutton. Charging pump CS-P-2A will fail to start automatically on restoration of bus E5.

2.0 Conditions:

- A loss of all AC power has occurred from 100% power.
- The reactor is tripped.
- Both EDGs have failed to automatically start.
- Steps 1-5.b of ECA-0.0 are complete.

3.0 Standards:

The applicant must get EDG 'A' started, shut it's output breaker, and restore all loads prescribed by ECA-0.0 step 5.

4.0 Student Materials:

- ECA-0.0, "Loss of All AC Power"

5.0 Limitations on performance:

Peer checks will be performed by the examiner. The only response given by the examiner in a peer check will be a simple acknowledgement or concurrence.

6.0 References:

- ECA-0.0, "Loss of All AC Power"

7.0 Setting

Simulator

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

20 minutes.

10.0 Initial Cue

Initial conditions:

- The plant was operating at 100% power.
- A loss of offsite power resulted in a plant trip.
- Both EDGs failed to start automatically.
- The crew is in ECA-0.0, "Loss of All AC Power".
- Steps 1 through 5.b have been completed.

Your task is to restore power to at least one emergency AC bus and restore vital loads in accordance with ECA-0.0 step 5.c-f.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
1. P	Start time: _____	Initiating cue read.		_____

Note: The applicant will begin by verifying at least one EDG is running. Neither EDG is running. The operator should enter the RNO column for step 5.c. EDG 'B' will not start under any circumstance.

2.	P	Start EDG 1B using the emergency start pushbutton.	Presses the emergency start pushbutton for EDG 1B. EDG 1B does NOT start.	
3.	P	Start EDG 1B using the normal start pushbutton.	Presses the normal start pushbutton for EDG 1B. EDG 1B does NOT start.	
4.	S	Calls NSO to attempt EDG 1B start using slave relay K603 using test switch S909 at SSPS.	Simulator operator simulates a FAILED attempt to start EDG 1B using relays.	

NOTE: the applicant may attempt to start EDG 1A before attempting the manual starts below, if so, skip to step 11.

CUE: Simulator operator to control room: **'EDG 1B did not start using test switch S909 at SSPS'**

5.	S	Calls diesel operator to start EDG 1B locally.	Simulator operator simulates a FAILED attempt to start EDG 1B using local control.	
6.	P	RO orders EDG operator to place EDG 1B generator breaker control selector switch in LOCAL.	CUE: simulator operator: Report when EDG 1B generator breaker control selector switch is in LOCAL.	
7.	P	RO orders EDG operator to depress EDG 1B ENGINE RESET PUSHBUTTON.	CUE: simulator operator: Report when EDG 1B ENGINE RESET PUSHBUTTON has been depressed.	
8.	P	RO orders EDG operator to	CUE: simulator	

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
	depress EDG 1B EMERGENCY START PUSHBUTTON	operator: Report when EDG 1B EMERGENCY START PUSHBUTTON has been depressed and that the diesel has NOT started.			
9. P	RO orders EDG operator to depress the TEST START pushbutton.	CUE: simulator operator: Report when the TEST START pushbutton has been depressed and inform control room that the diesel has not started.			
10. P	RO orders EDG operator to manually override main air start valve(s).	CUE: simulator operator: Report that the diesel did not start when the main air start valve(s) were opened.			

NOTE: At this point, all attempts to start EDG 1B have failed, applicant will try to start EDG 1A.

11.	P	Start EDG 1A using the emergency start pushbutton.	Presses the emergency start pushbutton for EDG 1A. EDG 1A does NOT start.		
*12.	P	Start the 'A' EDG using NORMAL start.	Applicant starts 'A' EDG using normal start pushbutton.		

Note: EDG 'A' starts but the output breaker does not shut.

*13.	P	Step 5.e.2 Diesel generator breaker – CLOSED - NO	Manually closes the 'A' EDG output breaker.		

Note: the operator should verify that the EPS is sequencing properly by observing the EPS status lights progress sequentially.

Simulator Operator: delete override for CS-P-2A when the applicant attempts to start pump manually.

*14.	P	Step 5.e.3 Verify the following equipment loaded. The 'A' CCP failed to start automatically.	Start CS-P-2A manually.		

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE

CUE: When emergency bus E5 is energized and step 5.f has been completed, inform the applicant **"The JPM is complete"**

Tear-Off Sheet for Applicant

Initial conditions:

- The plant was operating at 100% power.
- A loss of offsite power resulted in a plant trip.
- Both EDGs failed to start automatically.
- The crew is in ECA-0.0, "Loss of All AC Power".
- Steps 1 through 5.b have been completed.

Your task is to restore power to at least one emergency AC bus and restore vital loads in accordance with ECA-0.0 step 5.c-f.

Reset simulator to IC 100.

Failure of 'A' EDG to start automatically.

MFED031 DG1A AUTO START FAILURE
OVERRIDE DG1A EMERGENCY START PB TO RELEASE

Failure of 'B' EDG to start manually or automatically

MFED033 DG1B AUTO START FAILURE
OVERRIDE DG1B EMERGENCY START PB TO RELEASE
OVERRIDE DG1B NORMAL START SWITCH TO NORMAL

Failure of CS-P-2A to start automatically

MFCS001 CS-P-2A FAILS TO AUTO START
MFEPS001 EPS TRAIN A PR1 DOES NOT ENERGIZE
NFEPS002 EPS TRAIN A PR1X DOES NOT ENERGIZE

Simulator operator is to act as NSO when locally starting the EDGs as written in the Performance Checklist.

Delete OVERRIDE on CS-P-2A when operator attempts to start pump manually.

JOB PERFORMANCE MEASURE WORKSHEET

JPM #5: START HYDROGEN RECOMBINERS

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: _028A4.01 Ability to operate and monitor in the control room: HRPS controls.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

1.0 Task Number and Description:

Position: RO

0280500201 Start 'A' H_2 Recombiner From The Main Control Room.

2.0 Conditions:

This JPM can be implemented with any plant conditions such that the electric plant can support operation of the recombiners.

3.0 Standards:

Place a hydrogen recombiner in service.

4.0 Student Materials:

Copy of the Tear-Off Sheet.
Copy of OS1023.40, Hydrogen Recombiner Operation, Rev. 7, Chg. 1.
Calculator.

5.0 Limitations On Performance:

Simulate/Perform all steps. Verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6.0 References:

Procedures:

- FR-C.1, Response To Inadequate Core Cooling.
- OS1023.40, Hydrogen Recombiner Operation.
- OGP-1, Control Switch Operation.

Technical Specifications:

- 3.6.4.2, Combustible Gas Control - Electric Hydrogen Recombiners

Sys	KA	Description	Value RO/SRO
2.1	2.1.23	Ability to perform specific system and integrated plant procedures during all modes of operation.	3.9/4.0
2.1	2.1.21	Ability to obtain and verify controlled procedure copy.	3.1/3.2
2.1	2.1.20	Ability to execute procedure steps.	4.3/4.2
2.1	2.1.31	Ability to locate control room switches, controls, and indications, and determine that they are correctly reflecting the desired plant lineup.	4.2/3.9

7.0 Setting:

Simulator: Any IC may be used. **Perform** this JPM on the back of the MCB at the recombiner control panel. The **simulator must be in RUN** to allow the PWR OUT meter to respond to the potentiometer.
Verify the "PWR OUT" potentiometer is at MINIMUM prior to beginning the JPM.

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

20 minutes

10.0 Initial Cue:

US to Secondary Operator, **"Secondary Operator (or student's name), we are in FR-C.1, and containment hydrogen concentration is presently 3.4%. Place Hydrogen Recombiner 'A' in service per OS1023.40, Hydrogen Recombiner Operation. Report to me when the recombiner is in service.**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
1. P	Start time: _____	Initiating cue read.			_____

CUE: If the student request a Peer Check at any time during the JPM, respond: **"No one is available to peer check your actions. Please continue with the task".**

NOTE: **Place the Simulator in RUN.**

NOTE: If asked by the student, **"The electrical lineup has been completed".**

CUE: When student checks light, evaluator to student, **"The light is energized."**

2.	S	Verify the white PWR. IN AVAIL. light is energized.	Verifies the PWR. IN AVAIL. light is energized.	____	____	_____
3.	P	Set the PWR. ADJ. potentiometer to zero.	Turns PWR ADJ pot to 000.	____	____	_____
*4.	P	Place the PWR. OUT SW. switch to the ON position and VERIFY that the red light on the switch plate comes on.	* • Moves switch to ON position.	____	____	_____
			• Verifies the red light is on.	____	____	

CUE: **AT EACH POWER LEVEL, INFORM THE OPERATOR THE STATED TIME HAS ELAPSED**

*5.		Energize the Hydrogen Recombiner heater by PERFORMING the following:	Energizes the recombiner:			_____
	P	a. TURN the PWR. ADJ. Potentiometer clockwise until 5 kW is indicated on the PWR. OUT meter. MAINTAIN the 5 kW value for at least 10 minutes.	*a. Turns the PWR ADJ pot clockwise until 5 kW is indicated. Maintain 5 kW for 10 minutes.	____	____	
	P	b. TURN the PWR. ADJ. Potentiometer clockwise until 10 kW is indicated on the PWR. OUT meter. MAINTAIN the 10 kW value for at least 10 minutes.	*b. Turns the PWR ADJ pot clockwise until 10 kW is indicated. Maintain 10 kW for 10 minutes.	____	____	

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
P	c. TURN the PWR. ADJ. Potentiometer clockwise until 20 kW is indicated on the PWR. OUT meter. MAINTAIN the 20 kW value for at least 5 minutes.	*c. Turns the PWR ADJ pot clockwise until 20 kW is indicated. Maintain 20 kW for 5 minutes.	____ ____	
P	d. DETERMINE the recombiner power setting per Form A, Power Out Setpoint Calculation.	d. Refers to Form A.	____ ____	
P	e. Calculate the H_2 recombiner power setpoint by performing the following:	e. Determines power setting:		

CUE: When the student locates any of the required pressure instruments, cue the student: **"Containment pressure is 4 psig."**

• DETERMINE the current containment pressure from SI-PI-934 or SI-PI-935, MCB containment pressure indicators.	• Determines the current cntmnt pressure from SI-PI-934 or 935.	____ ____	
• Current Containment Pressure + 14.7 psi = psia	* • Converts cntmnt pressure to psia and records on data sheet (= 18.7 psia).	____ ____	
• Pre-accident Containment Average Temperature is 120°F.	• No action required.		
• Using containment absolute pressure, pre-accident containment average temperature and Figure 2, Recombiner Power Correction Factor Curve determine the Pressure Factor (C_p).	* • Determines C_p and Records on data sheet - (C_p = 1.17 - 1.20). Enter student C_p value: C_p =_____	____ ____	

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
	• MULTIPLY the Pressure Factor (C_p) by Reference Power (45.24 kW). (C_p) x 45.24 = Power Setting kW	* • Multiplies C_p by the reference power. Records on data sheet - (52.9 – 54.3 kW). Enter student kW value: KW =_____	_____ _____	

CUE: If the student requests a second person verification, respond: **"For the purpose of this evaluation, a second verification will not be performed. Please continue with the procedure."**

	• Have a second person VERIFY the power setting calculation.	• Requests second person verification.	_____ _____	
P	f. Turn the PWR. ADJ. potentiometer clockwise until the power setpoint, as calculated in Step 4.2.4.4, is indicated on the PWR OUT meter.	*f. Turns the PWR ADJ pot clockwise until the power setpoint is indicated on the PWR OUT meter.	_____ _____	

CUE: When student mentions that conference with the TSC is necessary to determine recombiner effectiveness, inform the student, **"The STED is aware of this and in contact with the TSC on this matter."**

P	g. CONFER with the TSC to determine recombiner effectiveness and the need to make adjustments to recombiner power.	g. Attempts to confer with the TSC.	_____ _____	

CUE: **"The JPM is complete."**

6.	Stop time Evaluator calculates time to complete task.	Time to complete the task ≤ 20 minutes.		_____

Tear-Off Sheet for Applicant

US to Secondary Operator, **"Secondary Operator (or student's name), we are in FR-C.1, and containment hydrogen concentration is presently 3.4%. Place Hydrogen Recombiner 'A' in service per OS1023.40, Hydrogen Recombiner Operation. Report to me when the recombiner is in service.**

Reset the simulator to any convenient IC.

JOB PERFORMANCE MEASURE WORKSHEET

JPM #6: POWER RANGE NI FAILURE

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: _015A2.01 Ability to predict the impacts of the following malfunctions on the NIS and use procedures to mitigate , control, or correct the consequences of those malfunctions: power supply loss or erratic operation.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date: _____

1.0 Task Number and Description:

Position: RO

0150402101 Electronically Remove A Failed NI Detector

2.0 Conditions:

A. Plant is in mode 1 at 100% power.
B. The US entered OS1211.04, Power Range NI Instrument Failure, in response to channel N42 failing high.

3.0 Standards:

Remove NI channel N42 from service per OS1211.04.

4.0 Student Materials:

A. Copy of the Tear-Off sheet.
B. Copy of OS1211.04, Power Range NI Instrument Failure, Rev. 9, Chg. 1.

5.0 Limitations on performance:

Simulate/Perform all steps. Verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6.0 References:

Procedures:

OS1211.04, Power Range NI Instrument Failure
OGP-1, Control Switch Operation

Technical Specifications:

3.3.1 RX Trip System Instrumentation
3.2.4 QPTR

Drawings:

1-NHY-509043, 509044 NI Functional Diagrams

Sys	KA	Description	Value RO/SRO
015	A1.04	Quadrant power tilt ratio.	3.5/3.7
015	A2.02	Faulty operation.	3.1/3.5
015	A4.01	Selection of controlling NIS channel.	3.6/3.6
015	A2.01	Power supply loss or erratic operation.	3.5/3.9

7.0 Setting:

Simulator

A. Initialize the simulator to a 100% power IC. Place the simulator in RUN.

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

15 minutes

10.0 Initiating Cue:

Initial conditions:

- The plant is at 100% power.
- Power range channel, NI-42, has failed.
- The US entered OS1211.04, "Power Range NI Instrument Failure", in response to channel N42 failing high.

US to applicant: "Reactor operator, remove power range channel N42 from service in accordance with OS1211.04,"Power Range NI Instrument Failure".

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
1. P	Start time	_____Initiating cue read.			_____

CUE: **If the student requests a Peer Check at any time during the JPM, respond: "No one is available to peer check your actions. Please continue with the task".**

CUE: **If the student asks if electrical load is decreasing, the US should respond that it is not.**

*2.	P	Check Power Range Channel - FAILED HIGH.	Reports NI-42 failed high.	____	____	_____
		a. Place rod control in Manual.	a. Verifies rods in Manual.	____	____	
		b. Select Rod Stop Bypass switch - TO FAILED CHANNEL	*b. Selects N42 on the rod stop bypass switch.	____	____	
		c. Check T_{avg} - within 1°F Of T_{ref}. • If $T_{avg} > T_{ref}$ by more than 1°F, manually control rod motion or turbine load to restore temperature.	c. Checks/Controls T_{avg} within 1°F of T_{ref}.	____	____	
*3.	P	Bypass The Failed Power Range Channel:	Bypasses the failed channel:			_____
		a. Select the following NI cabinet switches to the failed channel (N42):	a. Positions switches as follows:			
		• Upper Section Detector Current Comparator switch.	* • Selects N42 on the upper section detector current comparator switch.	____	____	
		• Lower Section Detector Current Comparator switch.	* • Selects N42 on the lower section detector current comparator switch.	____	____	
		• Power Mismatch Bypass switch.	* • Selects N42 on the power mismatch bypass switch.	____	____	
		• IF NOT selected	• Verifies N42	____	____	

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
	previously, Rod Stop Bypass switch.	selected on the rod stop bypass switch.			
	• Comparator Channel Defeat switch to N42.	* • Selects N42 on the comparator channel defeat switch.	____	____	
	b. Trip affected channel bistables				
	1) Verify redundant channel bistables - NOT TRIPPED.	* 1) Verifies and reports redundant channel bistables - NOT TRIPPED for N41, N43, N44	____	____	
	UL-6 - RCS Loop OTΔT PR High TRIP PR HIGH RATE TRIP If power is less than P-10: POWER RANGE LOW TRIP	• RCS Loop OTΔT • PR High Trip • PR High Rate Trip			
	2) Remove control power fuses for affected power range channel.	* 2) Removes N42 control power fuses.	____	____	
CUE:	**"The JPM is complete."**				
4.	Stop time Evaluator calculates the time to complete the task.	Time to complete the task ≤ 15 minutes.			____

Tear-Off Sheet for Applicant

Initial conditions:

- The plant is at 100% power.
- Power range channel, NI-42, has failed.
- The US entered OS1211.04, "Power Range NI Instrument Failure", in response to channel N42 failing high.

US to applicant: "Reactor operator, remove power range channel N42 from service in accordance with OS1211.04,"Power Range NI Instrument Failure".

Reset the simulator to a 100% power IC.

Fail the power range channel NI-42 to 120%

MFNI002 value: 120

JOB PERFORMANCE MEASURE LOIT #01 Rev. 01

RWST BLENDED MAKEUP CALCULATION AND PERFORMANCE

Student Name: _____ Badge #: _____

Evaluator Name: _____ Badge #: _____

Student Signature: _____ Date: _____
(optional)

Evaluator Signature: _____ Date: _____

Training Coordinator Signature: _____ Date: _____

SAT UNSAT

This JPM was administered for qualification: NO

PREPARED BY: _____ DATE: _____
INSTRUCTOR

REVIEWED BY: _____ DATE: _____
SUBJECT MATTER EXPERT (OPTIONAL)

APPROVED BY: _____ DATE: _____
TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1.0 Task Number and Description:

Position: RO
0040100601 Perform a boron change calculation
0040103401 Operate the CVCS to makeup to the RWST

2.0 Conditions:
A manual makeup to the RWST is required due to normal system usage. The present RWST born concentration is 2735 ppm.

3.0 Standards:

A. Calculate the required flow controller and totalizer setpoints for a 1000 gallon manual blended makeup to the RWST.

B. Perform a blended makeup to the RWST.

4.0 Student Materials:

Copy of the Tear-Off Sheet
RS1735, REACTIVITY CALCULATIONS
OS1008.01, CVCS MAKEUP OPERATIONS

5.0 Limitations on performance:

Perform all steps. Verbalize all actions to the evaluator.

6.0 References:

Procedures:

RS1735, REACTIVITY CALCULATIONS
OS1008.01, CVCS MAKEUP OPERATIONS

Sys	KA	Description	Value RO/SRO
004	A4.04	Calculation of boron concentration changes	3.2 / 3.6
004	A4.12	Boration / dilution batch control	3.8 / 3.3

7.0 Setting:

Simulator

A. Initialize the simulator to any available, stable, at power IC.

Note to Evaluator - Obtain Tear-Off sheets from student following JPM completion.

8.0 Safety Considerations:

None

9.0 Approximate Completion Time:

20 minutes

10.0 Directions to the Student:

Evaluator gives Tear-Off sheet to the student.
Evaluator reads the following to the student (Optional for multiple JPMs).

Student

1. Ensures task is done correctly.
2. May be asked follow-up questions to confirm knowledge of task.

A. You are the Primary Operator.

B. The following information is provided to you:

1. A manual makeup to the RWST is required due to normal system usage.
2. The RWST boron concentration is 2735 ppm.
3. The boron concentration of both BASTs is 7200 ppm.

C. **(NA for NRC Exam)**
The performance must meet the following standard:

1. Calculate the required flow controller and totalizer setpoints for a 1000 gallon manual blended makeup to the RWST.
2. Perform a blended makeup to the RWST.

D. **(NA for NRC Exam)**
Perform the task using RS1735, REACTIVITY CALCULATIONS and OS1008.01, CVCS MAKEUP OPERATIONS.

E. **(NA for NRC Exam)**
To perform the task successfully, you must perform all critical steps correctly and verbalize all your actions to the evaluator. Practicing STAR techniques and using the station communication standard will safeguard successful completion of the task.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion (Ops only).

F. **(NA for NRC Exam)**
During the course of the walk-through examination, there may be some tasks you will be asked to perform that may require you to implement an alternative method directed by plant procedures in order to complete the assigned task. You are expected to make decisions and take actions based on the facility's procedural guidance and the indications available.

G. **(NA for NRC Exam)**
Failure to perform a critical element within the prescribed standard will result in a failure of the task.

H. **(NA for NRC Exam)**
I will inform you when the JPM is complete.

I. **(NA for NRC Exam)**
We will begin after the "Initiating Cue" is read.

J. I am the US in the control room. I will provide the cues and communications for this JPM. Do you have any questions?

11.0 Initiating Cue:

US to Primary Operator, **"Primary Operator, (or student's name) determine the required flow controller and totalizer setpoints for a 1000 gallon blended makeup to the RWST. When you have completed your calculations makeup to the RWST at a flowrate of 75 gpm for a total of 1000 gallons".**

.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion (Ops only).

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP • denotes a critical step	STANDARD * denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
1.	Start time _____	Initiating cue read.		_____
*2. P	Complete Worksheet (Form RS1735B Part 2)	Gets copy of RS1735B, Part 2.		_____
		a. ENTERS Name/Date	____ ____	
		b. ENTERS C_{MU} (current RWST boron concentration - 2735 ppm)	____ ____	
		c. ENTERS F_{TOT} (Total MU flowrate = 75 gpm)	____ ____	
		d. ENTERS C_{BAST} (7200 ppm)	____ ____	
		*e. CALCULATES F_{BA} (28.5 GPM ± 2 gpm)	____ ____	

NOTE: Student may set boric acid supply counter and total flow counter at any time before turning the BLENDER MODE START SWITCH to start.

NOTE: Boric acid counter setting may be computed by various methods. One is (F_{BA}/F_{TOT}) X total gallons.

*3.	P	Manual Blend MU to RWST		_____
			*a. SETS CS-FK-110 (F_{BA} value) to 28.5 ± 2 gpm.	____ ____
			*b. SETS boric acid supply counter to 380 gallons.	____ ____

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion (Ops only).

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
		*c. SETS CS-FK-111 (F_{TOT} value to 75 (± 5 gpm).	____ ____	
		*d. SET total flow counter to 1000 gallons.	____ ____	

NOTE: Simulator Operator must open CS-V444/446 using Remote Function **CS005**

Instructor CUE: NSO to Primary Operator ,"**CS-V444 and CS-V446 have been opened".**

			*e. CONTACTS primary NSO to open CS-V444 in Boric Acid tank room.	____ ____	
			*f. CONTACTS NSO to open CS-V446 in Boric Acid tank room.	____ ____	
			g. TURNS Blender Mode Start Switch to STOP.	____ ____	
			*h. TURNS Boric Acid Blender Mode Selector Switch to MANUAL.	____ ____	
			*i. TURNS Blender Mode Start Switch to START.	____ ____	
4.	P	VERIFY response	CHECKS the following:		____
			Boric acid and total MU flowrates match their selected values.	____ ____	

NOTE: The JPM can be considered complete when a 75 gpm flowrate is established with the correct boric acid flowrate. Evaluator may CUE student that total flow counter has reached 1000 gallons.

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion (Ops only).

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
5. P	Blender to OFF	Verifies Makeup System shutdown when totalizer reaches 1000 gallons. PLACES the Boric Acid Blender Mode Selector Switch To OFF.	____ ____	_____
CUE:	The JPM is complete.			
6.	Stop time _____	Start time minus stop time ≤ 20 minutes.		_____

Note to Evaluator - Obtain Tear-Off Sheets from student following JPM completion (Ops only).

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

QUESTION: LOIT #1 follow up question 1	TIME:

Answer with the aid of reference materials.

The Unit Supervisor notices that the main plant computer point for RCS unidentified leakage indicates 0.32 gpm. He asks you to perform a manual steady state leak rate calculation to confirm that value. The following information is provided to you:

The VCT chart level recorder shows a level decrease from 50% to 47.5% in 8 hours. The operating crew has diluted a total of 75 gallons during that time. TAVG and PZR level have been stable at 587 degrees and 61% respectively. PRT and RCDT level have not changed over the 8 hour period.

ANSWER:

Refer to OX1401.02B, manual leak rate calculation – answer key attached

SYS:	KA:	DESCRIPTION:	VALUE:
004	A1.06	VCT level	3.0/3.2

REFERENCE:

OX1401.02, RCS Steady State Leak Rate Calculation.

Previous

RESPONSE COMMENTS:	SAT (=70%) UNSAT

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

QUESTION: LOIT #1 follow up question 2	TIME:
Answer without the aid of reference materials The plant is in MODE 1. Chemistry has just reported to you that the RWST boron concentration is 2695 ppm. What action is required by Technical Specifications?	

ANSWER:

The RWST is INOPERABLE. Tech Spec minimum is 2700 ppm. Restore it to an OPERABLE condition in 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 30 hours.

SYS:	KA:	DESCRIPTION:	VALUE:
004	A2.27	Improper RWST boron concentration	3.5/4.2

REFERENCE:

Technical Specification 3.1.2.6
Previous

RESPONSE COMMENTS:	SAT (=70%) UNSAT

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

QUESTION: LOIT #1 follow up question 2

Answer without the aid of reference materials

The plant is in MODE 1. Chemistry has just reported to you that the RWST boron concentration is 2695 ppm.

What action is required by Technical Specifications?

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

QUESTION: LOIT #1 follow up question 1

Answer with the aid of reference materials.

The Unit Supervisor notices that the main plant computer point for RCS unidentified leakage indicates 0.32 gpm. He asks you to perform a manual steady state leak rate calculation to confirm that value. The following information is provided to you:

The VCT chart level recorder shows a level decrease from 50% to 47.5% in 8 hours. The operating crew has diluted a total of 75 gallons during that time. TAVG and PZR level have been stable at 587 degrees and 61% respectively. PRT and RCDT level have not changed over the 8 hour period.

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

Directions to the Student:

Evaluator gives Tear-Off sheet to the student.
Evaluator reads the following to the student (Optional for multiple JPMs).

Student

1. Ensures task is done correctly.
2. May be asked follow-up questions to confirm knowledge of task.

A. You are the Primary Operator. You are going to calculate and perform a 1000 gallon blended makeup to the RWST.

B. The following information is provided to you:

1. A manual makeup to the RWST is required due to normal system usage.
2. The RWST boron concentration is 2735 ppm.
3. The boron concentration of both BASTs is 7200 ppm.

C. I am the US in the control room. I will provide the cues and communications for this JPM. Do you have any questions?

11.0 Initiating Cue:

US to Primary Operator, "Primary Operator, (or student's name) determine the required flow controller and totalizer setpoints for a 1000 gallon blended makeup to the RWST. When you have completed your calculations makeup to the RWST at a flowrate of 75 gpm for a total of 1000 gallons".

Note to Evaluator - Obtain Tear-off sheets from student following JPM completion.

FOLLOWUP QUESTIONS

JPM UPDATE

JPM Number: LOIT #01 Reviewed By: _____

Title: RWST BLENDED MAKEUP CALCULATION & PERFORMANCE Date: _____

Revision: 00

Item #	Comment	Initials	Action Taken	Initials	Date	Review
1.	Initial Issue	TCC	Validated for LOUT 96 exam	TCC	9/25/96	
2.	Modified as required to reflect Rev. 2 of the KA Catalog. Minor formatting changes.	SWK				
3.			Revised JPM per NRC request to minimize instructions read to student, identify evaluator / instructor cues, note that JPM is faulted on cover and in body, incorporated followup questions, (with tear-off) into JPM.	SWK	10/13/98	

Attachment 2

JOB PERFORMANCE MEASURE WORKSHEET

JPM #8: MANUAL OPERATION OF RHR TCV FOR MID-LOOP OPERATIONS

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 005K4.02, K4.03 Knowledge of RHRS design features and/or interlocks which provide for modes of operation, RHR heat exchanger bypass flow control.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

1.0 Task Number and Description:

Position: NSO

1150101004 Position Any Valve

2.0 Conditions:

A. The Plant is in mode 6 with fuel in the vessel.
B. In preparation for installing SG nozzle dams, Complex Procedure OS1000.12, "Operation With The RCS At Reduced Inventory/Midloop Conditions", is being used to drain the RCS to mid-loop.
C. All Prerequisites of OS1000.12 are complete, and RHR train A is in service.
D. OS1000.12 is completed through step 6.1.11.2.

3.0 Standards:

Simulate manually blocking RH-HCV-606 per OS1000.12.

4.0 Student Materials:

Copy of the Tear-Off sheet
Copy of OS1000.12, "Operation with The RCS At Reduced Inventory/Midloop Conditions", Revision 3, Change 11, pages 18 through 21.
Wrench to operate the 1 ¼-inch jam nut. (Simulate obtaining from the Tool Crib.)
Flashlight

5.0 Limitations on performance:

Simulate all steps. Verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6.0 References:

OS1000.12, "Operation With The RCS At Reduced Inventory/Midloop Conditions", Rev.3, Chg.9.

Sys	KA	Description	Value RO/SRO
2.1	2.1.20	Ability to execute procedure steps.	4.3/4.2
078	K3.02	Loss of IAS on systems having pneumatic valves and controls.	3.4/3.6
2.1	2.1.30	Ability to locate and operate components, including local controls.	3.9/3.4
005	K3.01	RCS.	3.9/4.0

7.0 Setting:

In plant: -25 ft elevation, A RHR vault stairwell (B RHR vault stairwell).

8.0 Safety Considerations:

JPM is in RCA.

Review HP radiological maps/postings prior to entry. NRC examiners should enter RCA under RWP 4 task 1.

There is a posted area in the RHR Vault stairway with radiation levels near 25mrem/hr.

9.0 Approximate Completion Time:

15 minutes

10.0 Directions to the Student:

Initial Conditions:

- The Plant is in mode 6 with fuel in the vessel.
- In preparation for installing SG nozzle dams, Complex Procedure OS1000.12, Operation With The RCS At Reduced Inventory/Midloop Conditions, is being used to drain the RCS to mid-loop.
- All Prerequisites of OS1000.12 are complete, and RHR train A is in service.
- OS1000.12 is completed through step 6.1.11.2.

You are the Primary NSO. You are going to manually gag RH-HCV-606, Train A temperature control to limit fail open flow rate to 3500 gpm.

US to Primary Operator, **"Primary Operator (or students name), train A RHR flow has been stabilized at 3500 gpm in accordance with OS1000.12, step 6.1.11.2. Complete section 6.1.11 and report when the required actions are complete."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
1. P	Start time	_____ Initiating cue read.		_____

CUE: If the student request valve location from the control room, **"RH-HCV-606 is located on the (-)25 ft elevation, A vault, northwest corner by stairs. "**

CUE: If the student requests a Peer Check at any time during the JPM, respond: **"No one is available to peer check your actions. Please continue with the task".**

*2.	S	Prepare RH-HCV-606 handjack for operation.	Simulates preparing handjack for operation.	_____

CUE: If the student contacts the control room for permission to unlock the handjack, **"You have permission to unlock RH-HCV-606."**

CUE: When student simulates unlocking the lock, **"The lock unlocks."**

a. Unlock handjack	a. Using Best key from NSO key ring, simulates unlocking the handjack for RH-HCV-606.	____	____

CUE: When student simulates turning the jam nut in the counter clockwise direction, **"The nut backs off."**

NOTE: The jam nut may be finger tight which would eliminate the requirement for using a wrench in the next step.

b. Back off jam nut	*b. Simulates turning the jam nut counter-clockwise.	____	____

Initial Conditions:

- The Plant is in mode 6 with fuel in the vessel.
- In preparation for installing SG nozzle dams, Complex Procedure OS1000.12, Operation With The RCS At Reduced Inventory/Midloop Conditions, is being used to drain the RCS to mid-loop.
- All Prerequisites of OS1000.12 are complete, and RHR train A is in service.
- OS1000.12 is completed through step 6.1.11.2.

You are the Primary NSO. You are going to manually gag RH-HCV-606, Train A temperature control valve to limit fail open flow rate to 3500 gpm.

US to Primary Operator, **"Primary Operator (or students name), train A RHR flow has been stabilized at 3500 gpm in accordance with OS1000.12, step 6.1.11.2. Complete section 6.1.11 and report when the required actions are complete."**

JOB PERFORMANCE MEASURE WORKSHEET

JPM #9: LOCAL EDG NORMAL START AND LOAD

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 2.4.35 Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date: _____

1.0 Task Number and Description:

Position: NSO

0640400204 Locally Start And Load An EDG.

2.0 Conditions:

A. The plant is in mode 5.
B. DG 1B is being locally started and loaded for post-maintenance testing.
C. Precautions 3.1 - 3.3, 3.7, 3.8, 3.12, 3.20 and 3.21 of OS1026.09are satisfied.
D. All prerequisites of OS1026.09 are satisfied.
E. The pre-start logs were completed 15 minutes ago by another NSO.

3.0 Standards:

Simulate a local start of DG 1B and parallel it to bus E-6.

4.0 Student Materials:

Copy of the Tear-Off Sheet.
Copy of OS1026.09, Operation Of DG 1B, Rev. 8, Chg. 22.

5.0 Limitations On Performance:

Simulate all steps, and verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6.0 References:

Procedures / Good practices:

- OS1026.09, Operation Of DG 1B.
- OGP-1, Control Switch Operation

Detailed Systems:

- EDM
- EDE

Technical Specifications:

- 3.8.1.1, AC Sources Operating
- 3.8.1.2, AC Sources Shutdown

Drawings:

- EDE: 1-NHY-310102
- DG: 1-NHY-310857

Sys	KA	Description	Value RO/SRO
2.4	2.4.35	Knowledge of local auxiliary operator tasks during emergency operations including.	3.3/3.5

7.0 Setting:

"B" EDG Room.

8.0 Safety Considerations:

High noise area.
DO NOT OPERATE any controls since the potential for an inadvertent ESF actuation exists.

9.0 Approximate Completion Time:

20 minutes

10.0 Directions To The Student(s):

Initial Conditions:

1. The plant is in mode 5.
2. DG 1B is being locally started and loaded for post-maintenance testing.
3. All applicable Precautions of OS1026.09 are satisfied.
4. All prerequisites of OS1026.09 are satisfied.
5. The pre-start logs were completed 15 minutes ago by another NSO.

You are a spare NSO. You are going to simulate the local NSO actions required to start and parallel DG 1B to bus E-6.

US to Spare NSO, **"Spare NSO (or student's name), simulate local starting and paralleling of DG 1B IAW OS1026.09 starting at step 4.2.2. Operate the EDG in AUTO voltage control. Desired load is 5500 kW ± 500 kW. The ROVER has completed step 4.2.1. The DG 1B pre-start logs are complete and satisfactory."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
1.	P	Start time	Initiating cue read.			_____

CUE: If the student requests a Peer Check at any time during the JPM, respond: **"No one is available to peer check your actions. Please continue with the task."**

CUE: Evaluator to NSO, **"The DG breaker control switch is in REMOTE."**

NOTE: NSOs carry keys. Student may simulate having and placing a key in the switch.

*2.	S	Place DG breaker control selector switch to LOCAL.	Simulates placing the breaker control SS to local: *a. Place key in breaker switch. *b. Rotate SS to local.

CUE: Control Room to NSO, **"We show that DG 1B is in LOCAL."**

CUE: Evaluator to NSO, **"The voltage regulator mode selector switch is in AUTO."**

3.	S	Place the voltage regulator mode selector switch in AUTO.	Verifies the voltage regulator mode SS in AUTO.

CUE: Evaluator to NSO, **"The manual voltage regulator switch is pulled out in the TRACK position."**

4.	S	Check the manual voltage regulator switch pulled out in the TRACK position.	Verifies the manual voltage regulator switch pulled out in TRACK.
*5.	S	Press both EMERGENCY STOP push-buttons at the same time to prevent an uncontrolled diesel start after reset.	Simulates pushing both EMERGENCY STOP push-buttons.
6.	S	Notify local personnel of loud noise due to venting high-pressure air.	Notifies local personnel of venting high-pressure air.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE

CUE: When the engine reset button is pressed, the air shutdown relay resets and produces a **"whoosh."**

*7.	S	Press the ENGINE RESET push-button.	Simulates resetting the diesel engine.
8.	S	Check DG-P-227B off prior to starting the DG.	Checks the rocker arm pre-lube pump off.

NOTE: If ENGINE RESET is not pushed, the DG will not start.

*9.	S	Press the TEST START push-button.	Simulates starting the diesel engine.

CUE: Evaluator to NSO, **"The engine starts. Output is 59.5 Hz and 4,190 AC volts."**

10.	S	Check DG 1B comes up to rated frequency and voltage, 60 Hz (58.8 to 61.2 Hz) and 4,160 volts (3,740 to 4,580 volts).	Checks DG 1B at rated frequency and voltage.

CUE: The student should not ask, about manually flashing the field since both voltage and frequency are indicated and normal. If asked, restate that **"frequency is 59.5 Hz & voltage is 4,190 VAC."**

CUE: Control room to NSO, **"SW-V18 is open and FI-6191 indicates 1840 gpm."**

11.	S	At the MCB, check SW-V-18 – OPEN.	Contacts the control room and asks them to verify SW-V-18 open.
12.	S	At the MCB, check SW flow to DG 1B greater than: • 900 gpm – on ocean • 1800 gpm – on cooling tower	Checks SW flow > 1,800 gpm.

CUE: When asked, evaluator to NSO, **"The bus E-6 synchronizing switch is in OFF."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT	EVALUATION UNSAT	INITIALS/DATE
*13. S	Place the bus E-6 synchronizing switch to - DG TO BUS.	Simulates placing the SNS to DG TO BUS.			

CUE: After SNS is positioned to DG TO BUS, evaluator to NSO, **"Bus E-6 incoming volts is 130 volts; bus E-6 running volts is 120 volts. The synchroscope is rotating CCW slowly; the lights go out at 12 o'clock and are bright at 6 o'clock."**

NOTE: The DG is read on the incoming meter, and the bus is read on the running meter. Therefore, the incoming meter rises when the student RAISES on the voltage regulator, and conversely, the incoming meter lowers when student LOWERS on voltage regulator.

*14.	S	Adjust DG 1B voltage so that bus E-6 INCOMING VOLTS and RUNNING VOLTS match.	Simulates matching INCOMING VOLTS to RUNNING VOLTS.

CUE: If speed is raised, evaluator to NSO, **"The synchroscope needle slows, stops and begins to rotate clockwise."**

If speed is lowered, evaluator to NSO, **"The synchroscope needle speeds up in the CCW direction."**

*15.	S	Adjust engine speed until the SYNCH meter rotates slowly in the fast direction.	Simulates adjusting speed until the SYNCH meter rotates CW slowly.

Initial Conditions:

- The plant is in mode 5.
- DG 1B is being locally started and loaded for post-maintenance testing.
- All applicable Precautions of OS1026.09 are satisfied.
- All prerequisites of OS1026.09 are satisfied.
- The pre-start logs were completed 15 minutes ago by another NSO.

You are a spare NSO. You are going to simulate the local NSO actions required to start and parallel DG 1B to bus E-6.

US to Spare NSO, **"Spare NSO (or student's name), simulate local starting and paralleling of DG 1B IAW OS1026.09 starting at step 4.2.2. Operate the EDG in AUTO voltage control. Desired load is 5500 kW ± 500 kW. The ROVER has completed step 4.2.1. The DG 1B pre-start logs are complete and satisfactory."**

JOB PERFORMANCE MEASURE WORKSHEET

JPM #10: RESET THE TDEFW PUMP TURBINE TRIP THROTTLE VALVE

Examinee:_____ NRC Examiner:_____

Facility Evaluator:_____ Date:_____

Method of Testing

Simulated Performance: _____ Actual Performance: _____

Classroom: _____ Simulator: _____ Plant:_____

K/A reference: 2.4.35 Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.

VERIFICATION OF COMPLETION

Examinee's Name: _____

Examiner's Name: _____

Date Performed: _____

Facility Evaluator: _____

Number of attempts: _____

Time to complete: _____

Question documentation

Responses to questions

Result: SAT or UNSAT (circle one)

Examiner's signature and date:_____

1.0 Task Number and Description:

Position: NSO

0610401204 Reset The Turbine Driven EFW Pump Trip Valve.

2.0 Conditions:

A. The plant is in Mode 3 following a trip from 100% power.
B. All station AC electrical power has been lost.
C. The Turbine Driven EFW Pump started and then tripped.

3.0 Standards:

Reset the turbine driven EFW pump trip valve and start FW-P-37A per OS1036.03, "Resetting The Steam Driven EFW Pump Trip Valve".

4.0 Student Materials:

- Copy of the Tear-Off Sheet.
- Copy of OS1036.03, Resetting The Steam Driven EFW Pump Trip Valve, Rev. 2, Chg. 3.
- Copy of OS1090.01, "Manual Operation Of Remote Operated Valves", Rev. 5, Chg. 11, page 1 through 6 and 18 & 19.

5.0 Limitations On Performance:

Simulate/Perform all steps. Verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6.0 References:

Procedures:

- OS1036.03, "Resetting The Steam Driven EFW Pump Trip Valve"
- OS1090.01, Manual Operation Of Remote Operated Valves

Technical Specifications:

- 3.7.1.2, AFW System
- 3.7.1.3, CST
- 3.7.10, Area Temperature Monitoring

Drawings:

- 1-NHY-503584
- 1-NHY-503585

Sys	KA	Description	Value RO/SRO
061	A2.04	Ability to predict impact and use procedure to correct, control, mitigate AFW pump failure.	3.4/3.8
2.4	2.4.35	Knowledge of local auxiliary operator tasks during emergency operations.	3.3/3.5

7.0 Setting:

Plant, EFW Pump house.

8.0 Safety Considerations:

- Hot steam piping.
- Possible automatic pump start.
- Rotating equipment hazard.
- Hearing protection as posted.
- Stand clear of drain valves located on the east side of the turbine.

9.0 Approximate Completion Time:

10 minutes

10.0 Initial Cue:

Initial Conditions:

- The plant is in Mode 3 following a trip from 100% power.
- All station AC electrical power has been lost.
- The Turbine Driven EFW Pump started and then tripped.

You are the Roving NSO. You are going to reset the Turbine Driven EFW pump trip valve and restart the pump.

US to Roving NSO, **"Roving NSO (or student's name), simulate resetting MS-V-129, the trip valve for emergency feed pump turbine using OS1036.03, Resetting The Steam Driven EFW Pump Trip Valve, then restart the steam driven EFW pump."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE
1. P	Start time	Initiating cue read.		_____

CUE: If the student requests a Peer Check at any time during the JPM, respond: **"No one is available to peer check your actions. Please continue with the task".**

*2.	S	Reset MS-V-129, EFW pump turbine trip valve:	Simulates resetting MS-V-129:
		a. Pull and hold the tripping rod toward MS-V-129.	*a. Simulates pulling and holding the trip rod toward MS-V-129.
		b. Check/place the flat of the washer against the trip rod.	*b. Simulates checking / placing the flat of the washer against the trip rod.
		c. Verify the trip plunger drops into place. Gently depress the plunger, if required.	c. Simulates verifying the trip plunger is in place.
		d. Release the tripping rod.	d. Simulates releasing the tripping rod.
		e. Turn the handwheel for MS-V-129 CW until the latch snaps into place.	*e. Simulates turning the handwheel CW until the latch snaps into place.

CUE: If the control room is contacted, acknowledge, then US to NSO, **"Restart the steam driven EFW pump locally."**

*3.	S	Restart the steam driven EFW pump:	Simulates restarting the steam driven EFW pump:
		a. Check MS-V-129 – RESET.	a. Verifies MS-V-129 is reset.

CUE: If the student checks the position of FW-V-346 locally, evaluator to student, **"The valve is shut."**

CUE: If the control room is contacted regarding status of FW-V-346, US to NSO, **"No power is available to remotely open FW-V-346. Open FW-V-346 locally."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP *denotes a critical step	STANDARD *denotes critical standard	EVALUATION SAT UNSAT	INITIALS/DATE

CUE: If the control room is contacted regarding step 3.2.4 of OS1090.01 in reference to the de-clutch lever limitations on FW-V-346, US to NSO, **"This is an emergency. Locally open FW-V-346."**

	b. Check open/open FW-V-346, EFW pump A mini-flow.	*b. Simulates opening FW-V-346 locally by depressing the de-clutch lever and rotating the handwheel CCW.

CUE: As MS-V-129 is opened, evaluator to student, **"Speed is increasing to 3600 rpm."**

	c. Slowly open MS-V-129 to increase speed to 3600 rpm (3500 – 3700 rpm).	*c. Simulates slowly opening MS-V-129 by turning the handwheel CCW.

CUE: When the student verifies EFW pump speed remains below 3750 rpm, evaluator to student, **"Speed is steady at 3675 rpm."**

	d. Verify the EFW pump governor is operating properly: • Verify pump speed remains below 3750 rpm. • Fully open MS-V-129. • Remove MS-V-129 from its backseat by closing ¼ turn.	d. Verifies the EFW pump governor is operating properly: • Verifies pump speed remains below 3750 rpm. • Simulates fully opening MS-V-129. • Simulates closing MS-V-129 ¼ turn.

CUE: **"The JPM is complete."**

4.	Stop time Evaluator calculates time to complete task.	Time to complete the task ≤ 10 minutes.	_____

Initial Conditions:

- The plant is in Mode 3 following a trip from 100% power.
- All station AC electrical power has been lost.
- The Turbine Driven EFW Pump started and then tripped.

You are the Roving NSO. You are going to reset the Turbine Driven EFW pump trip valve and restart the pump.

US to Roving NSO, **"Roving NSO (or student's name), simulate resetting MS-V-129, the trip valve for emergency feed pump turbine using OS1036.03, Resetting The Steam Driven EFW Pump Trip Valve, then restart the steam driven EFW pump."**