

Job Performance Measure

RO/SRO

Perform the MSIV Closure Timing Test

JPM: System JPM a.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 134
2. **IC Description:** The unit is operating < 75% power and < 97% FCL ~ 680 Mwe.

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

3. **Manual Actuation:**

Reduce power as necessary to ensure plant is less than 75% (\approx 680 Mwe) and <97% FCL.

Annotate QCOS 0250-04 to indicate that two stopwatches have been obtained and that Unit Supervisor permission has been granted to perform the test.

4. **Malfunctions:**

Slow stroke 1-203-1B, valve strokes at >5.2 seconds.

- imf ms03e 0.3

5. **Remotes:**

None.

6. **Overrides:**

None.

7. Digital FW screen for FWLC control trend data should be displayed.
8. This completes the setup for this JPM.

INITIAL CONDITIONS

- The unit is operating at 71% power.
- There are no personnel in the MSIV Room.
- The Unit Supervisor has directed the MSIV Closure Timing Test be performed on AO 1-203-1A and AO 1-203-2A due to a previous slow closure time.

INITIATING CUE

Perform the MSIV Closure Timing surveillance on AO 1-203-1A and AO 1-203-2A IAW QCOS 0250-04.

Provide examinee with:

QCOS 0250-04 with steps C.1 and D.1.a, b. & c. filled in.

Two Electronic Stopwatches.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>		
D.2.a.	Reactor power is <75%.	Verifies Reactor power <75%.	[]	[]	[]
D.2.b.	Flow control line is <97%.	Verifies FCL <97%.	[]	[]	[]
*H.1.a.	Determine that MSIV will be tested using "hot" criteria.	Determines that proper criteria for testing is "hot" criteria.	[]	[]	[]
*H.2.a.	Activate "MSIV Test Mode" at Operator Work Station FWLC Measuring Point Display.	Activates "MSIV Test Mode."	[]	[]	[]
H.2.b.	Verify reactor level maintained	Observe water level ind. stable	[]	[]	[]
H.2.c.	Verify that "sum of individual steam flows" being used for total steam flow.	Verifies that green filled square at the DWS FWLL measuring point display labeled as "Act" indicated "sum of individual steam flows".	[]	[]	[]
H.3.a.	Verify open AO 1-203-1A.	Verifies AO 1-203-1A is open.	[]	[]	[]
EVALUATOR NOTE: The first stopwatch must be started at same time as control switch actuation, the second stopwatch is started upon illumination of the closed position indicator and both stop watches are stopped upon de-energization of the open position indicator.					
EVALUATOR NOTE: Candidate will time "Switch" to "Light." Evaluator will simulate timing "Light" to "Light."					
*H.3.b.	Close and time AO 1-203-1A.	AO 1-203-1A Normal Control Switch positioned to close AND stop watch actuated to time the valve stroke.	[]	[]	[]
CUE: Report that the "light to light" stroke time is 0.5 seconds less than the "switch to light" time.					

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
H.3.c.	Record closure time on Attachment "A".	Records closure time on step H.3.b. to nearest 1/10 of a second.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*H.3.d.	Open AO 1-203-1A.	AO 1-203-1A open indicator is illuminated and the closed indicator is extinguished.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H.4.a.	Verify open AO 1-203-2A.	Verifies AO 1-203-2A is open.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EVALUATOR NOTE: The first stopwatch must be started at same time as control switch actuation, the second stopwatch is started upon illumination of the closed position indicator and both stop watches are stopped upon de-energization of the open position indicator.					
EVALUATOR NOTE: Candidate will time "Switch" to "Light." Evaluator will simulate timing "Light" to "Light."					
*H.4.b.	Close and time AO 1-203-2A.	AO 1-203-2A Normal Control Switch positioned to close AND stop watch actuated to time the valve stroke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Report that the "light to light" stroke time is 0.5 seconds less than the "switch to light" time.					
*H.4.c.	Record closure time on Attachment "A".	Records closure time on step H.4.b. to nearest 1/10 of a second. Recognizes that stroke time is out of spec and informs US.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: If asked whether AO 1-203-2A should be re-opened, asked applicant what he would recommend then as US, direct that valve be left closed, pending further testing.					
EVALUATOR: JPM will end with recognition by candidate that either further testing or valve adjustment is necessary before proceeding.					

*CRITICAL STEP

JPM Stop Time: _____

Operator's Name: _____
Job Title: RO SRO

JPM Title: Perform the MSIV Closure Timing Test

JPM : System JPM a.

K/A Number and Importance:

K/A: 239001 A4.01 Rating: 4.2/4.0

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Plant
Control Room

Testing Method: Simulate **Faulted:** Yes
Perform **Alternate Path:** Yes

Time Critical: Yes No

Estimated Time to Complete: 12 minutes **Actual Time Used:** _____ minutes

References:

QCOS 0250-04 Rev. 15, MSIV Closure Timing

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM,
and has been determined to be: Satisfactory
Unsatisfactory

Comments: _____

INITIAL CONDITIONS

- The unit is operating at 71% power.
- There are no personnel in the MSIV Room.
- The Unit Supervisor has directed the MSIV Closure Timing Test be performed on AO 1-203-1A and AO 1-203-2A due to a previous slow closure time.

INITIATING CUE

Perform the MSIV Closure Timing surveillance on AO 1-203-1A and AO 1-203-2A IAW QCOS 0250-04.

Job Performance Measure

RO/SRO

Roll The Main Turbine

JPM: System JPM b.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 16
2. **IC Description:** Startup IC with conditions ready to roll main turbine

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

3. Run the setup Computer Aided Exercise _____-__ (jcae! _____-__)

4. **Manual Actuation:**

5. **Malfunctions:**

6. **Remotes:**

None.

7. **Overrides:**

None.

8. Provide graphic display for the turbine generator – OD-22 screen 2

9. This completes the setup for this JPM.

INITIAL CONDITIONS

- The Control Room is performing a Unit 1 startup IAW QCGP 1-1, Normal Unit Startup.
- QCGP 1-1 has been performed up through and including F.7.q.
- First Stage Bowl upper inner surface temperature is 300 degrees F.

INITIATING CUE

Roll the Main Turbine and achieve a speed of 1800 rpm.

Provide Examinee With:

A copy of QCGP 1-1.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- * Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE: The announcement has just been made for the impending Main Turbine roll.					
F.7.t.	Press FAST pushbutton on STARTUP RATE.	Depresses the FAST pushbutton on the 901-7 panel.	—	—	—
*F.7.u.	Press the 1800 rpm pushbutton on SPEED SET RPM.	Depresses the 1800 rpm pushbutton.	—	—	—
F.7.u.(1)	Verify that MAIN STOP VLV #2 opens.	Verifies MAIN STOP VLV #2 opens.	—	—	—
F.7.u.(2)	Verify that MAIN STOP VLVs #1, #3, and #4 ramp open.	Verifies that MAIN STOP VLV #2 reaches 100% open and then MAIN STOP VLVs #1, #3, and #4 begin to ramp open.	—	—	—
F.7.u.(3)	Verify COMBINED INTER STOP VLVs #1, #3, and #5 ramp open.	Verifies COMBINED INTER STOP VLVs #1, #3, and #5 begin to ramp open.	—	—	—
F.7.u.(4)	Verify COMBINED INTER STOP VLVs #2, #4, and #6 ramp open.	Verifies COMBINED INTER STOP VLVs #1, #3, and #5 reach 100% open and then COMBINED INTER STOP VLVs #2, #4, and #6 begin to ramp open.	—	—	—
F.7.u.(5)	Verifies CONTROL VLVs open.	After all MAIN STOP VLVs and COMBINED INTER VLVs are full open, verifies CONTROL VLVs opens and rolls the Turbine off the turning gear.	—	—	—
EVALUATOR: Candidate should select startup speed of MEDIUM (90 RPM/Minute) based upon First Stage Bowl upper inner surface temperature.					
*F.7.v.	Press MEDIUM pushbutton on STARTUP RATE.	MEDIUM startup rate depressed.	—	—	—
F.7.w.	Verify that the Main Turbine is accelerating.	Verifies Main Turbine is accelerating.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.7.x.	Verify Chest Warming has stopped.	Verifies that Chest Warming goes to zero as indicated on MAIN STOP VLV POS DEMAND FOR CHEST/SHELL WARMING indication.	—	—	—
F.7.y.	Ensure that Main Turbine vibration is acceptable.	Checks Main Turbine vibration on recorder 1(2)-5640-60, ECCENTRICITY AND VIBRATION, during acceleration.	—	—	—
EVALUATOR: Unit 1 critical speed is approximately 950 rpm.					
*F.7.z.	At critical speed, select FAST on STARTUP RATE.	When Main Turbine speed approaches the critical speed, select FAST on STARTUP RATE.	—	—	—
*F.7.aa.	After the critical speed, Press MEDIUM pushbutton on STARTUP RATE.	Depresses the MEDIUM startup rate pushbutton after the Main Turbine has passed through the critical speed.	—	—	—
F.7.ab.	Verify the Turning Gear Motor is off.	Verifies that the Turning Gear Motor is off.	—	—	—
EVALUATOR: After the candidate verifies that the Turning Gear Motor is off, inform them that the task is complete.					

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Roll the Main Turbine

JPM: System JPM b.

K/A Number and Importance:

K/A: 245000.A3.02 **Rating:** 2.8 / 2.8

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room In-Plant

Testing Method: Simulate Perform **Alternate Path:** Yes No SRO Only: Yes No

Time Critical: Yes No

Estimated Time to Complete: 27 minutes **Actual Time Used:** _____ minutes

References:

QCGP 1-1

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory Unsatisfactory

Comments: _____

INITIAL CONDITIONS

- The Control Room is performing a Unit 1 startup IAW QCGP 1-1, Normal Unit Startup.
- QCGP 1-1 has been performed up through and including F.7.q.
- First Stage Bowl upper inner surface temperature is 300 degrees F.

INITIATING CUE

Roll the Main Turbine and achieve a speed of 1800 rpm.

Job Performance Measure
RO/SRO

Perform the SBTG Monthly Operability Test With Heater Failure

JPM Number: System JPM c.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 134 (rst ___).

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

2. Run the setup Computer Aided Exercise _____-__ (jcae! _____-__)

3. **Manual Actuation:**

- a. Place the "B" SBT Train in operation per section H.2 of QCOS 7500-05, "SBTS Monthly Operability Test". Ensure all activities through and including step H.2.p are complete.

4. **Malfunctions:**

SBT Heater fails to de-energize when SBT Fans stopped.

- ior loil07503b1 off (green light off)
- ior loil07503b2 on (red light on)

5. **Remotes:** NONE

6. This completes the setup for this JPM.

INITIAL CONDITIONS

The plant is operating at approximately 70% power.

The 1/2B SBGT was started per QCOS 7500-05 10.5 hours ago.

INITIATING CUE

Complete the SBGT System Monthly Operability Test for the 1/2B train per QCOS 7500-05.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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The time clock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UN SAT	Co mm ent
H.2.q	Verifies run time ≥ 10 hours	Run time has been 10.5 hours per initial conditions	—	—	—
*H.2.r	●Shutdown “B” SBGTS.●	Positions “B” train mode selector switch to OFF.	—	—	—
EVALUATOR: In the next step, if the operator asks for the US, inform him that he is around the back panels of U-1.					
*CAUTION	●Recognize failure of heater to turn off AND restarts “B” SBGT Train.●	Recognizes “B” train air heater ON light lit for > 10 seconds THEN Restarts train by positioning “B” train mode selector switch to START.	—	—	—
	Inform US.	Tells the US that the heater did not stop after shutting down the train and the train was restarted.	—	—	—
CUE: I understand the heater failed to trip following train shutdown. Leave the “B” train operating. I will prepare a work request and call maintenance to trouble shoot and inform the SM and leave ‘B’ SBGT running until troubleshooting can commence.					
CUE: The candidate may inform you the task is complete here.					

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Perform the SGBT Monthly Operability Test with Heater Failure

JPM Number: System JPM c.

K/A Number and Importance:

K/A: 261000 A.4.03

Rating: 3.0/3.0

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room In-Plant

Testing Method:

Simulate

Alternate Path: Yes No

Perform

SRO Only: Yes No

Time Critical: Yes No

Estimated Time to Complete: 10 minutes Actual Time Used: _____minutes

References: QCOS 7500-05, Rev. 26, SGBTs MONTHLY OPERABILITY TEST

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory Unsatisfactory

Comments:

INITIAL CONDITIONS

The plant is operating at approximately 70% power.

The 1/2B SBGT was started per QCOS 7500-05 10.5 hours ago.

INITIATING CUE

Complete the SBGT System Monthly Operability Test for the 1/2B train per QCOS 7500-05.

Exelon Nuclear

**Job Performance Measure
RO/SRO**

Main Turbine Stop Valve Testing

Number: System JPM d

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 20 (72% power).

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

2. **Malfunctions:**

Insert overrides so that when TSV #2 pushbutton is depressed, the button is overridden ON and the TSV does not re-open.

```
trgset 1 "zdihs15650508"  
ior dihs15650508 (1) on
```

3. **Manual Actuation:**

None

4. When the above steps are completed for this and other JPMs to be run concurrently, then validate the concurrently run JPMs using the JPM Validation Checklist.
5. This completes the setup for this JPM.

INITIAL CONDITIONS

The unit is operating at 72% power.

An extra NSO is available to observe relay actuation on MCR back-panels.

INITIATING CUE

Perform Main Stop Valve Testing in accordance with QCOS 5600-08, Turbine Generator Quarterly Testing.

Provide examinee with:

QCOS 5600-08 marked up to perform Main Stop Valve Testing ONLY.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
H.1.a	Verify Reactor power is \leq 830 MWe.		[]	[]	[]
H.1.b	Verify Reactor pressure is approximately 1000 psig per QCGP 3-1.		[]	[]	[]
CUE: Reactor pressure is approximately 1000 psig.					
*H.1.c	At Panel 901-7, select STOP (SV TEST) with CONT VLV/STOP VLV TEST SELECTOR SWITCH. (Upper half of test button will light to indicate Stop Valve test circuits are armed.)	Upper half of MSV/CV Test pushbuttons are illuminated.	[]	[]	[]
*H.1.d	Depress M.S.V.-1 TEST button and observe valve position indicator shows the valve closes.	Valve position indicator shows smooth closing trend from 100% to 10%.	[]	[]	[]
CUE: Extra NSO reports relays 590-124A & B have dropped out.					
H.1.d.(1)	Verify the following TURB STOP VLV CLOSURE SCRAM SIGNAL relays drop out: (a) Relay 590-124A. (b) Relay 590-124B.	Acknowledges report that relays have dropped out.	[]	[]	[]
H.1.d.(2)	Verify valve fast closes the last 10% of valve travel.	Observes rate increase in needle movement as indicator travels from 10% to 0%	[]	[]	[]
*H.1.e	Release test button and observe Stop Valve #1 opens.	Valve position indicator shows opening trend.	[]	[]	[]
H.1.e.(1)	Verify open Stop Valve #1.	Valve position indicator reads 100%	[]	[]	[]
CUE: Extra NSO reports relays 590-124A & B are picked up.					
H.1.e.(2)	Verify the following TURB STOP VLV CLOSURE SCRAM SIGNAL relays pick up: (a) Relay 590-124A. (b) Relay 590-124B.	Acknowledges report that relays are picked up.	[]	[]	[]

<u>STEP</u>	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
*H.1.f	Depress M.S.V.-2 TEST button and observe valve position indicator shows the valve closes.	Valve position indicator shows smooth closing trend from 100% to 10%.	[]	[]	[]
CUE: Extra NSO reports relays 590-124C & F have dropped out.					
H.1.f.(1)	Verify the following TURB STOP VLV CLOSURE SCRAM SIGNAL relays drop out: (a) Relay 590-124C. (b) Relay 590-124F.	Acknowledges report that relays have dropped out.	[]	[]	[]
NOTE: TSV #2 Fails to return to OPEN.					
H.1.f.(2)	Verify valve fast closes the last 10% of valve travel.	Observes rate increase in needle movement as indicator travels from 10% to 0%	[]	[]	[]
*H.1.g	• Release test button and observes Stop Valve #2 does NOT open. •	Valve position indicator shows 0% and not changing	[]	[]	[]
	Notifies Unit Supervisor that Turbine Stop Valve #2 did not re-open	Notifies Unit Supervisor that Turbine Stop Valve #2 did not re-open			
CUE: Unit Supervisor directs candidate to discontinue testing at this time and that an IR will be generated by another Operator.					
EVALUATOR NOTE: JPM is complete.					

*CRITICAL STEP

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Turbine Stop Valve Test

JPM Number: System JPM d Revision Number: _____

Task Number and Title: Main Turbine Stop Valve Testing
Given a reactor plant at power, conduct MSIV closure timing in accordance with QCOS 0250-04.

K/A Number and Importance:
K/A: 241000 A4.07 Rating: 3.5/3.4

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room Plant

Testing Method: Simulate Perform **Faulted:** Yes No **Alternate Path:** Yes No

Time Critical: Yes No

Estimated Time to Complete: 12 minutes **Actual Time Used:** _____ minutes

References:
QCOS 5600-08, Rev. 8, Turbine Generator Quarterly Testing

Comments:

INITIAL CONDITIONS

The unit is operating at 72% power.

An extra NSO is available to observe relay actuation on MCR back-panels.

INITIATING CUE

Perform Main Stop Valve Testing in accordance with QCOS 5600-08, Turbine Generator Quarterly Testing.

Job Performance Measure

RO/SRO

Bypass MSIV Group I Isolation Signal

JPM: System JPM e.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 21 (rst 21).

2. **IC Description:**

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

3. **Manual Actuation:**

None

4. **Malfunctions:**

None

5. **Remotes:**

None

6. **Overrides:**

None

7. This completes the setup for this JPM.

NOTE: This JPM can be run in any IC setup. All actions are between the Panels. Plant Conditions are irrelevant to its performance.

INITIAL CONDITIONS

- You are the U2 Assist NSO.
- A transient occurred on U-1 resulting in a failure to scram condition with reactor power at 30%.
- All 5 ADS valves are open to control reactor pressure resulting in a heatup of the Torus to 107°F.
- The Unit Supervisor has ordered SBLC injection and wants to re-establish the condenser as a heat sink per QGA 101.
- RPV water level is being controlled above –142”.
- The MSIVs closed on low low reactor water level of –59” and the main condenser is available.

INITIATING CUE

Install the jumpers necessary to bypass the –59” Group I isolation signal on U-1 IAW QCOP 0250-02, step F.1 only.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator’s Use:

UNSAT requires written comments on respective step.

- * Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the “Comment Number” column on the following pages. Then annotate that comment in the “Comments” section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
*C.2.	Obtains equipment packet.	Locates packet for QCOP 0250-02 in QGA equip. storage cabinet in CR.	___	___	___
*F.1.a.(1)	Install 901-15 panel jumpers on TB-A and TB-B.	Installs a jumper between TB-A, pt. 16 and TB-B, pt. 24 and records jumper number.	___	___	___
F.1.a.(1) (a)	Ask for independent verification.	Asks for independent verification.	___	___	___
CUE: State, "All independent verifications will be done after completion of jumper installation."					
*F.1.a.(2)	Install 901-15 panel jumpers on TB-E and TB-D.	Installs a jumper between TB-E, pt. 10 and TB-D, pt. 20 and records jumper number.	___	___	___
*F.1.b.(1)	Install 901-17 panel jumpers on TB-A and TB-B.	Installs a jumper between TB-A, pt. 16 and TB-B, pt. 24 and records jumper number.	___	___	___
*F.1.b.(2)	Install 901-17 panel jumpers on TB-E and TB-D.	Install a jumper between TB-E, pt. 10 and TB-D, pt. 20 and records jumper number.	___	___	___
EVALUATOR: Inform the candidate that the task is complete.					

JPM Stop Time: _____

INITIAL CONDITIONS

- You are the U2 Assist NSO.
- A transient occurred on U-1 resulting in a failure to scram condition with reactor power at 30%.
- All 5 ADS valves are open to control reactor pressure resulting in a heatup of the Torus to 107°F.
- The Unit Supervisor has ordered SBLC injection and wants to re-establish the condenser as a heat sink per QGA 101.
- RPV water level is being controlled above –142”.
- The MSIVs closed on low low reactor water level of –59” and the main condenser is available.

INITIATING CUE

Install the jumpers necessary to bypass the –59” Group I isolation signal on U-1 IAW QCOP 0250-02, step F.1 only.

Job Performance Measure

RO/SRO

Shutdown the U-1 Diesel Generator with Early Trip

JPM: System JPM f.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 134

2. **IC Description:** 100%

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

3. Run the setup Computer Aided Exercise _____-__ (jcae! _____-__)

4. **Manual Actuations:**

- Start-up, synchronize, and load the U-1 diesel generator to 1000 kw and 500 Kvars in accordance with QCOP 6600-02 F.2.c-j.

5. **Malfunctions:**

a) Override annunciators OFF

- imf ano9018a7 off
- imf ano9018g8 off

b) Set Triggers 11, 12, and 14 to automatically trip the diesel 30 seconds after the C/S is taken to stop and then delete the trip malfunction when the C/S is taken back to start

- trgset 11 '.not.an:9018b7'
- trg 11 'imf dg01a (none 30)'
- trgset 12 'zdihs16600str(1).and..not.an:9018b7'
- trg 12 'dmf dg01a'
- trgset 13 'zdihs16600str(1).and..not.an.9018b7'
- trg 13 'mrf dg03r reset'
- trgset 14 '.not.an:9018b7'
- trg 14 'imf ano9018b7 off'

6. **Remotes:**

- Set the U-1 Diesel Speed Droop to 50. (**mrf dg01r 1**)
- After the Diesel is running, reset the local DG annunciator panel. (**mrf dg18r 1**)
- Set the speed droop to "0" when requested by the evaluator, after the operator opens the output breaker. (**mrf dg01r 0**)

7. **Overrides:** NONE

INITIAL CONDITIONS

U-1 diesel is running in parallel with the grid carrying normal load.

INITIATING CUE

Unload and shut down the U1 EDG per QCOP 6600-03 for normal shutdown starting at step F.4.

All Prerequisites, Precautions, and Limitations and Actions have been met.

Notify the Unit Supervisor at the completion of the cool down.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- * Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
	Obtain procedure to be used.	Obtains copy of QCOP 6600-03.	—	—	—
EVALUATOR: Maintaining VARS ½ the KW is NOT critical.					
F.4.a.	Reduce DG load to zero KW while maintaining VARS approx. one-half the KW value.	Positions governor and voltage regulator to decrease until KW meter is "0". Stops when KW = 0. Positions volt. reg. To "decrease" while maintaining VARS one-half of KW.	—	—	—
*F.4.b.	Open DG output breaker.	Positions "Diesel 1 to 4 KV Bus 14-1" brk. CS to "Trip" when DG is unloaded. - Open light lit.	—	—	—
*F.5.	Set speed droop to "0".	Directs NLO to Set SPEED DROOP to "0".	—	—	—
EVALUATOR: Request the simulator operator to set the speed drop to "0" using remote function dg01r (mrf dg01r 0).					
CUE: The speed droop has been set to "0".					
*F.6.a.	Adjust DG Frequency to 60 hertz with Governor switch.	Ensures DG set at 60 hz.	—	—	—
*F.6.b.	Adjust DG voltage between 4100 to 4200 volts, but as close to 4160 as possible with voltage regulator (VARS switch).	Ensures DG voltage is as close to 4160 as possible.	—	—	—
F.7.	Have independent verification of settings.		—	—	—
CUE: I agree with the voltage and frequency settings.					
*F.8.	Stops Diesel Gen.	Positions engine CS to STOP for 2-3 seconds at Panel 901-8.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.9.	Return Diesel Control Switch to AUTO.	Positions CS for U1 DG to AUTO.			
*F.10.	Monitors DG cooldown.	Recognize DG cooldown cycle incomplete due to DG early shutdown.	—	—	—
CUE: If requested, NLO in field reports that the EDG is not running.					
NOTE: Indications that the EDG has stopped are as follows:					
<ul style="list-style-type: none"> - EDG frequency is at 60.4 HZ - Green STOP light is ON - Unit 1 EDG Live Bus is extinguished 					
*F.10.a.	Restart DG.	Place DG engine CS switch to START.	—	—	—
EVALUATOR: The candidate should inform you that the task is complete.					

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Shutdown the U-1 Diesel Generator with Early Trip

JPM Number: System JPM f.

K/A Number and Importance:

K/A: 264000 A4.04 **Rating:** 3.7/3.7

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room In-Plant

Testing Method: Simulate Perform **Alternate Path:** Yes No
SRO Only: Yes No

Time Critical: Yes No

Estimated Time to Complete: 17 minutes **Actual Time Used:** _____ minutes

References:

QCOP 6600-03, Rev. 20, DIESEL GENERATOR 1(2) SHUTDOWN

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory Unsatisfactory

Comments: _____

INITIAL CONDITIONS

U-1 diesel is running in parallel with the grid carrying normal load.

INITIATING CUE

Unload and shut down the U1 EDG per QCOP 6600-03 for normal shutdown starting at step F.4.

All Prerequisites, Precautions, and Limitations and Actions have been met.

Notify the Unit Supervisor at the completion of the cool down.

Job Performance Measure

SRO/RO

Change-Over Reactor Feed Pumps With Failure Of Auxiliary Oil Pump To Trip

JPM: System JPM g.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 135 (rst 20).

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

2. Manual Actuations:

- Ensure the "A" and "B" RFPs are on.
- Ensure "Zinc Injection" magnet placed near 1B RFP switch.
- Ensure the "A", "B", and "C" cond/cond booster pumps are on.
- Insert override to fail the aux oil pump to trip when 1C RFP is started.
ior lohs13201aopc3 on
ior lohs13201aopc1 off
ior lohs13201aopc2 off
- Override alarm 901-6 F7 off (**imf ano9016f7 off**)

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3. Malfunctions: NONE

4. Remotes: NONE

5. Overrides: NONE

6. This completes the setup for this JPM.

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INITIAL CONDITIONS

Unit 1 is operating at approximately 678 MWe.

- The 1A Reactor Feed Pump seal has been leaking and getting steadily worse.
- The Shift Manager has ordered that the 1A RFP be taken off and the 1C RFP started.
- Zinc injection is lined up to 1B RFP.
- The 1D Condensate Pump has NOT been isolated.
- An NLO has been briefed and dispatched to check out the standby Condensate pump for start per step F.3.d of QOP 3200-04.
- 1C RFP has been filled and vented IAW QCOP 3200-01.

INITIATING CUE

Place the 1C RFP in service, powered from Bus 11, and place the 1A RFP in pull-to-lock in preparation for taking it out-of-service.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- * Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
	Obtain procedure to be used.	Obtains copy of QOP 3200-4.	___	___	___
F.1.	Determine if zinc injection aligned to RFP to be shutdown then valve out zinc injection.	Verifies from initial conditions that zinc injection is not valved to 1A RFP.	___	___	___
F.2.	Verifies condensate pump to be started is not isolated.	Verifies from initial conditions that 1D condensate pump is not isolated.	___	___	___
CUE: F.3.d completed for 1D Condensate/Condensate Booster Pump.					
CUE: F.4 completed for 1D Condensate/Condensate Booster Pump.					
CUE: If asked, 1D cond/cond booster is <u>NOT</u> being started for the first time after maintenance.					
F.5.	Verifies condensate pump to be started is not isolated.	Verifies from initial conditions that 1D condensate pump is not isolated.	___	___	___
F.6.	Place the cond. pmp. selector switch to OFF.	Positions COND PMP SELECTOR switch to OFF, standby light goes out.	___	___	___
CUE: All personnel are clear of the 1D Condensate/Condensate Booster Pump.					
*F.7.	Start standby condensate pump.	Positions 1D COND PMP CS to close On light lit Motor amps increase then stabilize.	___	___	___
F.8.a.	Verify cond. pp. disch. press.	Verifies cond. pp. disch. press. > 140 psig.	___	___	___
F.8.b.	Verify booster pp. suc. press.	Verifies booster pp. suc. press. > 110 psig.	___	___	___
F.8.c.	Verify booster pp. disch. press.	Verifies booster pp. disch. press. > 220 psig.	___	___	___

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
F.8.d.	Verify RFP suc. press.	Verifies RFP suc. press. > 200 psig.	—	—	—
CUE: The NLO reports 1D cond. pp. post-start checks are sat and is enroute to the RFP room.					
F.10.a . b.	For RFP to be S/D, verify auxiliary oil pump control switch has red target and yellow auto trip light lit.	Verifies red target and yellow auto trip light lit for 1A RFP.	—	—	—
F.11.	De-select standby RFP.	Positions RFP SELECTOR switch to off-1C RFP standby light out.	—	—	—
CUE: Candidate may order QOP 3200-04 Steps F.14 completed. If so, acknowledge QOP 3200-04 step, "F.14 is complete."					
CUE: The NLO reports 1C RFP bearing lube oil pressure is 12 psig.					
F.20.a .	Close RFP "C" Disch Vlv.	Positions C/S for MO 1-3201C to close. Verifies green light lit.	—	—	—
F.20.b .	Open RFP "C" Min Flow Vlv.	Positions C/S for AO 1-3201-C to open. Verifies red light lit.	—	—	—
CUE: NLO reports that all personnel are clear for the starting of the 1C RFP.					
*F.21.	Start 1C RFP.	Positions 1C RFP Bus 11 CS to close. – On light lit-motor amps.	—	—	—
*F.22.	If Aux oil pump fails to auto trip, then trip RFP.	Trip 1C RFP and reports problem to the US.	—	—	—
CUE: If candidate asks to place 1C RFP in standby, reply, "Do NOT place the 1C RFP in standby."					
EVALUATOR: Acknowledge the report of the 1C RFP Aux Oil Pump and state, "another NSO will secure the 1D condensate pump." The candidate should inform you that the task is complete.					

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Change-Over Reactor Feed Pumps With Failure Of Auxiliary Oil Pump To Trip

JPM Number: System JPM g.

K/A Number and Importance:

K/A: 259001.A4.02 **Rating:** 3.9/3.7

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room In-Plant

Testing Method: Simulate Perform **Alternate Path:** Yes No **SRO Only:** Yes No

Time Critical: Yes No

Estimated Time to Complete: 18 minutes **Actual Time Used:** _____ minutes

References:

QOP 3200-04, Rev. 32 REACTOR FEED PUMP CHANGE OVER

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory Unsatisfactory

Comments: _____

INITIAL CONDITIONS

Unit 1 is operating at approximately 678 MWe.

- The 1A Reactor Feed Pump seal has been leaking and getting steadily worse.
- The Shift Manager has ordered that the 1A RFP be taken off and the 1C RFP started.
- Zinc injection is lined up to 1B RFP.
- The 1D Condensate Pump has NOT been isolated.
- An NLO has been briefed and dispatched to check out the standby Condensate pump for start per step F.3.d of QOP 3200-04.
- 1C RFP has been filled and vented IAW QCOP 3200-01.

INITIATING CUE

Place the 1C RFP in service, powered from Bus 11, and place the 1A RFP in pull-to-lock in preparation for taking it out-of-service.

Job Performance Measure

RO/SRO

Reset the 1B Recirc MG Set Scoop Tube

JPM Number: System JPM h.

Date: June 2007

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC135
2. **IC Description: 70% RTP and FCL 100%**

NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

3. **Manual Actuation:**

Lock-Up the 'B' MG Set Scoop-tube.

4. **Malfunctions:**

ior difc1026225b4 (2) raise_fast (button sticks when trigger 2 goes true)
ior difc1026225b1 off (other pushbuttons don't work)
ior difc1026225b2 off (other pushbuttons don't work)
ior difc1026225b3 off (other pushbuttons don't work)
trgset 2 "zlohs10202302b" (trigger 2 goes true when scoop tube is reset)

5. **Remotes:**

None.

6. This completes the setup for this JPM.

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INITIAL CONDITIONS

- You are an Unit 1 NSO.
- Unit 1 is operating at approximately 70% power.
- Problems occurred last shift that resulted in the 1 B MG Set failing such that its speed could not be controlled from the Control Room. The 'B' MG Set Scoop Tube has been locked up.
- The problem has been resolved.

INITIATING CUE

Reset the 1B Recirc MG Set Scoop Tube and then transfer RRCS to MASTER control per QCOP 0202-06.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue. _____

Information For Evaluator’s Use:

UNSAT requires written comments on respective step.

- * Denotes critical steps.
- Denotes critical elements of a critical step.

Number any comments in the “Comment Number” column on the following pages. Then annotate that comment in the “Comments” section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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The time clock starts when the candidate acknowledges the initiating cue. _____

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR: The following steps are found in QCOP 0202-06 unless otherwise indicated.					
F.1	Verify 1-0262-25B, LOOP B SPEED CONTROLLER, for desired Recirc Pump is in MANUAL.	MANUAL pushbutton is backlit.			
EVALUATOR: Step F.2 is not applicable. The applicant should refer to QCOP 0202-12 to review steps for unexpected change in pump speed.					
F.3.a	Verify at OWS RRCS Interlocks display: Deviation between indicated percent scoop tube position vs. position demand is < 0.2%.	Indicated vs Demand deviation is less than 0.2%			
F.3.b	Verify at OWS RRCS Interlocks display: Deviation between indicated speed vs. speed demand is < 5%.	Indicated vs Demand deviation is less than 5%			
EVALUATOR: RR Pumps speed will continue to increase until applicant responds by selecting LOCK-UP on LOCK-UP/RESET switch.					
*F.4	Reset Scoop Tube by selecting RESET: at MG Set B LOCK-UP/RESET switch; OR at OWS RRCS Interlocks display and verify GREEN Scoop Tube reset light energized.	GREEN Scoop Tube reset light energized.			

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
QCOP 0202-12 * F.1	At Panel 901-4, select LOCK-UP at MG Set B LOCK-UP/RESET switch OR selecting LOCK-UP on/at OWS RRCS interlocks display.	Selects Lock-Up on MG Set B LOCKUP/RESET switch; green Scoop Tube B LOCK-UP/RESET light is OFF Notifies Control Room Supervisor that flow is no longer changing.	—	—	—

JPM Stop Time: _____

Operator's Name: _____

Job Title: RO SRO

JPM Title: Reset the 1B Recirc MG Set Scoop Tube

JPM Number: System JPM h.

K/A Number and Importance:

K/A: 202002 A2.05 **Rating:** 3.1/3.1

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator Control Room In-Plant

Testing Method: Simulate Perform
Alternate Path: Yes No
SRO Only: Yes No

Time Critical: Yes No

Estimated Time to Complete: 10 minutes **Actual Time Used:** _____ minutes

References:

QCOP 0202-03, REV 17, REACTOR RECIRCULATION SYSTEM FLOW CONTROLLER OPERATION

QCOP 0202-06, REV 17, REACTOR RECIRCULATION MG SET SCOOP TUBE RESET

QCOP 0202-12, REV 25, REACTOR RECIRCULATION SYSTEM MG SET SCOOP TUBE LOCK UP AND LOCAL MANUAL OPERATION

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? Yes No

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory Unsatisfactory

Comments: _____

INITIAL CONDITIONS

- You are an Unit 1 NSO.
- Unit 1 is operating at approximately 70% power.
- Problems occurred last shift that resulted in the 1 B MG Set failing such that its speed could not be controlled from the Control Room. The 'B' MG Set Scoop Tube has been locked up.
- The problem has been resolved.

INITIATING CUE

Reset the 1B Recirc MG Set Scoop Tube and then transfer RRCS to MASTER control per QCOP 0202-06.
