Exelon Nuclear

Job Performance Measure

Correct Reactor Recirculation Flow Control Pump Speed Mismatch

JPM Number: 2018 ILT NRC JPM a

Revision Number: 00

Date: 05/25/2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 0202-39 Rev: 6
Procedure QCOP 0202-03 Rev: 26
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 00, This JPM was developed new for the 2018 ILT NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the Simulator to IC 21 or any other compatible IC. Run CAEP File
2. **Commands:**
    - **imf RR09A** (Cell failure for 'A' ASD)
    - Verify "A" ASD speed is 6% lower that "B" ASD
3. This completes the setup for this JPM

INITIAL CONDITIONS

- Unit 1 is at __% RTP
- The B2 Power Cell associated with the 'A' Reactor Recirculation pump Adjustable Speed Drive (ASD) system controller failed.
- Recirculation Flow Control automatically shifted to MANUAL mode
- A "Speed Hold" exists on the 'A' Reactor Recirculation pump flow controller.
- System Engineering also confirms that an adequate number of Power Cells are operating for continued operation of the 'A' Reactor Recirculation pump ASD system controller.
- There is a 6% mismatch between Jet Pump Loop flows.

INITIATING CUE

1. Reset the Speed Hold on the 1A Reactor Recirculation pump IAW QCOP 0202-39.
2. Using QCOP 0202-03:
   a) Return Recirc Flow Control to the Master mode.
   b) Balance Jet Pump Loop flows.

Provide examinee with blank copies of QCOP 0202-03 and QCOP 0202-39.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE: The following steps are performed IAW QCOP 0202-39, "Reactor Recirculation System Manual Hold and Local Manual Operation."					
F.3.a (1)	Verify 1A ASD is in REMOTE control.	Verifies 1A ASD is being controlled from the 901-4 panel	___	___	___
F.3.a (2)	Verify Recirc Speed Controller 1A speed AND speed demand indications are equal.	Verifies that speed demand and actual speed signals are matched prior to resetting the speed hold.	___	___	___
*F.3.a (3)	Momentarily place the ASD A SPEED HOLD switch to the RESET position.	Momentarily place the ASD A SPEED HOLD switch to the RESET position.	___	___	___
F.3.a (4)	Verify that annunciator 901-4 C-1, RECIRC DRIVE A SPEED HOLD resets.	Verifies 901-4 C-1, RECIRC DRIVE A SPEED HOLD annunciator clears.	___	___	___
NOTE: The following steps are performed in accordance with QCOP 0202-03, "Reactor Recirculation System Flow Controller Operation".					
F.5.a	Verify feedwater flow is > 3.0 Mlb/hr	Verifies that feedwater flow is > 3.0 Mlb/hr.	___	___	___
*F.5.b	Depress MASTER pushbutton on 1-0262-25A or 1-0262-25B, LOOP A or B SPEED CONTROLLER.	-Depress the MASTER pushbutton on either the LOOP A or B SPEED CONTROLLER -Verifies the MASTER pushbutton is lit on BOTH LOOP A/B SPEED CONTROLLERS	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.7	Depress the LOWER SLOW pushbutton on 1-0262-25B, LOOP B SPEED CONTROLLER	-Lowers Reactor Recirc Pump B speed while ensuring the non-selected pump is changing speed in the opposite direction. -Ensures that loop flows are balanced.	___	___	___
NOTE: If in the MASTER mode, the examinee could decide to select the RAISE SLOW pushbutton on 1-0262-25A LOOP A SPEED CONTROLLER to raise pump speed to balance loop flows.					
EVALUATOR: The candidate should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Job Title**: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Correct Reactor Recirculation Flow Control Pump Speed Mismatch

JPM Number: 2018 ILT NRC JPM a Revision Number: 00

Task Number and Title:

SR-0202-P30, Given an operating reactor plant, place the reactor recirc A/B ASD in Speed Hold from the 901(2)-4 panel IAW QCOP 0202-39

K/A Number and Importance: **KA:** 202002 A2.04 **Rating:** 3.0/3.2

Suggested Testing Environment: Simulator

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

QCOP 0202-03, "Reactor Recirculation System Flow Controller Operation", Rev 26

QCOP 0202-39, "Reactor Recirculation Manual Hold and Local Manual Operation", Rev 6.

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

- Unit 1 is at __% RTP
- The B2 Power Cell associated with the ‘A’ Reactor Recirculation pump Adjustable Speed Drive system controller failed.
- Recirculation Flow Control automatically shifted to MANUAL mode
- A speed hold exists on the ‘A’ Reactor Recirculation pump flow controller.
- System Engineering also confirms that an adequate number of Power Cells are operating for continued operation of the ‘A’ Reactor Recirculation pump ASD system controller.
- There is a 6% mismatch between Jet Pump loop flows

INITIATING CUE

1. Reset the Speed Hold on the 1A Reactor Recirculation pump IAW QCOP 0202-39.
2. Using QCOP 0202-03:
   a) Return Recirc Flow Control to the Master mode.
   b) Balance Jet Pump Loop flows.

Job Performance Measure

Inject SSMP to U1 with Trip of Normal Feed

JPM Number: 2018 ILT NRC JPM b

Revision Number: 02

Date: 05 / 28 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 2900-02 Rev: 30
Procedure QCAN 912-8 A-8 Rev: 05
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

_____	_____
SME / Instructor	Date
_____	_____
SME / Instructor	Date
_____	_____
SME / Instructor	Date

Revision Record (Summary)

Revision 00, This JPM was used on the 2014 LORT Annual Exam

Revision 01, JPM revised to update the format and for procedure revisions.

Revision 02, Revised for use on 2018 ILT NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1) Reset the simulator to any IC.

> 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

   None

3) Malfunctions
   a) Cause 4KV BKR 152-1425 to FAIL to CLOSE:
      - imf ed04l
   b) Use triggers 5 & 6 to TRIP bus 31 when 2901-7 valve opens, then delete malfunction when 4KV BKR 1425 OPENS:
      - trgset 5 “zlohs029017(2).gt.0”
      - imf ed03f (5 4)
      - trgset 6 “zlohs165001425(2).gt.0”
      - trg 6 “dmf ed03f”

4) Remotes

   None

5) Overrides

   None

6) 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.

7) This completes the setup for this JPM.

INITIAL CONDITIONS

- Unit 1 Reactor scrammed on loss of Feed Water several minutes ago. HPCI manual startup was attempted, but the turbine stop valve would not open. Maintenance is investigating.
- Reactor water level is –45", lowering.
- The Unit 1 Unit Supervisor has determined that Safe Shutdown Makeup Pump injection is required.
- Hard Cards are authorized.
- This JPM is NOT time critical.

INITIATING CUE

INJECT Safe Shutdown Makeup Pump to Unit 1. NOTIFY the Unit Supervisor when the SSMP system is injecting.

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.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	Obtain procedure to be used.	Obtains QCOP 2900-02 or HARD CARD.	___	___	___
NOTE:	**Examinee may choose to follow the procedural steps of QCOP 2900-02, (provide blank copy if selected) OR use the HARD CARD on the 912-8 panel. Either method is acceptable.**				
F.6.a.(1) Hard Card Step 2	Verify pump suction pressure available.	Verifies pump suction pressure is available on PI 1/2-2940-01, on the 912-8 panel.	___	___	___
F.6.b Hard Card Step 3	Open MOV 1/2 –2901-7, THROTTLED TEST VLV.	Places and holds MOV 1/2-2901-7 control switch in the OPEN position until valve is full open, (red light lit-green light out).	___	___	___
NOTE: Breaker 1425 will trip 4 seconds after the examinee begins opening the 1/2-2901-7					
Alternate path starts here.					
	Reports breaker 152-1425, Bus 14-1 feed to Bus 31, has tripped.	Acknowledges annunciator 912-8 A8, SSMP System Trouble, and dispatches EO's to the SSMP Room and to Bus 14-1.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE:	**As the EO sent to the SSMP room; report that:** **"The room is dark, but otherwise everything appears normal. NO targets have actuated on any breakers."** **IF asked about the status of the breaker for MO 1/2-2901-7, report that:** **"It appears normal."** **IF asked, as the EO sent to Bus 14-1, report that:** **"The feed breaker to Bus 31 is OPEN and there appears to have been some arcing in the upper compartment. All other indications on Bus 14-1 appear NORMAL."**				
	Notifies Unit Supervisor that SSMP system can NOT be energized from Bus 14-1.		___	___	___
CUE:	**IF the examinee asks the Unit 2 Supervisor for permission to energize Bus 31 from Unit 2 (Bus 24-1), grant permission.**				
F.5.a.(1) Hard Card Step 1.a.	Verify CLOSED breaker 152-2425, Reserve Feed to Bus 31 from Bus 24-1.	Observes red light is lit for GCB 2425, GCB RESERVE FEED CONTROL	___	___	___
*F.5.a.(2) *Hard Card Step 1.b.	Open Normal Feed breaker from Bus 14-1 to Bus 31.	Places control switch for ACB 152-3101, NORMAL FEED CONTROL to the TRIP position and verifies green light is lit.	___	___	___
*F.5.a.(3) *Hard Card Step 1.c.	Close Reserve Feed breaker from Bus 24-1 to Bus 31.	Places control switch for ACB 152-3102, RESERVE FEED CONTROL, to the CLOSE position and verifies red light is lit-green light out.	___	___	___
CUE: IF asked, report as the EO in the SSMP room, "the lights just came back on."					
NOTE: Examinee should resume the procedure from step F.6.b (or Hard Card Step 3).					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.6.b *Hard Card Step 3	Open MOV ½ -2901-7, THROTTLED TEST VALVE.	Places and holds MOV 1/2-2901-7 control switch in the OPEN position until valve is full open, (red light lit-green light out).	___	___	___
CUE: If examinee asks whether or not to re-attempt to throttle the 1/2-2901-7 valve, ask their recommendation. Regardless of their reply reiterate that Safe Shutdown injection to Unit 1 is needed.					
*F.6.c *Hard Card Step 4	Start 1/2 2901, SAFE SHUTDOWN PUMP.	Places 1/2-2901 SAFE SHUTDOWN PUMP control switch to the START position and verifies red light is lit.	___	___	___
F.6.c.(1) Hard Card Step 4	Verifies discharge pressure increase.	Verifies PI 1/2-2940-05, on the 912-8 panel, shows increasing pressure.	___	___	___
*F.6.d *Hard Card Step 5	Place SSMP Flow Controller in AUTO.	Depresses the A/M pushbutton on FIC 1/2-2901-6, SAFE SHUTDOWN MU PMP FCV and verifies  is lit.	___	___	___
*F.6.d.(1) *Hard Card Step 5.a	Increases controller setpoint to 400 gpm.	Depresses  to increase FIC 1/2-2901-6 setpoint to 400 gpm and verifies flow increases to 400 gpm.	___	___	___
*F.6.e *Hard Card Step 6	Open MOV 1-2901-8, U1 REACTOR SUPPLY VLV.	Places MOV 1-2901-8 control switch to the OPEN position and verifies the red light is lit-green light out.	___	___	___
*F.6.g *Hard Card Step 8	Close MOV 1/2-2901-7, THROTTLED TEST VLV.	Places and holds MOV 1/2-2901-7 control switch in the CLOSED position until valve is full closed, (green light lit – red light out).	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	Verifies flow indication.	Verifies flow indication on ½-2901-6, Safe Shutdown MU Pmp FCV.	___	___	___
	Notifies the Unit 1 Unit Supervisor that the SSMP is injecting to Unit 1.		___	___	___
CUE: As the US, report, "RPV water level is now –40 inches and rising."					
F.6.i Hard Card Step 10	Verify closed ½-2999-9, SERVICE WATER TO SSMP ROOM COOLER BYPASS VLV.	Directs EO to verify ½-2999-9, Service Water to SSMP Room Cooler Bypass Valve is closed.	___	___	___
CUE: As the EO, report, "the ½-2999-9, Service Water to SSMP Room Cooler Bypass Valve is closed."					
NOTE: Examinee should report that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Inject SSMP to U1 with Trip of Normal Feed

JPM Number: 2018 ILT NRC JPM b Revision Number: 02

Task Number and Title:

SR-2900-P02: (Freq: LIC=A) (ILT-MP) Given Unit 1 in a QGA condition with the SSMP in a standby lineup, start the SSMP from the 912-8 panel and inject to Unit 1 or Unit 2 in accordance with QCOP 2900-02. (Important PRA Operator Action - Proper operation of SSMP terminates 16 of the top 100 Core Damage Sequences) (Switching SSMP between units– reduces CDF by 6.2%, aligning FPS to SSMP, closing the room cooler bypass valve-reduces CDF by 9.1%, and switching AC busses)

K/A Number and Importance: **K/A:** 217000. A4.04 **Rating:** 3.6/3.6

Suggested Testing Environment: Simulator

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 2900-02 Rev. 30, Safe Shutdown Makeup Pump System Startup
QCAN 912-8 A-8, Rev. 5, Safe Shutdown Makeup Pump System Trouble

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 14 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

- Unit 1 Reactor scrammed on loss of Feed Water several minutes ago. HPCI manual startup was attempted, but the turbine stop valve would not open. Maintenance is investigating.
- Reactor water level is –45”, lowering.
- The Unit 1 Unit Supervisor has determined that Safe Shutdown Makeup Pump injection is required.
- Hard Cards are authorized.
- This JPM is NOT time critical.

INITIATING CUE

INJECT Safe Shutdown Makeup Pump to Unit 1. NOTIFY the Unit Supervisor when the SSMP system is injecting.

EXELON NUCLEAR

Job Performance Measure

Shutdown ½ "B" SBGT with a Failure of the ½-7505B Damper to Close

JPN Number: 2018 ILT NRC JPM c

Revision Number: 00

Date: 05/16/2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 7500-02 Rev: 21
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

1. **Revision 00,** This JPM was used on the 2018 ILT NRC Exam. The initial conditions and setup of Quad Cities JPM LS-002-I-F were revised.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any power IC.

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 Actuation, Overrides, malfunctions, and remotes**:

   Set trigger to be true when the 1/2B SBGT Control Switch is taken to OFF:

   trgset 1 "zdihs0754011b(1).ge.1"

   Override the ½-7505B green light off using override LOIL07505B1 two seconds after securing SBGTS B:

   ior loil07505b1(1 0:02) off

   Override the ½-7505B red light off using override LOIL07505B1 two seconds after securing SBGTS B:

   ior loil07505b2(1 0:02) off

   Start the B SBGTS by placing the control switch to START

   Acknowledge annunciators

3. 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.
4. When examinee locates procedure, provide them with copy.
5. This completes the setup for this JPM.

INITIAL CONDITIONS

- The plant is operating at ____ power.
- "B" SBGTS was started earlier for Engineering to obtain data on the Carbon Iodine Absorber.
- The Unit Supervisor has directed the ½"B" SBGTS shutdown.
- This JPM is not time critical.

INITIATING CUE

Shutdown the 1/2B SBGTS per QCOP 7500-02 and place it in a standby lineup.

(Provide the examinee with a blank copy of QCOP 7500-02.)

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.2.a	Verify initiation signals for SBGTS are clear.	Verifies 901-5 B-5 "Group II ISOL NOT RESET" annunciator is clear.	___	___	___
F.2.b	Verify RB vent and Fuel Pool Rad monitor initiation signals are clear.	Verifies the following annunciators are NOT in alarm: 901-3 G-3, Rx Bldg Vent Channel A Hi Hi Radiation 901-3 H-3, Rx Bldg Vent Channel B Hi Hi Radiation 901-3 E-3, Rx Bldg Vent Channel A Downscale 901-3 F-3, Rx Bldg Vent Channel B Downscale 901-3 G-16, Fuel Pool Channel A Hi Radiation 901-3 H-16, Fuel Pool Channel B Hi Radiation 901-3 C-16, Fuel Pool Channel A Downscale 901-3 D-16, Fuel Pool Channel B Downscale 901-5 A-8, Group 2 Isol CH Trip	___	___	___
*F.2.c	Shutdown the ½ B SBGTS.	Places the 1/2B SBGTS Train mode selector switch in "OFF".	___	___	___
EVALUATOR NOTE: The breaker for Inlet Damper, ½ -7505B will trip 2 seconds after the B SBGTS Mode Switch is taken to the OFF position.					
F.2. d.-e.	Verify U1 and U2 RB Inlet Dampers are OPEN.	Verifies the 1-7503 and 2-7503 inlet damper OPEN lights are lit and CLOSED lights are out.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.2.f	Verifies 1/2B SBGTS line-up at the 912-5 panel.	Reports the ½-7505B CLOSED light is **out**. Verifies the ½-7504B OPEN light is lit and CLOSED light out. Verifies the ½-7507B CLOSED light is lit and OPEN light out. Verifies the ½-7506B OFF light is lit. Verifies the ½-7503B OFF light is lit.	___	___	___
CUE:	**If dispatched to MCC 19-4, as EO report back that the ½-7505B breaker is tripped and there is an acrid odor, but there is no fire.**				
CUE:	**As the US, inform the examinee a clearance order will be prepared for the 1/2B SBGTS and it will be declared inoperable.**				
ALTERNATE PATH STARTS HERE					
*F.2.g .(2)	Establish proper line-up of SBGTS trains	Places the ½"A" SBGTS MODE SELECTOR switch to PRIM	___	___	___
F.2.h	Verify all applicable annunciators are cleared.	Acknowledges and resets 912-5 panel alarms as necessary.	___	___	___
F.2.i	Notify Radiation Protection	Notifies RP that the SBGTS is secured.	___	___	___
F.3	Requests an independent verification of SBGTS lineup	Notifies the Unit Supervisor an independent verification is required.	___	___	___
CUE:	**Inform the examinee, that another NSO will complete the verification.**				
EVALUATOR NOTE: The examinee should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Shutdown ½ "B" SBGT with a Failure of the ½-7505B Damper to Close

JPM Number: 2018 ILT NRC JPM c Revision Number: 00

Task Number and Title:

SR-7500-P01 (Freq: LIC=B) Given SBGTS in a standby lineup, perform the monthly SBGTS monthly operability test and return SBGTS to a standby line up in accordance with QCOS 7500-05.

K/A Number and Importance: **K/A:** 261000 2.1.31 **Rating:** 4.6/4.3

Suggested Testing Environment: Simulator

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 7500-02, Rev. 21, STANDBY GAS TREATMENT SYSTEM SHUTDOWN

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

- The plant is operating at ____ power.
- "B" SBGTS was started earlier for Engineering to obtain data on the Carbon Iodine Absorber.
- The Unit Supervisor has directed the ½"B" SBGTS shutdown.
- This JPM is not time critical.

INITIATING CUE

Shutdown the 1/2B SBGTS per QCOP 7500-02 and place it in a standby lineup.

Job Performance Measure

Unisolate and Start the Reactor Building Ventilation System

JPM Number: 2018 ILT NRC JPM d

Revision Number: 01

Date: 05/16/2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 5750-02 Rev: 27
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 00, This is a new JPM that was developed for the 2009 NRC Initial License Exam.

Revision 01, Updated LS-077-I with most recent JPM template and procedure revisions for the 2018 NRC Initial License Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any IC.

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. Set up the Reactor Building Ventilation system as follows:
   - **Place all running U-1 and U-2 Reactor Building fan control switches in PTL.**
   - **Close the isolation dampers for Unit 1 and Unit 2.**
3. Verify the following setup conditions:
   - Outside air temperature approximately 80°F on Panel 912-5, TI 1-5703-12B.
4. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
5. This completes the setup for this JPM.
6. Provide a copy of QCOP 5750-02 with the following steps signed off/N/A'd:
   - Prerequisite C.1, C.1.a – N/A'd
   - Prerequisite C.2, C.3 – Signed off
   - F.1.a – N/A'd
   - F.1.b – N/A'd
   - F.2, 3, 4– N/A'd

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- The Channel A Reactor Building Vent Rad Monitor failed upscale due to an internal fault.
- IMs have repaired the fault and tested the monitor satisfactorily.
- Outside air temperature is approximately 80°F.
- The heating Boiler is NOT in operation.
- Proper operation of the Unit-1 Differential Pressure Controller has been verified.
- Radiation Protection and Chemistry have been notified that Reactor Building Ventilation will be started.

INITIATING CUE

Restore the Unit-1 Reactor Building Ventilation System per QCOP 5750-02.

Another operator will restart the Unit-2 Reactor Building Ventilation fans.

Inform the Unit supervisor when Unit-1 Reactor Building Ventilation has been returned to a normal operating lineup.

(Provide the examinee with a marked up copy of QCOP 5750-02)

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
EVALUATOR NOTE: Step F.1a and F.1.b are not applicable because, per the Turnover,the U-1 DPC was verified in operation and the heating boiler is not operating.					
F.1.c. (1)	Verify all isolation signals are reset.	Verifies the following annunciators are NOT in alarm: • 901-3 G-3 • 901-3 A-3 • 901-5 A-8 • 901-5 B-5	___	___	___
F.1.c. (2)	Verify RB Vent C/S targets GREEN (AUTO-AFTER-OFF position), or in PTL.	On Panel 912-5, control switch positions for all Reactor Building Vent Fans are GREEN or are in PTL.	___	___	___
EVALUATOR NOTE: The examinee may chose to open both Units Isolation Dampers. However since the task is to restore Unit 1 ventilation, critical steps apply to Unit 1 components only.					
F.1.c. (3) (a.-d.)	Give each Reactor Building Vent Isolation Damper a close signal.	At the 912-1 Panel: Momentarily places the following control switches to CLOSE: 1-5741-196A HS 1-5741-250A HS 2-5741-196A HS 2-5741-250A HS	___	___	___
CUE:	**The RB Vent Isolation can also be reset at a local panel. If the examinee tries to contact an EO to perform this task, Role Play as necessary. All EOs are busy at this time.**				
*F.1.c. (4) (a.-b.)	Reset RB Vent Isolation	At the 912-1 panel: Presses the U1 and U2 ISOL DAMPER RESET pushbuttons.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.1.c. (5) (a.-d.)	Open U-1 RB Vent Isolation Dampers	Momentarily places the following control switches at the 912-1 panel to OPEN: 1-5741-196A HS 1-5741-250A HS	___	___	___
F.1. (d.) (1-8)	Verify OPEN indication for the U1 and U2 RB isolation dampers on 912-1 panel.	At the 912-1 panel, verifies the red OPEN lights are lit for the following dampers: AO 1-5741A AO 1-5741B AO 1-5742A AO 1-5742B	___	___	___
EVALUATOR: Per the NOTE preceding these next two steps, the supply fan should be started immediately after starting the exhaust fan to minimize dP swings.					
*F.1.e.	Start one RB EXH FAN, then one RB SUPPLY FAN.	Places the Control Switches for a U1 Reactor Building Exhaust Fan and then a Reactor Building Supply Fan to the “ON” position and holds for at least 5 seconds until current indication stabilizes.	___	___	___
*F.1.f.	Start a second RB EXH FAN, then a second RB SUPPLY FAN.	Places the Control Switches for a U1 Reactor Building Exhaust Fan and then a Reactor Building Supply Fan to the “ON” position and holds for at least 5 seconds until current indication stabilizes.	___	___	___
F.1.g	Maintain RB < –0.1″ H_2O D/P	At the 912-5 panel: RX Building D/P verified to be –0.1″ to –0.7″ H_2O, as indicated on DPI 1-5740-22, RX BLDG TO ATMOS DP.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
EVALUATOR NOTE: If Rx Bldg D/P is not < -0.1" H_2O, inform the examinee that the U2 NSO will correct it when U2 RB vents are started.					
F.1.h.	Place the standby Supply and Exhaust Fan control switches to AUTO-AFTER–OFF (green target).	Places / verifies green targets for the remaining U-1 Supply and Exhaust fans.	___	___	___
CUE:	**If necessary, remind the examinee that another operator will restart the Unit-2 fans and notify Chemistry Department of time and configuration of RB Ventilation.**				
EVALUATOR: The examinee should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Unisolate and Start the Reactor Building Ventilation System

JPM Number: 2018 ILT NRC JPM d Revision Number: 01

Task Number and Title:

SR-5750-P03: (Freq: LIC=I) Given an operating reactor plant following a reactor building ventilation isolation, unisolate and start the reactor building ventilation system IAW QCOP 5750-02.

K/A Number and Importance: **K/A:** 290001 A4.01 **Rating:** 3.3/3.4

Suggested Testing Environment: Simulator

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 5750-02, Rev. 27, Reactor Building Ventilation System

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- The Channel A Reactor Building Vent Rad Monitor failed upscale due to an internal fault.
- IMs have repaired the fault and tested the monitor satisfactorily.
- Outside air temperature is approximately 80°F.
- The heating Boiler is NOT in operation.
- Proper operation of the Unit-1 Differential Pressure Controller has been verified.
- Radiation Protection and Chemistry have been notified that Reactor Building Ventilation will be started.

INITIATING CUE

Restore the Unit-1 Reactor Building Ventilation System per QCOP 5750-02.

Another operator will restart the Unit-2 Reactor Building Ventilation fans.

Inform the Unit supervisor when Unit-1 Reactor Building Ventilation has been returned to a normal operating lineup.

Job Performance Measure

Place Shutdown Cooling in Operation with RHR system leak

JPM Number: 2018 ILT NRC JPM e

Revision Number: 01

Date: 05 / 14 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 1000-05 Rev: 55
Procedure QCOP 1000-04 Rev: 22
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

_____ _____
SME / Instructor Date

_____ _____
SME / Instructor Date

_____ _____
SME / Instructor Date

Revision Record (Summary)

Revision 00, Created for the ILT 12-1 NRC exam. The setup creates a flowpath from the 1A RHR pump to the torus [masked by overrides], initiated at RHR pump start. In addition, a torus leak is initiated to mask the torus level rise and give indications that the RHR piping is leaking into the Reactor Building basement.

Revision 01, Modified for use on 2018 ILT NRC Exam. Initial conditions changed to have RHR Loop A aligned for a subsequent restart and RHRSW in standby with the 1-1001-17A throttled. The leak location was also changed to the RHR discharge line inside containment.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 5 (SDC on) or IC 6 (ready for shutdown cooling)

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. If IC 5 is used, then perform the following:
   a) Secure SDC per QCOP 1000-05 step F.5.a. thru c.
   b) Place EST per step F.1.p.(4).
   c) Throttle MO 1-1001-16 open, (dual indication needed).
   d) Secure RHRSW pumps

   If IC 6 is used, then perform the following:
   a) Line up and start 1A RHR pump in SDC operation by performing the following steps of QCOP 1001-05: F.1.b., F.1.c., F.1.e.(1-2), F.1.f. thru n., F.1.p.(4), F.1.q-r.
   b) Secure SDC and place in a lineup for subsequent restart by performing QCOP 1001-05 step F.5.a. thru c.
   c) Throttle MO 1-1001-16 open, (dual indication needed).
   d) Secure RHRSW pumps
3. Run the following commands (contained in caep file “JPM e caep”)

   Fail group 2 to work (4 commands):

   imf rp08A

   imf rp08B

   imf rp08C

   imf rp08D

   Rack out MO 1-1001-34A breaker and override closed light on:

   irf rh23ar open

   ior lohs1100134a1 on

   Rack out MO 1-1001-36A breaker and override closed light on:

   irf rh24ar open

   ior lohs1100136a1 on

   Open the MO 1-1001-36A valve:

   irf rh34ar 100

SIMULATOR SETUP INSTRUCTIONS (cont.)

Override “A” RHR Containment Flow to zero:

ior aofi1104011a 0

Set trigger 1 true when 1A RHR pmp c/s is in NAS

trgset 1 “zdihs110021A(4)”

Open RHR 34A 10% when trigger 1 is true

trg 1 “irf rh33ar 10”

Set trigger 2 true when 1A RHR pmp c/s is in NAS

trgset 2 “zdihs110021A(4)”

Override RBFDS alarms on when trigger 2 goes true

imf ser0655 on (2)

imf ser0656 on (2)

4. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
5. This completes the setup for this JPM.

INITIAL CONDITIONS

- Unit 1 is in Cold Shutdown.
- Reactor water temperature has been steady for the last hour.
- RHR Loop A is lined up for Shutdown Cooling and ready for a subsequent restart.
- A slow cooldown rate has been directed.
- EOs are standing by outside the 1A RHR Room and 1A RHRSW vault.
- Pre-start checks are complete the 1A RHR pump and 1A RHRSW pump.

INITIATING CUE

Start RHRSW and Shutdown Cooling using the 1A RHRSW and 1A RHR pumps per QCOP 1000-04 and QCOP 1000-05 step F.2.

Provide the examinee with a blank copy of QCOP 1000-04 and a marked up copy QCOP 1000-05.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE: The examinee should evaluate QCOP 1000-04 step F.1.a. as Not Applicable					
F.1.b. (1)	Verify RHRSW flow is in either NORMAL FLOW or REVERSE FLOW lineup.	At the 901-3 panel, verifies the following: • 1A RHR HX SW FLOW SELECT switch is in the NORM position • 1001-4A OPEN light lit • 1001-185 OPEN light lit • 1001-186 CLOSED light lit • 1001-187 CLOSED light lit	___	___	___
*F.1.b. (2)	Throttle open RHR HX DISCH VLV, MO 1-1001-5A.	Throttles open MO 1-1001-5A VLV C/S until at least 40% open.	___	___	___
*F.1.b. (3)	Start an RHRSW pump on “A” Loop.	Starts the 1A RHRSW pump and contacts the EO for post start checks.	___	___	___
CUE:	**As EO, report that the post-start checks for the RHRSW pump are completed.**				
*F.1.b. (4)	Throttle RHR HX DISCH VLV, MO 1-1001-5A to obtain discharge pressure and flow.	Throttles MO 1-1001-5A to obtain: < 3600 gpm on FI 1-1040-1A < 350 psig on PI 1-1040-3A	___	___	___
F.1.b. (5)	Monitors RHRSW discharge for increasing radioactivity.	At the 901-2 panel: Verifies no increase observed on 1-1705-12, PROCESS LIQUID MONITOR	___	___	___
NOTE: The examinee should refer back to QCOP 1000-05, sign off step F.2.a. and continue.					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.2.b. (1-4)	Verifies the following valves are CLOSED: MO 1-1001-19A MO 1-1001-7A MO 1-1001-7B MO 1-1001-29A	Verifies GREEN light lit and RED light out for the following: MO 1-1001-19A MO 1-1001-7A MO 1-1001-7B MO 1-1001-29A	___	___	___
F.2.c. (1-3)	Verifies the following valves are OPEN: MO 1-1001-43A MO 1-1001-47 MO 1-1001-50	Verifies GREEN light out and RED light lit for the following: MO 1-1001-43A MO 1-1001-47 MO 1-1001-50	___	___	___
NOTE: MO 1-1001-16A will be full open because the RHRSW outlet valve 1-1001-17A to the Heat Exchanger is throttled to control the cooldown rate.					
F.2.d. (1-2)	Verifies the following valves are THROTTLED OPEN: MO 1-1001-28A MO 1-1001-16A, RHR HX BYP VLV	Verifies DUAL light indication for MO 1-1001-28A. Verifies GREEN light out and RED light lit for MO 1-1001-16A.	___	___	___
F.2.e.	Verifies proper valve lineup for the “A” Reactor Recirc Pump.	At the 901-4 panel, verifies “A” Reactor Recirc pump current, flow, and DP.	___	___	___
F.2.f.	Verifies 1-1001-17A is throttled for a slow cooldown rate.	Verifies EST on MO 1-1001-16A C/S states 1-1001-17A valve is throttled.	___	___	___
F.2.g.	Reset Group 2 isolation for MO 1-1001-29A.	Pushes RESET FOR GRP 2 ISOL VLV 1-1001-29 pushbutton for RHR Loop A.	___	___	___
NOTE: The RHR pump should be started shortly after the MO 1-1001-29A C/S is taken to OPEN to avoid pump runout.					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.1.h. (1)	Open MO 1-1001-29A, INBD LPCI INJ VLV.	Places control switch for MO 1-1001-29A to open and releases. Verifies red light lit and green light out.	___	___	___
*F.1.h. (2)	Start the 1A RHR Pump	Places the 1A RHR pump C/S to START approx..2 seconds after MO 1-1001-29A C/S is given an OPEN signal.	___	___	___
F.1.j.	Monitor RPV cooldown rate	Monitors RPV water temp at on 1-260-11, 1A and 1B PMP LOOP TEMP. Verifies RHR pump flow $\geq$ 2500 gpm.	___	___	___
SIM OP NOTE: When the examinee checks RHR flow or RPV water temperature, insert a 10% break in the Injection line inside the Drywell using malfunction RH05A: **imf rh05a 10**					
ALTERNATE PATH STARTS HERE					
	Identifies a Group II isolation signal has occurred and valves did NOT close.	Acknowledges the following alarms: 901-5 A-8, GROUP II CH TRIP 901-5 B-5, GROUP 2 ISOL NOT RESET Identifies Grp II valves with OPEN light indication: • MO 1-1001-47 • MO 1-1001-50 • MO 1-1001-29A	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	Identifies RHR leak inside Containment	Acknowledges the following alarms and plant response: 901-4 A-17, DRYWELL FLOOR DRAIN SUMP HIGH LEVEL 901-4 B-17, DRYWELL EQUIP DRAIN SUMP HIGH LEVEL Low Flow Valve opening	___	___	___
NOTE: QCOP 1001-05 Limitations and Actions section step E.2, directs closure of Group II valves when a loss of inventory occurs. If the 1A RHR pump is still running, the examinee should verify the pump trips upon closure of either the -47 or -50 valves in the steps below.					
*E.2	**IF** an unexplained loss of inventory should occur, **THEN**: **Close** MO 1-1001-47, SDC SUCT HDR DOWNSTREAM SV, if energized.	Places control switch for MO 1-1001-47 to close and verifies GREEN light lit, RED light out.	___	___	___
*E.2	**IF** an unexplained loss of inventory should occur, **THEN**: **Close** MO 1-1001-50, SDC HDR UPSTREAM SV, if energized.	Places control switch for 1-1001-50 to close and verifies GREEN light lit, RED light out.	___	___	___
E.2	**IF** an unexplained loss of inventory should occur, **THEN**: **Close** MO 1-1001-29A, LPCI LOOP DOWNSTREAM SV.	Places control switch for 1-1001-29A to close and verifies GREEN light lit, RED light out.	___	___	___
	Reports to the Unit Supervisor of the unexplained loss of inventory and actions taken to isolate the Reactor Vessel	Reports to the Unit Supervisor of the unexplained loss of inventory and actions taken to isolate the Reactor Vessel	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	Reports to the Unit Supervisor of the failed Group II isolation	Reports failure of Group II to isolation valves to automatically close.	___	___	___
CUE:	**As Unit Supervisor, acknowledge the report(s). Inform the examinee you will have the system(s) inspected.**				
NOTE: The examinee should inform you the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Job Title**: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Place Shutdown Cooling In Operation with RHR system leak

JPM Number: 2018 ILT NRC JPM e Revision Number: 01

Task Number and Title:

SR-1000-P14: (Freq: LIC=B) Given a shutdown reactor plant with RHR/SDC in service when an inadvertent drain down to the torus or drywell occurs, isolate RHR/SDC to stop the drain down in accordance with QCOP 1000-05.

K/A Number and Importance: **K/A:** 205000 A2.09 **Rating:** 3.6/3.8

Suggested Testing Environment: Simulator

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 1000-05, Shutdown Cooling Operation, Rev 55

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

[If this page is an odd numbered page, a blank page is automatically generated after this page to keep the student cue sheet separate from this page]

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

- Unit 1 is in Cold Shutdown.
- Reactor water temperature has been steady for the last hour.
- RHR Loop A is lined up for Shutdown Cooling and ready for a subsequent restart.
- A slow cooldown rate has been directed.
- EOs are standing by outside the 1A RHR Room and 1A RHRSW vault.
- Pre-start checks are complete the 1A RHR pump and 1A RHRSW pump.

INITIATING CUE

Start RHRSW and Shutdown Cooling using the 1A RHRSW and 1A RHR pumps per QCOP 1000-04 and QCOP 1000-05 step F.2.

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Job Performance Measure

HPCI Startup for Pressure Control with an Inadvertent Isolation

JPM Number: 2018 ILT NRC JPM f

Revision Number: 00

Date: 05 / 14 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 2300-06 Rev: 35
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 00, This was developed as a new alternate path JPM for the 2018 ILT NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any at power or pressure IC.

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. Insert a partial Group IV isolation using malfunction, HP14, then delete it with the following commands:

   trgset 1 "hpntb .ge. 0.4" (sets trigger 1 to go true at 40% of 6000 rpm)

   trg 1 "imf hp14"

   trgset 2 "zlohs123015(1)" (sets trigger 2 to go true when MO 1-2301-5 has a closed light lit [indication will be dual])

   trg 2 "dmf hp14"

3. Blank copy of QCOP 2300-06 and QCOA 2300-04.
4. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
5. This completes the setup for this JPM.

INITIAL CONDITIONS

Unit 1 has scrammed on a loss of Main Condenser vacuum.

The Unit Supervisor has entered QGA 100.

RPV water level is being maintained by RCIC and SSMP at 30 inches.

RPV pressure is 1000 psig and slowly rising.

The Unit Supervisor is directing the use of Alternate Pressure Control systems.

Hard Cards are authorized.

INITIATING CUE

Start HPCI in pressure control mode.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE: The procedural steps of QCOP 2300-06 and the Hard Card (HC) are included. Provide the blank copy of QCOP 2300-06 when/if the examinee refers to it.					
F.4.a.	Verify HPCI Trip Pushbutton is NOT latched	Verifies REMOTE HPCI TURB TRIP pushbutton latch is disabled.	___	___	___
F.4.b.	Verify HPCI CCST suction valve lineup	Verifies CCST suction lineup: MO 1-2301-6, OPEN light lit MO 1-2301-35, CLOSED light lit MO 1-2301-36, CLOSED light lit	___	___	___
*F.4.d. *HC.1	Start the Gland Exhauster	Places C/S to START and verifies ON light is lit.	___	___	___
*F.4.e. *HC.2	Start the Aux Oil Pump	Places C/S to MAN and verifies ON light is lit.	___	___	___
*F.4.f. *HC.3	Close the DRAIN VLVs TO MN CNDSR	Places C/S for AO 1-2301-29 and AO 1-2301-30 to CLOSE and verifies CLOSED lights are lit.	___	___	___
*F.4.g. *HC.4	Open the DRAIN TRAP TO DRAIN POT VLV	Places C/S for AO 1-2301-28 to OPEN and verifies OPEN light lit.	___	___	___
NOTE: Opening the MO 1-2301-3 valve will cause annunciator 901-3 A-9, HPCI TURBINE TRIPPED, to alarm. This is an expected alarm caused by the HPCI 3 valve open and low governor oil pressure.					
*F.4.h. *HC.5	Open HPCI TURB STM SPLY VLV	Places C/S for MO 1-2301-3 to OPEN and verifies OPEN light lit and CLOSED light out.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.4.i. HC.6	Verify open the MIN FLOW BYP VLV	Verifies MO 1-2301-14, OPEN light lit and CLOSED light out.	___	___	___
*F.4.j. *HC.7	Close the DRAIN VLVs TO SUMP	Places C/S for AO 1-2301-64 and AO 1-2301-65 to CLOSE and verifies CLOSED lights are lit.	___	___	___
*F.4.k. *HC.8	Open the HPCI TURB STOP VLV	Depresses HPCI TURB TRIP RESET pushbutton and verifies the HPCI TURB STOP VLV opens. Verifies OPEN light lit.	___	___	___
NOTE: QCOP 2300-06 step F.4.m directs the actions of step F.6. for reactor pressure control mode with no initiation signal present.					
*F.6.a. *HC.9	Open the TEST RTN VLV	Places C/S for MO 1-2301-15 to OPEN and observes the OPEN light lit and CLOSED light out.	___	___	___
*F.6.b *HC.10	Open the TEST RETURN VLV	Places and holds C/S for MO 1-2301-10 to OPEN until the OPEN light is lit and CLOSED light out.	___	___	___
F.6.c HC.11	Increase Turbine speed	Places and holds MSC c/s to SLOW or FAST RAISE until HSS light is lit	___	___	___
	Reports Partial Group IV isolation	Acknowledges annunciators: 901-3 C-10, HPCI GRP4 PCI VLVS NOT OPEN 901-3 D-10. HPCI GRP 4 PCI VLVS DC DIV ISOL Observes MO 1-2301-5 valve closing.	___	___	___
ALTERNATE PATH STARTS HERE					

SRRS: 3D.105 (when utilized for operator initial or continuing training)

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE:	**As an EO, call in from the Aux Electric Room and report:** **"I was in the 901-32-2E cabinet to defeat the HPCI Area High Temperature isolation per QCOP 2300-14 and I inadvertently bumped and momentarily actuated the 1-2330-102B HPCI DC Isolation Relay. There is NO damage to the relay."**				
CUE:	**If the examinee asks the Unit Supervisor for direction after reporting the HPCI isolation, state,** **"Continue efforts to establish HPCI in Pressure Control Mode"**				
EVALUATOR NOTE: The following steps are from QCOA 2300-04, HPCI Turbine Trip/Isolation Recovery. The examinee may perform step D.2 and close MO 1-2301-4 to complete the isolation. This is NOT required since a valid isolation signal did not occur. If this is done, then re-opening MO 1-2301-4, STM ISOL VLV becomes a critical step.					
D.4.d.(1)	Verify ALL HPCI Isolation signals are cleared.	Verifies the following 901-3 alarms are cleared: - C-12, HPCI STM LINE HIGH DP - F-12, HPCI PUMP AREA HI TEMP - H-2, AREA HI TEMP STEAM LEAK DETECTION	___	___	___
D.4.d.(2)	Reset AC trip logic.	Positions AC TRIP LOGIC RESET keylock switch on 901-3, to STM SPLY **AND** VACU BKR position.	___	___	___
*D.4.d.(3)	Reset DC trip logic	Positions DC TRIP LOGIC RESET keylock switch on 901-3 to STM SPLY **AND** VACU BKR position.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
D.4.d.(4), (5)	Verify AC & DC PCI DIV ISOL alarms are clear.	Depresses annunciator reset pushbutton and clears: -901-3 D-9, HPCI GRP 4 PCI VLVS AC DIV ISOL -901-3-D-10, HPCI GRP 4 PCI VLVS DC DIV ISOL.	___	___	___
D.4.d.(6)	Verify Open MO 1-2399-40, TURB EXHST VAC BKR VLV.	Verifies OPEN light lit and CLOSED light out for MO 1-2399-40 valve.	___	___	___
D.4.d.(7)	Verify Open MO 1-2399-41, TURB EXHST VAC BKR VLV.	Verifies OPEN light lit and CLOSED light out for MO 1-2399-41 valve.	___	___	___
D.4.d.(9)	Verify Closed HPCI TURB STM SPLY VLV	Places C/S for MO 1-2301-3 to CLOSE and observes the CLOSED light lit and OPEN light out.	___	___	___
*D.4.d.(10)	Open STM ISOL VLV.	Places MO 1-2301-5 C/S to the OPEN position and verifies the OPEN light lit and CLOSED light out.	___	___	___
D.4.d.(11)	Verify Open STM ISOL VLV.	Verifies Open light lit and Closed light out	___	___	___
NOTE: The examinee should return to QCOP 2300-06 or the Hard Card and re-verify steps. The only steps listed below are those requiring manipulation.					
*F.4.h. *HC.5	Open HPCI TURB STM SPLY VLV	Places C/S for MO 1-2301-3 to OPEN and verifies OPEN light lit and CLOSED light out.	___	___	___
*F.6.c *HC.11	Increase Turbine speed	Places and holds MSC c/s to SLOW or FAST RAISE until HSS light is lit	___	___	___

SRRS: 3D.105 (when utilized for operator initial or continuing training)

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.6.d HC.12	Verify Closed MIN FLOW BYP VLV	Verifies CLOSED light lit and OPEN light out for MO 1-2301-14 valve.	___	___	___
F.6.e HC.13	Stop AUX OIL PMP	Places Aux Oil Pump c/s to AUTO and verifies OFF light lit.	___	___	___
F.6.f HC.14	Verify EMERG OIL PMP is OFF	Verifies Emergency Oil Pump OFF light is lit.	___	___	___
F.6.g HC.15	Throttle TEST RETURN VLV	Throttles MO 1-2301-10, as needed to maintain: • HPCI discharge press. > 100 psig over Rx. press. • HPCI discharge press < 1250 psig • HPCI flow ~ 5600 gpm	___	___	___
CUE:	**Inform the examinee that another NSO will monitor HPCI Turbine operation and Torus water temperature.**				
The examinee should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: HPCI Startup for Pressure Control with an Inadvertent Isolation

JPM Number: 2018 ILT NRC JPM f Revision Number: 00

Task Number and Title:

S/R 2300-P05 (Freq: LIC=I) Given a reactor in an accident condition and a spurious HPCI trip or isolation, perform actions to determine the cause and prepare HPCI to be started in accordance with QCOA 2300-04.

K/A Number and Importance: **KA:** 295007 AA1.03 **Rating:** 3.4/3.5

Suggested Testing Environment: Simulator

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s):

QCOP 2300-06 Rev.35, HPCI System Manual Startup (Injection-Pressure Control)

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

Unit 1 has scrammed on a loss of Main Condenser vacuum.
The Unit Supervisor has entered QGA 100.
RPV water level is being maintained by RCIC and SSMP at 30 inches.
RPV pressure is 1000 psig and slowly rising.
The Unit Supervisor is directing the use of Alternate Pressure Control systems.
Hard Cards are authorized.

INITIATING CUE

Start HPCI in pressure control mode.

Job Performance Measure

RBM Malfunction During Control Rod Withdrawal

JPM Number: 2018 ILT NRC JPM g

Revision Number: 00

Date: 05 / 30 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCAN 901(2)-5 A-7 Rev: 07
Procedure _____ Rev: ____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

_____ _____
SME / Instructor Date

_____ _____
SME / Instructor Date

_____ _____
SME / Instructor Date

Revision Record (Summary)

Revision 00, This JPM was developed from the 2017 Dresden ILT Exam for use on the Quad Cities 2018 ILT Exam as a new/alternate path JPM.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC-21

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. Insert the following commands:
   - Set trigger 5 true when the RMCS is taken to the ROD OUT position:
     trgset 5 "gfxdihs10281302.ge.2.5""
   - Fail RBM 7 high on trigger 5 after a 4 sec delay:
     imf nm10a (5 :04) 100
   - Set trigger 6 true when 901-5 B-3 alarms:
     trgset 6 "an:9015B3"
   - Delete RBM 7 malfunction on trigger 6:
     trg 6 "dmf nm10a"
   - Verify the following on the RWM:
     - latched to Rod Step 19
     - BLOCKS are ENABLED to FULL
   - Insert control rods on FCL steps 25 through 28 and verify FCL ~ 97%.
3. Verify Control Rod Sequence Book 5PHESD is on the 901-5 panel. Open to page 2 of 2 for step 19 in the FCL Sheets tab. Verify no FCL Steps are initialed off.

   Provide a "Holding Load and Load Following ReMA."
4. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
5. This completes the setup for this JPM.

INITIAL CONDITIONS

You are the Unit NSO.

The QNE has requested the FCL raised to approximately 101% using Flow Control Line steps 25 through 28 as necessary.

The Unit Supervisor has approved the FCL adjustment.

INITIATING CUE

Raise the FCL to approximately 101% using Rod Step 19, FCL steps 25 through 28 as necessary.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE: Role play as the second verifier and perform the duties below: ▪ Verify proper rod selected ▪ Insert and Withdraw limits understood ▪ Initial completed steps in the Sequence Book.					
01	Request a second verifier.	Verifies a second verifier is available.	___	___	___
*02	Select control rod F-12.	Depresses Select Pushbutton for control rod F-12 and verifies control rod F-12 is selected on the Full Core Display and RWM.	___	___	___
NOTE: Per QCGP 4-1 step F.6, when notching control rods out, the following RMCS responses are verified: - ROD IN light lit (1/2 sec) and Drive Flow ~4 gpm - ROD OUT light lit (1.5 sec) and Drive flow ~2gpm - ROD OUT SETTLE light lit (7 sec)					
*03	Single notch out control rod F-12 from position 10 to position 12.	Verifies ROD OUT PERMIT light is lit Momentarily places RMCS to ROD OUT.	___	___	___
04	Acknowledges annunciator 901-5 A-7, RBM HI OR INOP.	Reports 901-5 A-7 alarm and refers to QCAN. Verifies ROD OUT PERMIT light is out Verifies 901-5 C-3 alarm is received. Verifies RBM 7 HIGH light lit	___	___	___
ALTERNATE PATH STARTS HERE					
Note: The examine should refer to QCAN 901(2)-5 A-7, RBM HIGH OR INOP and execute the steps B.2.a thru B.2.d.					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
B.2.a	Verify correct rod was withdrawn.	Verifies control rod F-12 is correct rod in Sequence Book and selected on the Rod Select Matrix.	___	___	___
B.2.b	Check LPRM on 4-Rod Display.	Check LPRMs on 4-Rod Display for any high readings.	___	___	___
B.2.c	Depress PUSH SETUP button.	Depresses PUSH TO SETUP pushbutton for RBM 7.	___	___	___
*B.2.d	Re-null RBM 7.	Verifies RBM TRIP SET HIGH light is lit Selects an edge rod Reselects control rod M-10	___	___	___
END ALTERNATE PATH					
05	Reset annunciators 901-5 A-7 and 901-5 C-3.	Pushes annunciator RESET pushbutton on the 901-5 panel and reports RBM HIGH OR INOP and ROD OUT BLOCK alarms have cleared.	___	___	___
CUE:	**If necessary, as the Unit Supervisor direct the examinee to continue FCL adjustment.**				
06	Verify control rod F-12 is selected	Verifies control rod F-12 is selected on the Full Core Display and RWM.	___	___	___
*07	Single notch out control rod F-12 from position 10 to position 12.	Verifies ROD OUT PERMIT light is lit Momentarily places RMCS to ROD OUT. Verifies control rod F-12 latches at position 12.	___	___	___
*08	Single notch out control rod F-12 from position 12 to position 14.	Verifies ROD OUT PERMIT light is lit Momentarily places RMCS to ROD OUT. Verifies control rod F-12 latches at position 14.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*09	Verify proper response on APRMs and FCL.	Verifies slight increase in APRMs and FCL.	___	___	___
CUE:	**As the Unit Supervisor, inform the examinee that "another NSO will continue with Flow Control Line adjustment."**				
NOTE: The examinee should inform that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: RBM Malfunction During Control Rod Withdrawal

JPM Number: 2018 ILT NRC JPM g Revision Number: 00

Task Number and Title:

S/R-0705-K20: (Freq: LIC=B) Given the following Rod Block Monitor System indications/responses and various plant conditions including startup, shutdown, refueling, and scram, EVALUATE the indications/responses and DETERMINE if the indication/response is expected and normal.

K/A Number and Importance: **KA:** 215002 A2.05 **Rating:** 3.2/3.3

Suggested Testing Environment: Simulator

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCAN 901(2)-5 A-7 Rev. 7, RBM High or Inop

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

You are the Unit NSO.

The QNE has requested the FCL raised to approximately 101% using Flow Control Line steps 25 through 28 as necessary.

The Unit Supervisor has approved the FCL adjustment.

INITIATING CUE

Raise the FCL to approximately 101% using Rod Step 19, FCL steps 25 through 28 as necessary.

Job Performance Measure

Synchronize the Main Generator to the Grid

JPM Number: 2018 ILT NRC JPM h

Revision Number: 01

Date: 05 / 20 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.100; There are no retention requirements for this section

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCGP 1-1 Rev: 111
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

SRRS: 3D.100; There are no retention requirements for this section

Revision Record (Summary)

Revision 00, Verify examinee ability to manipulate Main Generator controls and breakers in accordance with plant startup procedure.

Revision 01, - Update JPM to current template

- Update to referenced procedure contents and current revision.
- Used on 2018 ILT NRC Exam.

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SRRS: 3D.100; There are no retention requirements for this section

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 16

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: NONE.
3. Manual Actuations
   - Complete QCGP 1-1 steps F.8.a. through step F.8.h.
   - Activate Plant Display 11 and 48.
   - Select analog trends for G128 & G121 on the plant process computer screens.
   - Verify 'A' and B' FRVs in manual and close.
   - Verify Low Flow FRV in auto.
4. Malfunctions:

   None.
5. Remotes:
   - Verify from sim diagram ED1, unit main disconnects closed **(mrf ed15 close)**
6. Overrides:

   Override TR 1-5640-61, point 6, to 270°F using:

   ior AOTR1564061F 270
7. 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.
8. This completes the setup for this JPM.

SRRS: 3D.100; There are no retention requirements for this section

INITIAL CONDITIONS

- The Unit is operating at ~16% thermal power, ready for Generator Synchronization.
- A Shift Supervisor and an EO are standing by in the 345KV yard to monitor closure of the output GCB's.
- Plant displays #11 and 48 are activated.
- Operator selected analog trends for G128 and G121 are running.
- QCGP 1-1 is completed through step F.8.h.

INITIATING CUE

Synchronize the Main Generator to the Grid, apply initial load, and restore the 345KV Ring Bus IAW with QCGP 1-1.

Provide Examinee with a copy of QCGP 1-1, pages 92-102 signed off through step F.8.h. and Attachment H.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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.

SRRS: 3D.100; There are no retention requirements for this section

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.8.i.(1)	Turn on CKT BKR 6-7 SYNCHRONIZING switch.	Inserts the SYNCH key and places the CKT BKR 6-7 SYNCHRONIZATING switch to the "ON" position.	___	___	___
F.8.i. (2) & (3)	Verify SYNCHROSCOPE dial is rotating.	Observes SYNCHROSCOPE dial is rotating and INCOMING VOLT and RUNNING VOLT meters are indicating.	___	___	___
*F.8.i.(4)	Adjust INCOMING VOLTS.	Using the VOLT REG AUTO STPT ADJ switch: Adjusts INCOMING VOLTS to slightly higher than RUNNING VOLTS as indicated when the Synch Scope is at twelve o'clock.	___	___	___
*F.8.i.(5)	Adjust Generator speed.	Adjust GOVERNOR **OR** DEHC LOAD SET to establish a slow clockwise (FAST) rotation on the SYNCHROSCOPE of approximately 60 seconds per cycle.	___	___	___
F.8.i.(6)(a)	Determine initial Generator load.	Obtains Main Turbine First Stage Bowl temperature from TR 1-5640-61 (pt.6) and determines an initial load of 40-50 MWe.	___	___	___
F.8.i.(7)	Notifies Generation Dispatch.	Notifies Generation Dispatch that the Main Generator is about to be synchronized and load will be increased to the initial load of 40 to 50 MWe.	___	___	___
CUE:	**As Unit Supervisor, reply, "Generation Dispatch has been notified that the Main Generator is about to be synchronized and initial load applied."**				

SRRS: 3D.100; There are no retention requirements for this section

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.8.i.(8)	Close CKT BKR 6-7	Places CKT BKR 6-7 control switch to close when synchroscope is one degree before twelve o'clock.	___	___	___
F.8.i.(8)(a)	Verify automatic MWE increase.	Verifies 40-50 MWE increase at the 901-8 or 901-5 panels.	___	___	___
EVALUATOR NOTE: The following step will be performed if necessary.					
F.8.i.(8)(b)	Applies initial load.	Selects RAISE on DEHC LOAD SET **OR** turns Main Generator GOVERNOR to INCR direction to attain initial load of 40-50 MWE.	___	___	___
F.8.i.(9)	Adjust Main Generator Reactive Load.	Adjust VOLT REG AUTO STPT ADJ (VARS) to apply 20-40 MVARs as indicated on the MEGAVAR meter at the 901-8 panel.	___	___	___
CUE:	**If asked, as Unit Supervisor, direct the examinee to "pickup bypass load and maintain 1st stage shell heatup rate < 150ºF/hr."**				
F.8.i.(10)	Pickup Bypass load and maintain 1st stage shell heatup rate <150 F/HR.	**One** of the following is performed to raise load set 10% above %RX power: a) Select RAISE on DEHC Load Set. b) On DEHC Load Set, select STPT/RAMP and enter values. c) Main Generator GOVERNOR taken to INCR.	___	___	___
F.8.i.(11)	Turn OFF CKT BKR 6-7 SYNCHRONIZING switch.	Turns the CKT BKR 6-7 SYNCHRONIZING switch to the OFF position and removes the SYNCH key.	___	___	___

SRRS: 3D.100; There are no retention requirements for this section

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.8.i.(12)	Turn ON CKT BKR 7-8 SYNCHRONIZING switch.	Inserts the SYNCH key and places the CKT BKR 7-8 SYNCHRONIZATING switch to the "ON" position.	___	___	___
F.8.i.(12)(a)	Verify SYNCHROSCOPE stopped at twelve o'clock.	Verifies SYNCHROSCOPE is stopped at twelve o'clock on the 901-8 panel.	___	___	___
F.8.i.(12)(b)	Verify voltages are equal.	Verifies INCOMING and RUNNING voltages are equal on the 901-8 panel.	___	___	___
F.8.i.(12)(c)	Close CKT BKR 7-8.	Places CKT BKR 7-8 control switch to CLOSE and verifies red lights are lit.	___	___	___
F.8.i.(12)(d)	Turn OFF CKT BKR 7-8 SYNCHRONIZING switch	Turns CKT BKR 7-8 SYNCHRONIZING switch to the OFF position and removes the SYNCH key.	___	___	___
CUE:	**As the Unit Supervisor inform the examinee that: "another NSO will complete the remaining steps".**				
EVALUATOR NOTE: The examinee should inform you the task is complete.					

JPM Stop Time: _____

SRRS: 3D.100; There are no retention requirements for this section

JPM SUMMARY

Operator's Name: _____ **Job Title**: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Synchronize the Main Generator

JPM Number: 2018 ILT NRC JPM h Revision Number: 01

Task Number and Title:

SR-0002-P01: (Freq: LIC=B) Given a reactor plant during a startup, perform a reactor startup consisting of the following tasks in accordance with QCGP 1-1:

a. Criticality and establish a heatup
b. Transfer mode switch to run
c. Turbine roll and synchronization

K/A Number and Importance: **K/A:** 262001.A4.04 **Rating:** 3.6/3.7

Suggested Testing Environment: Simulator

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCGP 1-1, Rev. 111, Normal Unit 1 Startup

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.100; There are no retention requirements for this section

INITIAL CONDITIONS

- The Unit is operating at ~16% power, ready for Generator Synchronization.
- A Shift Supervisor and an EO are standing by in the 345KV yard to monitor closure of the output GCB's.
- A BUS DUCT BLOWER is running.
- Plant displays #11 and 48 are activated.
- Operator selected analog trends for G128 and G121 are running.
- QCGP 1-1 is completed through step F.8.h.

INITIATING CUE

Synchronize the Main Generator to the Grid, apply initial load, and restore the 345KV Ring Bus IAW with QCGP 1-1.

Job Performance Measure

Swapping 125 VDC Battery Chargers

JPM Number: 2018 ILT NRC JPM i

Revision Number: 00

Date: 05 / 20 / 2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 6900-40 Rev: 02
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 00, This JPM was developed for the 2018 ILT NRC Exam.

INITIAL CONDITIONS

- All Diesel Generators are operable.
- Unit 1 125 VDC Battery Charger #1 is in service.
- The Unit 1 125 VDC Battery Charger is scheduled for preventive maintenance next shift.
- An EM is at the Battery Charger Room to adjust and check battery voltages.
- This JPM is NOT time critical.

INITIATING CUE

Remove Unit 1 125 VDC Battery Charger #1 from service per QCOP 6900-40 step F.7, then place the Unit 1 125 VDC Battery Charger #1A in service per QCOP 6900-40 step F.2.

Provide a blank copy of QCOP 6900-40.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.7.a	Adjust Battery Charger #1 float voltage.	Directs the EM to adjust charger float voltage to the high end of the range (129.9v)	___	___	___
CUE:	**As the EM, state: "The float voltage has been adjusted to 129.9 volts."**				
F.7.b	**Verify closed** breaker at 125 VOLT DC TURB BLDG BUS 1 compartment CO3, FEED FROM BATT CHG #1A.	Verifies the breaker at 125 VOLT DC TURB BLDG BUS 1 compartment CO3, is in the ON position.	___	___	___
CUE:	**Point to the ON position and say the breaker is here.**				
*F.7.c	At the UNIT 1 125 VDC BATTERY CHARGER #1: (1) **Open** AC POWER breaker. (2) **Open** DC POWER breaker.	Places **BOTH** the AC POWER and DC POWER breakers on the Charger to the OFF position.	___	___	___
CUE:	**Point to the OFF position and say the breaker is here as the operator opens both the AC and DC breakers.**				
F.7.d	**Open** 480 VAC Supply breaker at MCC 19-2 compartment D2, 125 VDC BATTERY CHARGER #1.	Places the breaker at MCC 19-2 cubicle D2 to the OFF position.	___	___	___
CUE:	**Point to the OFF position and say the breaker is here.**				
NOTE: The examinee should refer to step F.2 to place 125 VDC Battery Charger #1A in service.					
F.2.a	Cycle the Float/Equalize switch	Cycles the Float/Equalize switch a minimum of 5 times.	___	___	___
F.2.b	Verify the Float/Equalize switch is in the Float position.	Verifies the Float/Equalize toggle switch is in the Float position.	___	___	___
CUE:	**Point to the Float position and say the switch is here.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*F.2.c	**Close** 480 VAC supply breaker at MCC 18-2 compartment C1, 125 VDC BATTERY CHARGER #1A.	Places the breaker at MCC 18-2 cubicle C1 to the ON position.	___	___	___
CUE:	**Point to the ON position and say the breaker is here.**				
F.2.d	**Verify closed** breaker at 125 VOLT DC TURB BLDG BUS 1 compartment CO3, FEED FROM BATT CHG #1A.	Verifies the breaker at 125 VOLT DC TURB BLDG BUS 1 compartment CO3, is in the ON position.	___	___	___
CUE:	**Point to the ON position and say the breaker is here.**				
*F.2.e	**Close** DC POWER breaker located on charger #1A.	Places the DC POWER breaker on the charger to the ON position.	___	___	___
CUE:	**Point to the ON position and say the breaker is here.**				
*F.2.f	**Close** AC POWER breaker located on charger #1A.	Places the AC POWER breaker located on charger to the ON position.	___	___	___
CUE:	**Point to the ON position and say the breaker is here.**				
F.2.g.	Directs EM to check battery voltage	Directs the EM to measure battery voltage at the battery terminal.	___	___	___
CUE:	**As the EM, state: "The battery terminal voltage is 129 volts. The EM crew working on the charger will check battery terminal voltage again in 10 minutes and report back if adjustment is needed."**				
EVALUATOR NOTE: The candidate should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Swapping 125VDC Battery Chargers

JPM Number: 2018 ILT NRC JPM i Revision Number: 00

Task Number and Title:

SRN-6900-P05: (Freq: LIC=B NF=B) Given a shutdown reactor plant, locally place the Unit 1 125vdc alternate battery in service and remove the Unit 1 125vdc permanent battery from service in accordance with QCOP 6900-25.

K/A Number and Importance: **K/A:** 263000 2.1.29 **Rating:** 4.1/4.0

Suggested Testing Environment: Plant

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 6900-40, Rev. 02, Unit 1 125 VDC Electrical System.

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

- All Diesel Generators are operable.
- Unit 1 125 VDC Battery Charger #1 is in service.
- The Unit 1 125 VDC Battery Charger is scheduled for preventive maintenance next shift.
- An EM is at the Battery Charger Room to adjust and check battery voltages.
- This JPM is NOT time critical.

INITIATING CUE

Remove Unit 1 125 VDC Battery Charger #1 from service per QCOP 6900-40 step F.7, then place the Unit 1 125 VDC Battery Charger #1A in service per QCOP 6900-40 step F.2.

Exelon Nuclear

Job Performance Measure

Provide Alternate Ventilation to the Control Room and the Aux Electric Room

JPM Number: 2018 ILT NRC JPM j

Revision Number: 01

Date: 05/17/2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QOA 5750-15 Rev: 13
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Revision Record (Summary)

Revision 00, Renamed to 2014 ILT NRC JPM k. Restarted numbering accordingly

Revision 01, Renamed to 2018 ILT NRC JPM j for the 2018 ILT NRC Exam

Previous revisions were:

Revision 10, This JPM is developed IAW guidelines established in NUREG 1021 Rev 8 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

JPM revised to match procedure changes.

Revision 11, JPM revised to reflect procedure changes.

Revision 12, JPM revised to reflect updated completion time.

Revision 13, JPM revised to reflect format and completion time change.

Revision 14, JPM revised to reflect procedure changes.

Revision 15, JPM revised to reflect procedure changes. Specified that normal power was available at wall receptacles in the initial conditions. Updated K/A ratings.

Revision 16, Revised JPM to reflect procedure changes.

INITIAL CONDITIONS

- Both Units are operating at near rated conditions with normal electrical line-up.
- The “B” Control Room HVAC fan was taken out-of-service yesterday to replace the fan motor bearings.
- Approximately 1 hour ago the CONTROL ROOM SPLY/RETURN FAN TRIP (912-5 E-2) alarm came up.
- The Shift Manager was notified of the loss of ventilation and the maintenance department is investigating but, as yet, has not resolved the problem.
- Both the Control Room and the Aux Electric Room temperatures are being monitored by other operators and are approaching 98°F.
- Normal power is available at wall receptacles.
- You have obtained all necessary keys to perform this task.
- This JPM is not time critical.

INITIATING CUE

The US has directed you to set-up and provide an alternate means of ventilating both the Control Room and the Aux. Electric Room IAW QOA 5750-15.

Provide examinee with:
Copy of QOA 5750-15.

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.

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.

SRRS: 3D.105 (when utilized for operator initial or continuing training)

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
EVALUATOR: The candidate may perform the steps in any logical order. It is most likely that the candidate will perform all the tasks for one floor level and then repeat at the other floor level.					
EVALUATOR: The initial conditions state that electrical power is available at the outlets. If the candidate chooses to obtain the generators to provide electrical power, this is acceptable provided the suction for the smoke ejector is NOT near the exhaust [breathing hazard to control room personnel].					
*D.4.a.	Obtain temporary ventilation equipment for Control Room from Service Building 3rd Floor Hallway to CAS. (1) Extension Cords (2) Collapsible Ductwork (3) Smoke Ejectors.	Unlocks (if necessary) temporary ventilation equipment located in the Service Building 3rd Floor Hallway to CAS and obtains the following: 1.) Extension Cords 2.) Collapsible Ductwork 3.) Smoke Ejectors	___	___	___
CUE:	**State, "You have obtained the temporary ventilation equipment." (Should be smoke ejector, flexible duct, and extension cord.)**				
NOTE: In the following step, the candidate may refer to step D.2.c for a clarification that the "1st floor west of Weld Shop" is the Electrical Distribution Room on the first floor of the Service Building, south of the EMD Truck Bay.					
*D.4.b.	Obtain temporary ventilation equipment for Auxiliary Electric Room (located 1st floor west of Weld Shop) (1) Extension Cord (2) Collapsible Ductwork (3) Smoke Ejectors.	Unlocks (if necessary) temporary ventilation equipment from the Service Building Electric Equipment Room (located 1st floor west of Weld shop) and obtains the following: 1) Extension Cords 2) Collapsible Ductwork 3) Smoke Ejectors	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE:	**State, "You have obtained the temporary ventilation equipment." (Should be smoke ejectors, flexible duct, and extension cord.)**				
D.4.c.	Direct Security to establish Control Room AND Aux Electric Room access control.	Contacts Security and requests access control established to the Control Room and Aux Electric Room.	___	___	___
CUE:	**As security, acknowledge the request and state security personnel are standing by to control access to the Control Room and Aux Electric Room.**				
*D.4.d.	Open Control Room double doors and maintain open for cooling.	Opens south CR double doors and props them open.	___	___	___
CUE:	**State the Control Room doors are open.**				
EVALUATOR: The single Control Room door enters the RCA. Simulate opening the door.					
*D.4.e.	Open single Control Room door and maintain open for cooling.	Opens west CR single door and props it open.	___	___	___
CUE:	**State the Control Room door is open.**				
*D.4.f. & D.4.g & D.4.h	Place smoke ejector AND duct such that air is blown into the Control Room through the double doors, routing extension cord(s) between smoke ejector and power source. Locate convenient wall outlet Plug in smoke ejector	(Simulates) placing the smoke ejector and ductwork such that the exhaust enters the control room south (double) doors. Plugs the smoke ejector into an available electrical outlet.	___	___	___
CUE:	**State the smoke ejector/ductwork is placed as the candidate indicates. State the smoke ejector is plugged into the outlet the candidate indicates.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*D.4.i.	Verify smoke ejector is running	Turns on smoke ejector Observes fan rotation and checks duct for air flow.	___	___	___
CUE:	**State, "Air is flowing into the Control Room."**				
*D.4.j.	Open panel doors in Control Room to ensure a more even temperature distribution.	Opens all Control Room panel doors.	___	___	___
CUE:	**State the Control Room panel doors are open.**				
EVALUATOR: The following step is unnecessary and may not be performed by the candidate. It is applicable if electrical power via the outlets were unavailable.					
D.4.k.	Place portable generator in machine shop area.	Obtains and places a generator in the machine shop area.			
CUE:	**State a portable generator has been placed in the machine shop area.**				
D.4.l.	Inform RP that plant conditions require smoke ejector for Aux Electric Room and that this will involve routing ejector from clean area through radiologically controlled area to clean area.	Contacts Radiation Protection and informs them that temporary ventilation equipment will be routed from the maintenance shop area through the west doors of the Aux Electric Room.			
CUE:	**As Radiation Protection, acknowledge the information.**				
EVALUATOR: The following step is on the RCA side. The student may choose to perform this step in conjunction with routing the smoke ejector ductwork.					
*D.4.m.	Open Aux Electric Room double doors and maintain open for cooling.	Opens west Aux Electric Room double doors and props them open.	___	___	___
CUE:	**State the Aux Electric Room double doors are open.**				
*D.4.n.	Open single Aux Electric Room door and maintain open for cooling.	Opens South Aux Electric Room door and props it open.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE:	**State the Aux Electric Room door is open.**				
*D.4.o & D.4.p & D.4.q	Place smoke ejector AND duct such that air is blown into Aux Electric Room through the double doors, routing extension cord(s) between smoke ejector and power source. Locate convenient wall receptacle. Plug in smoke ejector.	Places the smoke ejector and ductwork such that the exhaust enters the Aux Electric Room West (double) doors. Plugs the smoke ejector into an available electrical outlet.	___	___	___
*D.4.r.	Verify smoke ejector is running	Turns on smoke ejector Observes fan rotation and checks duct for air flow.	___	___	___
CUE:	**State, "Air is blowing into the Aux Electric Room."**				
*D.4.s.	Open panel doors in Aux Electric Room to ensure a more even temperature distribution.	Unlocks and opens all Aux Electric Room panel doors.	___	___	___
CUE:	**State all Aux Electric Room panel doors are open.**				
EVALUATOR: The candidate should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Job Title**: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Provide Alternate Ventilation to the Control Room and the Aux Electric Room

JPM Number: 2018 ILT NRC JPM j Revision Number: 01

Task Number and Title:

SRN-5750-P18 (Freq: LIC=B NF=B) Given an operating reactor plant with a complete loss of control HVAC, locally establish temporary ventilation for the control room and the aux electric room in accordance with QOA 5750-15.

K/A Number and Importance: **K/A:** 290003 2.1.23 **Rating:** 4.3/4.4

Control Room Heating, Ventilation and Air Conditioning
Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Suggested Testing Environment: Plant

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QOA 5750-15 Rev. 13, Complete Loss of Control Room HVAC

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

_____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ **Date**: _____

[If this page is an odd numbered page, a blank page is automatically generated after this page to keep the student cue sheet separate from this page]

SRRS: 3D.105 (when utilized for operator initial or continuing training)

INITIAL CONDITIONS

- Both Units are operating at near rated conditions with normal electrical line-up.
- The “B” Control Room HVAC fan was taken out-of-service yesterday to replace the fan motor bearings.
- Approximately 1 hour ago the CONTROL ROOM SPLY/RETURN FAN TRIP (912-5 E-2) alarm came up.
- The Shift Manager was notified of the loss of ventilation and the maintenance department is investigating but, as yet, has not resolved the problem.
- Both the Control Room and the Aux Electric Room temperatures are being monitored by other operators and are approaching 98°F.
- Normal power is available at wall receptacles.
- You have obtained all necessary keys to perform this task.
- This JPM is not time critical.

INITIATING CUE

The US has directed you to set-up and provide an alternate means of ventilating both the Control Room and the Aux. Electric Room IAW QOA 5750-15.

Job Performance Measure

Locally Change On-Line TBCCW Heat Exchangers

JPM Number: 2018 ILT NRC JPM k

Revision Number: 00

Date: 05/17/2018

Developed By:	Instructor	Date
Validated By:	SME or Instructor	Date
Reviewed By:	Operations Representative	Date
Approved By:	Training Department	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure QCOP 3800-02 Rev: 04
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 00, Renamed to 2018 ILT NRC JPM k. Restarted numbering accordingly

Previous revisions were:

Revision 00, JPM created due to PRA.

Revision 01, Revised based on procedure changes

INITIAL CONDITIONS

- Unit 1 and 2 are on line at 100% power.
- The Unit 1 TBCCW system is on line with the 1A Heat Exchanger lined up.
- The plant will be testing the performance of the 1B TBCCW Heat Exchanger.
- Service Water will not be taken out of service on the 1A TBCCW Heat Exchanger
- The TBCCW and Service Water sides have been vented and additional venting is not desired.

INITIATING CUE

Place the 1B TBCCW heat exchanger on line IAW QCOP 3800-02 step F.5.

Provide examinee with: A copy of QCOP 3800-02.

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.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.5.a	**Open** 1-3999-31, TBCCW HX 1B SERV WTR INLET VLV	Rotates the hand wheel counter-clockwise until it will turn no further	___	___	___
CUE:	**The hand wheel will turn no further**				
F.5.c.	**Verify open** 1-3899-21, TBCCW HX 1B INLET VLV.	Attempts to rotate the 1-3899-21 clockwise or visually determines valve is open by stem/handwheel position.	___	___	___
CUE:	**The hand wheel rotates freely in the clockwise direction**				
EVALUATOR NOTE:	**The next two steps should be performed simultaneously and slowly to avoid TBCCW low pressure**				
*F.5.e.	**Open** 1-3899-16, TBCCW HX 1 B OUTLET VLV.	Rotates the hand wheel counter-clockwise until it will turn no further	___	___	___
CUE:	**The hand wheel will turn no further**				
*F.5.f.	**Close** 1-3899-22, TBCCW HX 1A HX OUTLET VLV.	Rotates the hand wheel clockwise until it will turn no further	___	___	___
CUE:	**The hand wheel will turn no further**				
F.5.i.	**Verify** TCV is controlling temperature properly. Normal setpoint is 80°F.	Verifies TCV setpoint is between 80^0 F and 90^0 F	___	___	___
CUE:	**Indicate the TCV is controlling at ~90^0 F**				
F.5.j.	**Verify** TBCCW Expansion Tank level in proper band.	Checks sight glass on TBCCW expansion tank and verifies level is between normal fill and stop marks	___	___	___
CUE:	**Indicate level is half way up sight glass**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
F.5.k.	**Close** 1-3999-30, TBCCW 1A SERV WTR INLET VLV.	Rotates the hand wheel clockwise until it will turn no further	___	___	___
CUE:	**The hand wheel will turn no further**				
F.5.n.	**Verify** proper system parameters.	Checks for abnormalities	___	___	___
CUE:	**As the candidate describes what they are looking for, report a normal condition (e.g., if the candidate says they are looking for a leak, report that there is no leaking water, if listening for abnormal sounds, report the sound is normal)**				
EVALUATOR: The candidate should inform you that the task is complete.					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: Locally Change On-Line TBCCW Heat Exchangers

JPM Number: 2018 ILT NRC JPM k Revision Number: 00

Task Number and Title:

SN-3800-P04: (Freq: LIC=I NF=I) Given the TBCCW system in a normal lineup, perform the local actions to switch TBCCW heat exchangers in accordance with QCOP 3800-02 or QCOP 3800-03.

K/A Number and Importance: **K/A:** 400000 2.1.30 **Rating:** (4.4/4.0)

Suggested Testing Environment: Plant

Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): QCOP 3800-02 Rev. 04, UNIT 1 TBCCW SYSTEM OPERATION

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

- Unit 1 and 2 are on line at 100% power.
- The Unit 1 TBCCW system is on line with the 1A Heat Exchanger lined up.
- The plant will be testing the performance of the 1B TBCCW Heat Exchanger.
- Service Water will not be taken out of service on the 1A TBCCW Heat Exchanger
- The TBCCW and Service Water sides have been vented and additional venting is not desired.

INITIATING CUE

Place the 1B TBCCW heat exchanger on line IAW QCOP 3800-02, step F.5.