

Exelon Nuclear

Job Performance Measure

Start-Up a Reactor Recirculation Pump to Exit Single Loop Operation

JPM Number: a 1 NRC JPM RO

Revision Number: 00

Date: 10/08/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

Bank JPM LS-006-II Rev. 10 was used as the basis for this JPM, which was revised to reflect procedure and JPM template changes for the 2009 ILT NRC licensing exam.

QCOP 0202-02 "Reactor Recirculation System Startup" was significantly revised as the result of a relatively recent plant event in which startup temperatures were not properly monitored.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 18 (rst 18).

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.

The unit is operating at near rated power.

2. Verify that the RWCU system is in operation.
(Provides the necessary temperature indications for a Recirc Pump start.)
3. **Manual Description:**
 - Trip "B" Recirc M/G Set.
 - Ensure the MO 1-202-5B valve is closed.
 - Ensure MO 1-202-5B handswitch is in the STOP position.
 - Ensure both Recircs in Individual Manual.
 - Place FWLC in 1-Element.
 - Set A Recirc pump speed at 40%.
 - Set B Recirc pump speed demand to 32%
5. **Malfunctions:** NONE
6. **Remotes:** NONE
7. **Overrides:** Override the 'B' Recirc MG oil temp to 105°F - **ior aotr1026219b8 105**
8. 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.
9. This completes the setup for this JPM.

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- Approximately 3 hours ago the reactor was operating at 40% power when the 1B Recirc pump tripped.
- Investigation revealed the trip occurred when a contractor inadvertently bumped the breaker at Bus 12 while moving scaffold.
- All actions have been completed for single loop operation per QCOA 0202-4 and QCOP 202-7.
- The unit is currently operating on the 51% FCL.
- Reactor water level is being maintained at 30 inches.
- Per the Shift Manager, abort the startup of the B Recirculation Pump if the Steam Dome to Bottom Head Differential exceeds 140°F or if the Loop-to-Loop Differential temperature exceeds 46°F.

INITIATING CUE

- Start the "B" Recirc M/G Set per QCOP 0202-02, Step F.7 through F.13.
- Notify the Unit Supervisor when the task is complete.

Provide examinee with:

A copy of QCOP 0202-02 with the appropriate steps initialed/NA'd up to Step F.7.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
F.7.a	If starting a Recirc Pump, THEN: Record the steam dome saturation Temperature (based on steam dome saturation pressure)	Steam dome saturation Temperature accurately calculated and recorded using the steam tables or the display on the 901-4 panel.	—	—	—
F.7.b	Record the Vessel Bottom Drain Line Coolant temperature.	Records Vessel Bottom Drain Line Coolant Temperature as indicated on TR-1-263-104 pt.6.	—	—	—
F.7.c	Record the temperature differential (Step F.7.a minus Step F.7.b)	Temperature differential accurately recorded.	—	—	—
F.7.d	Record the time that the temperature differential was determined.	Time that the temperature differential was determined accurately recorded.	—	—	—
F.7.e	Verify the temperature differential is $\leq 145^{\circ}\text{F}$.	Recirc Loop differential temperature verified $\leq 145^{\circ}\text{F}$.	—	—	—
EVALUATOR NOTE: Role Play an independent verifier and Unit Supervisor as necessary. No matter what values are provided, sign for verification in Step F.7.f and initial for acceptance criteria in Step F.7.g.					
F.7.f	Independently verify the calculation performed in Step F.7.c	Provides QCOP 0202-02 to an independent verifier.	—	—	—
F.7.g	SRO verify acceptance criteria in Step F.7.e was met.	Provides QCOP 0202-02 to the Unit Supervisor to verify acceptance criteria.	—	—	—
EVALUATOR NOTE: Step F.8 is NA'd since the second Recirc Pump is being started.					
F.9.a	If starting the second Recirc Pump, THEN: Record the operating Recirc Loop Temperature	1A Recirc Loop Temperature accurately recorded from the 1-260-11, 1A and 1B PMP LOOP TEMP, recorder.	—	—	—

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<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.9.b	Record the idle Recirc Loop Temperature	1B Recirc Loop Temperature accurately recorded from the 1-260-11, 1A and 1B PMP LOOP TEMP, recorder.	—	—	—
F.9.c	Record the temperature differential (Step F.9.b minus Step F.9.a)	Temperature differential accurately recorded.	—	—	—
F.9.d	Verify the temperature differential is $\leq 50^{\circ}\text{F}$.	Recirc Loop differential temperature verified $\leq 50^{\circ}\text{F}$.	—	—	—
F.9.e	Record the time that the temperature differential was determined.	Time that the temperature differential was determined accurately recorded.	—	—	—
F.9.f	Record the operating Recirc Pump speed	1A Recirc Pump speed accurately recorded from the 1-262-3A, PMP A SPEED CONTROLLER.	—	—	—
F.9.g	Verify the operating Recirc Pump speed is $\leq 45\%$.	1A Recirc Pump speed verified $\leq 45\%$.	—	—	—
EVALUATOR NOTE: Role Play an independent verifier and Unit Supervisor as necessary. No matter what values are provided, sign for verification in Step F.9.h and initial for acceptance criteria in Step F.9.i.					
F.9.h	Independently verify the calculation performed in Step F.9.c	Provides QCOP 0202-02 to an independent verifier.	—	—	—
F.9.i	SRO verify acceptance criteria in Step F.9.d was met.	Provides QCOP 0202-02 to the Unit Supervisor to verify acceptance criteria.	—	—	—
*F.10.	•Start "B" M/G Set. •	Positions "B" M/G Set CS to Start. - On light lit.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.10.a.	Verifies B Recirc Pump start sequence.	Verifies 1-0262-25B LOOP B SPEED CONTROLLER, indication increases to 80% and decreases to minimum speed.	—	—	—
F.10.b.	Observe "B" GEN FLD BRK close.	Verifies red GEN FIELD BKR B indicating light.	—	—	—
F.10.c.	Record time pump started.	Pump start time accurately recorded.	—	—	—
*F.11.a.	•Opens MO 1-0202-5B, PMP DISCH VLV, until indication of flow is observed OR dual valve position indication. •	Hold switch for MO 1-202-5B in OPEN until Loop Flow is indicated on FR 1-260-7, <u>or</u> dual valve position on MO 1-202-5B PMP DISCH VLV.	—	—	—
F.11.b.	Verifies flow and/or valve indication response.	If dual valve position <u>or</u> flow response not seen within 2 min of first valve open signal, then the Recirc Pump is tripped.	—	—	—
*F.11.c.	•Jog open MO 1-202-5B for 1/2 sec intervals until pump flow reaches 8000 gpm. • Observe power and flow response.	Intermittently Positions the 5B Jog Switch to the CLOSE position until FR-260-7, <u>or</u> FI 1-260-5B LOOP FLOW, reaches 8000 gpm. Observes APRM's and Recirc flow are increasing after each jog.	—	—	—
*F.11.d.	•Jog open MO 1-202-5B in 1 sec intervals from 8000 to 12000 gpm. • Observe power and flow response.	Intermittently positions the 5B Jog Switch to the OPEN position until FR-260-7, <u>or</u> FI 1-260-5B LOOP FLOW, indicates 12000 gpm. Observe APRM's and Recirc flow are increasing after each jog.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.11.e.	•Jog open MO 1-202-5B in 3 sec intervals from 12000 to 16000 gpm or until no further flow response is seen. • Observe power and flow response.	Positions 5B Discharge Valve CS to open for 3 sec intervals from 12000 to 16000 GPM or until no further flow response is seen on FR-1-260-7 or FI 1-260-5B, LOOP FLOW. Observes APRM's and Recirc after each jog.	—	—	—
*F.11.f.	•Fully open MO 1-202-5B.•	Positions 5B Discharge Valve CS to OPEN. Open light lit.	—	—	—
F.11.f. (1)	Ensure MO 1-202-5B Control switch left in the STOP position	Places the MO 1-202-5B CS in the STOP position.	—	—	—
EVALUATOR NOTE: Step F.12 is NA'd since the reactor is critical.					
F.13.	Verify the following instrumentation reading on 901-4:		—	—	—
a.	MG DRIVE MTR CUR	MG Set drive motor ammeter reads 100-890 amps.	—	—	—
b.	PMP DIFF PRESS	Pump DP reads >15 psid, (as indicated on 1-260-3B, PMP DIFF PRESS).	—	—	—
c.	PMP CUR	Pump power reads 100-700 amps. (as indicated on 1-202-730B, PMP CUR, ammeter)	—	—	—
d.	PMP MW	Pump power wattmeter reads 0.1-4.3 MW, (as indicated on the 1-202-740B, PMP MW).	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
e.	PMP KV	Pump power voltmeter reads 1-4.2 KV (as indicated on 1-202-736B, PMP KV)	—	—	—
f.	PMP FLOW	Pump loop flow reads 9000-48000 gpm (as indicated on 1-260-5B, PMP FLOW).	—	—	—

EVALUATOR NOTE: 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: Start-Up a Reactor Recirculation Pump to Exit Single Loop Operation

JPM Number: a 1 NRC JPM RO Revision Number: 00

Task Number and Title: Start-Up a Reactor Recirculation Pump to Exit Single Loop Operation

SR-0202-P01 (Freq: LIC=I) Given an operating reactor plant with a reactor Recirculation pump being returned to operation, start the Recirc pump and monitor related parameters in accordance with QCOP 0202-02.

K/A Number and Importance: **K/A:** 202001 A4.01 **Rating:** 3.7/3.7

Ability to manually operate and/or monitor in the control room: Recirculation Pumps

Suggested Testing Environment: Simulator

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

Reference(s): QCOP 0202-02, Rev. 35, REACTOR RECIRCULATION SYSTEM STARTUP

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 30 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.
- Approximately 3 hours ago the reactor was operating at 40% power when the 1B Recirc pump tripped.
- Investigation revealed the trip occurred when a contractor inadvertently bumped the breaker at Bus 12 while moving scaffold.
- All actions have been completed for single loop operation per QCOA 0202-4 and QCOP 202-7.
- The unit is currently operating on the 51% FCL.
- Reactor water level is being maintained at 30 inches.
- Per the Shift Manager, abort the startup of the B Recirculation Pump if the Steam Dome to Bottom Head Differential exceeds 140°F or if the Loop-to-Loop Differential temperature exceeds 46°F.

INITIATING CUE

- Start the "B" Recirc M/G Set per QCOP 0202-02, Step F.7 through F.13.
- Notify the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

RWCU System Coolant Rejection

JPM Number: b 2 NRC JPM RO/SRO

Revision Number: 00

Date: 11/04/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 below.

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

Revision Record (Summary)

Revision 00, This JPM is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of ES-301 D.4 "Control Room Systems," for RO/SRO candidates.

This is a new JPM that was developed for the 2009 NRC Initial License exam.

SIMULATOR SETUP INSTRUCTIONS

1. Any at 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. Close the following valves:
 - MO 1-1201-2
 - MO 1-1201-5
 - MO 1-1201-80
3. Momentarily take the handswitches for both RWCU pumps to STOP (Green Flagged).
4. Use the following Remote Functions to isolate the RWCU Demins and clear annunciator 901-4 A-11 CU FILTER CONTROL PANEL TROUBLE:
 - **irf cu09r out** RWCU FILTER DEMINERALIZER 1-1279-1A Out of Service
 - **irf cu10r out** RWCU FILTER DEMINERALIZER 1-1279-1B Out of Service
 - **irf cu17r ackn** RWCU FILTER DEMIN PANEL 2201-63 ALARM ACK
5. Clear applicable annunciators on the 901-4 Panel.
6. Verify Group III isolation is reset.
7. Verify the RBCCW system is in operation.
8. 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.
9. This completes the setup for this JPM.

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- The Reactor has scrammed during normal power operation. All control rods fully inserted.
- QGA 100 was entered due to RPV water Level lowering below 0 inches.
- RPV water level is stable and controlled at 30 inches.
- The scram has been reset.
- The RWCU isolation (Group III) and Group II isolations have been reset.
- RWCU filling and venting is not necessary.
- The RWCU Demineralizers have been isolated per QCOP 1200-03.
- The Main Condenser remains available.
- The RBCCW System is in operation.
- NO Boron has been injected.
- The Nuclear Engineer has been notified that RWCU will be placed in reject mode.

INITIATING CUE

Establish RWCU system coolant rejection to the Main Condenser IAW QCOP 1200-7 at a rate of at least 60 gpm.

Notify the Unit Supervisor when RWCU is rejecting at ≥ 60 gpm.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
C.1.	Verify that NO RWCU isolation signals are present.	Initials Prerequisite for no RWCU Isolations per turnover information.	—	—	—
C.2.	Verify that the Main Condenser is available	Initials Prerequisite for Main condenser available per turnover information.	—	—	—
C.3.	Verify that no Boron has been injected	Initials Prerequisite for no Boron injected per turnover information.	—	—	—
C.4.	Verify that the RBCCW System is in service.	Initials Prerequisite for RBCCW system in service per turnover information.	—	—	—
F.1.a	If RWCU System has been drained or has been shutdown for an extended period of time, THEN fill and vent the RWCU system	Initials Step F.1.a as N/A per turnover information.	—	—	—
*F.1.b	•Open MO 1-1201-2, PMP SUCT ISOL VLV. •	C/S for MO 1-1201-2, placed in OPEN.	—	—	—
*F.1.c	•Open MO 1-1201-5, RECIRC PMP SUCT ISOL VLV. •	C/S for MO 1-1201-5, placed in OPEN.	—	—	—
*F.1.d	•Crack open MO 1-1201-80, RETURN ISOL VLV. •	C/S for MO 1-1201-80, placed in OPEN until dual indication is observed. (Adjusted again later if necessary)	—	—	—
*F.1.e	If both RWCU Filter Demins are isolated, THEN •open MO 1-1201-133, DEMIN BYP VLV. •	C/S for MO 1-1201-133 placed in OPEN and held until valve is fully open.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.1.f	•Starts the 1A or 1B RWCU pump. •	Start and hold the control switch for 1A or 1B RWCU Recirc Pump until annunciator 901-4 H-12 RWCU SYSTEM PUMPS LOW FLOW resets.	—	—	—
F.1.f (1)	If necessary, throttle open the RETURN ISOL VALVE while holding the Control switch in START.	If necessary, MO 1-1201-80, throttled OPEN until annunciator 901-4 H-12 resets while starting 1A or 1B RWCU Pump.	—	—	—
F.1.g	Throttle the MO 1-1201-80, RETURN ISOL VLV to establish a pump discharge pressure of 100 to 200 psig greater than reactor pressure.	Throttles the MO 1-1201-80 until RWCU pressure (PI 1-1290-9) is 100 to 200 psig greater than reactor pressure.	—	—	—
EVALUATOR NOTE: Step F.2 is not applicable because a RWCU Pump can be started.					
F.3.	FC 1-1290-31 REJECT FLOW CONTROLLER verified in the full closed position.	Verify closed FCV 1-1239, U-1 CU REJECT FCV by setting the FC 1-1290-31 REJECT FLOW CONTROLLER to the full closed position.	—	—	—
F.4.	Verify closed MO 1-1201-76 BLOWDOWN ORIFICE BYP.	Verifies MO 1-1201-76 valve green (closed) light is lit.	—	—	—
F.5.a	Verify closed MO 1-1201-77, REJECT TO WCT SHUTOFF VLV.	Verifies MO 1-1201-77 valve green (closed) light is lit.	—	—	—
EVALUATOR NOTE: Annunciator 901-4 E-13 is an expected alarm when establishing a drain path to the Main Condenser.					
*F.5.b	•Open MO 1-1201-78, REJECT TO CNDSR SHUTOFF VLV. •	Places the C/S for MO 1-1201-78 valve to open and verifies red light is lit and green light is out.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR NOTE: Step F.6 is not applicable because RWCU reject was aligned to the Condenser.					
*F.7.	•Slowly throttle FCV 1-1239, U-1 CU REJECT FCV to establish a ≥ 60 gpm flowrate. •	FC 1-1290-31 REJECT FLOW CONTROLLER adjusted open to establish ≥ 60 gpm flowrate.	—	—	—
EVALUATOR NOTE: Step F.8. can be signed off as completed per Turnover information.					
CUE:	Inform the candidate that another NSO will monitor RWCU system temperatures and reject flow.				
EVALUATOR NOTE: 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: RWCU System Coolant Rejection

JPM Number: b 2 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title:

SR-1200-P01 Given a reactor plant, reject water via the RWCU system to radwaste or the main condenser in accordance with QCOP 1200-07.

K/A Number and Importance: **K/A:** 204000 A4.03 **Rating:** 3.2/3.1

Ability to manually operate and/or monitor in the control room: RWCU drain flow regulator

Suggested Testing Environment: Simulator

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

Reference(s): QCOP 1200-07 Rev. 25, RWCU System Coolant Rejection

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

- You are the Unit 1 ANSO.
- The Reactor has scrammed during normal power operation. All control rods fully inserted.
- QGA 100 was entered due to RPV water Level lowering below 0 inches.
- RPV water level is stable and controlled at 30 inches.
- The scram has been reset.
- The RWCU isolation (Group III) and Group II isolations have been reset.
- RWCU filling and venting is not necessary.
- The RWCU Demineralizers have been isolated per QCOP 1200-03.
- The Main Condenser remains available.
- The RBCCW System is in operation.
- NO Boron has been injected.
- The Nuclear Engineer has been notified that RWCU will be placed in reject mode.

INITIATING CUE

Establish RWCU system coolant rejection to the Main Condenser IAW QCOP 1200-7 at a rate of at least 60 gpm.

Notify the Unit Supervisor when RWCU is rejecting at ≥ 60 gpm.

Exelon Nuclear

Job Performance Measure

Pressurize The Main Steam Lines

JPM Number: c 3 NRC JPM RO/SRO

Revision Number: 00

Date: 11/04/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative Date

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- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

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Bank JPM LS-009-II Rev. 11 was used as the basis for this JPM, which was revised to reflect procedure and JPM template changes for the 2009 ILT NRC licensing exam.

This JPM was also revised to start at a lower power, and more stable, initial condition to facilitate the performance of the other JPMs in the set.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 7.

- **IC Description:** 575 psig and 2 rods subcritical during a startup.

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.

Setup Instructions

2. **Malfunctions:**

- Insert a Group I isolation as follows:
 - Insert, then remove, malfunction RP05 A & B.
 - **imf rp05a**
 - **imf rp05b**
 - **dmf rp05a**
 - **dmf rp05b**
- **Do NOT reset the Group 1 Isolation during QCGP 2-3 actions.**
- Manually Scram the reactor and perform scram actions IAW QCGP 2-3 as necessary to stabilize the plant.
- Monitor RPV Level and Pressure throughout:
 - RPV pressure will rise very slowly at approximately 2 psig / minute.
 - RPV Level should remain at approximately 30 inches with a Feed pump on the LFFRV.
 - If the Feed Pump trips due to swell when the MSIVs are opened, restart the Feed Pump.

3. **Remotes:** NONE

4. **Overrides:** NONE

5. Verify the following control panel lineups:

- The Main Steam Line Drain Valves are CLOSED.
- All Turbine Bypass Valves are CLOSED.
- On the <CONTROL> <RX COOLDOWN> screen, verify REACTOR COOLDOWN is OFF.

6. Verify that a current revision of QCOP 0250-01 "PRESSURIZING THE MAIN STEAM LINES", with steps C.1-4 signed off and step F.10 N/A ed, is available to provide to the candidate.

7. Snap the setup to Zero when all other conditions for concurrently run JPMs are established.

8. This completes the setup for this JPM.

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
A spurious Group I Isolation occurred approximately 30 minutes ago.
- Reactor water level has been restored and is now being controlled by Feed/Condensate.
- An extra reactor operator will control pressure between 550 and 800 psig with relief valves.
- A Shift Supervisor is standing by to provide the necessary verifications.
- This JPM is NOT time critical

INITIATING CUE

Pressurize the Main Steam lines and re-open the MSIV's per QCOP 0250-01 "PRESSURIZING THE MAIN STEAM LINES".

Notify the Unit Supervisor when the MSIVs are open.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.1.	•Place MN STM ISOL RESET to INBD. •	Places MN STM ISOL RESET switch on the 901-5 panel to INBD position.	—	—	—
*F.2.	•Place MN STM ISOL RESET to OUTBD. •	Places MN STM ISOL RESET switch on the 901-5 panel to OUTBD position.	—	—	—
*F.3	•At the DEHC Operator's Workstation, on the <CONTROL> <PRESSURE CONTROL> screen, adjust DEHC Pressure Set 200 psig above reactor pressure or as high as possible. •	Pressure Set adjusted to at least 200 psig above reactor pressure. <ul style="list-style-type: none"> • Select STPT/RAMP • Enter desired value for Set Point and a desired value for Ramp. Select OK to enter values. • Select OK to confirm values or CANCEL to abort changes 	—	—	—
*F.4.	• <u>Open</u> Outboard MSIVs: •	On Panel 901-3 , C/S for: AO 1-203-2A taken to OPEN; Valve indicates OPEN. AO 1-203-2B taken to OPEN; Valve indicates OPEN. AO 1-203-2C taken to OPEN; Valve indicates OPEN. AO 1-203-2D taken to OPEN; Valve indicates OPEN.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.5.	• <u>Open</u> Steam Line drain valves: •	On Panel 901-3 , C/S for: MO 1-220-90A taken to OPEN; Valve indicates open MO 1-220-90B taken to OPEN; Valve indicates open MO 1-220-90C taken to OPEN; Valve indicates open MO 1-220-90D taken to OPEN; Valve indicates open	—	—	—
*F.6.	• <u>Equalize</u> pressure across MSIVs•	On Panel 901-3 , C/S for: MO 1-220-1 taken to OPEN; Valve indicates open. MO 1-220-2 taken to OPEN; Valve indicates open. MO 1-220-3 throttled OPEN; Valve indicates open or mid position	—	—	—
F.7.	<u>Monitor</u> differential pressure across the MSIVs.	Verifies Differential Pressure is decreasing using: a. Reactor Pressure b. PI 1-3040-10, TURB THROT PRESS (at panel 901-7)	—	—	—
EVALUATORS : Steps F.7.a (1), (2), and (3) are applicable only if the THROTTLE PRESS MED (XMITTER X) FAILED LOW alarm was received.					
F.7.a	Checks DEHC for diagnostic Alarm: "THROTTLE PRESS MED (XMITTER X) FAILED LOW"	DEHC checked for Diagnostic Alarms	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
F.7.a(1)	Verify each Throttle Pressure Transmitter indicates an increasing trend	From the <AUX> <XMITTER RESET> SCREEN: Increasing trends on Throttle Pressure Transmitters verified.	—	—	—
F.7.a(2)	If necessary, RESET THROTTLE #X for each Throttle Pressure transmitter that indicates FAILED.	From the <AUX> <XMITTER RESET> SCREEN: Selects RESET for each failed transmitter and selects OK to confirm each reset.	—	—	—
F.7.a(3)	Verify each Throttle Pressure transmitter alarm indicates a NORMAL state and clear alarms by selecting ACK ALL	From the ALARMS screen, verifies each Throttle Pressure alarm indicates a "NORMAL" state and clears all alarms by selecting ACK ALL.	—	—	—
EVALUATORS : Steps F.7.a (4)&(5) are not applicable because all transmitter alarms will reset.					
EVALUATORS : Step F.8. is not applicable because the differential pressure across the MSIVs will decrease to <200 psig.					
CUE:	If asked, grant permission to open the Inboard MSIVs.				

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR NOTE: The candidate may open <u>two</u> valves simultaneously to avoid a possible Group I isolation on high Main Steam Line flow rates.					
*F.9.	<p>●<u>WHEN</u> diff. press. across the MSIVs is <200 psid, <u>OR</u> has stopped decreasing and Unit Supervisor has given permission to proceed, <u>THEN</u> ●<u>open</u> inboard MSIVs: ●</p>	<p>On Panel 901-3, C/S for:</p> <p>AO 1-203-1A taken to OPEN; Valve indicates OPEN.</p> <p>AO 1-203-1B taken to OPEN; Valve indicates OPEN.</p> <p>AO 1-203-1C taken to OPEN; Valve indicates OPEN.</p> <p>AO 1-203-1D taken to OPEN; Valve indicates OPEN.</p>	_____	_____	_____
EVALUATOR NOTE: The candidate should inform you that the MSIV's are open.					
CUE:	Another NSO will complete the remaining procedure steps.				

JPM Stop Time: _____

JPM SUMMARY

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

JPM Title: Pressurize The Main Steam Lines

JPM Number: c 3 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title: Pressurize the Main Steam Lines

SR-0250-P01 (Freq: LIC=B) Given a reactor plant at power when an inadvertent Group 1 isolation occurs, determine the cause, reset the Group 1 and re-open the MSIVs in accordance with QCOP 0250-01.

K/A Number and Importance: **K/A:** 239001 A4.01 **Rating:** 4.2/4.0

Ability to manually operate and/or monitor in the control room: MSIVs

Suggested Testing Environment: Simulator

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

Reference(s): QCOP 0250-01, Rev. 9, PRESSURIZING THE MAIN STEAM LINES

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 17 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.
A spurious Group I Isolation occurred approximately 30 minutes ago.
- Reactor water level has been restored and is now being controlled by Feed/Condensate.
- An extra reactor operator will control pressure between 550 and 800 psig with relief valves.
- A Shift Supervisor is standing by to provide the necessary verifications.
- This JPM is NOT time critical.

INITIATING CUE

Pressurize the Main Steam lines and re-open the MSIV's per QCOP 0250-01 "PRESSURIZING THE MAIN STEAM LINES".

Notify the Unit Supervisor when the MSIVs are open.

Exelon Nuclear

Job Performance Measure

Control Reactor Pressure with RCIC

JPM Number: d 4 NRC JPM RO/SRO

Revision Number: 00

Date: 11/04/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

This JPM converts Bank JPM LS-019-I Rev. 14 to an Alternate Path for the 2009 NRC Initial License Exam. This JPM was also revised to reflect procedure revisions and update to a newer template.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 21 (rst 21).
2. **IC Description:** Full power, normal plant lineup

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

3. **Manual Actuation:**

Reset the simulator, then take the simulator to run.

Run CAEP **d 4 NRC JPM.cae**

4. Verify the following JPM commands:
 - **trgset 22 “zdihs1130153(2)”**, CCST TEST BYP MO 1-1301-53 to Open
 - **trgset 23 “zdihs1130132”**, RCIC AO-1301-32 Drain Trap Bypass to Open
 - **trg 22 “imf SER0387 ON”**,
Annunciator 901-4 F-16 ON, RCIC TURBINE INLET STM DRN HIGH LEVEL
 - **trg 23 “imf SER0387 (23 :10) OFF”**, Annunciator 901-4 F-16 OFF with a 10 second delay.
5. 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.
6. This completes the setup for this JPM.

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- The unit has been SCRAMMED due to a spurious Group I isolation.
- QGA 100 is being executed and relief valves have been used to initially stabilize reactor pressure.
- The US has ordered reactor pressure to be controlled with RCIC.
- RCIC is in standby IAW QCOP 1300-01 with suction from the CCSTs.
- Another NSO will monitor Torus temperature and start Torus Cooling as required.
- No ECCS initiation signals are present.

INITIATING CUE

Manually start-up RCIC, in the pressure control mode, with suction from the CCSTs.

Establish at least 400 gpm flow and discharge pressure of approximately 100 psig above reactor pressure.

Inform the Unit supervisor when this task is complete.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR NOTE: Provide a copy of QCOP 1300-02 when the candidate locates it.					
*F.6.a.	•Open HPCI Test Return Vlv. •	Positions MO 1-2301-15 CS to open. - Open light lit.	—	—	—
*F.6.b.	•Throttle open CCST Test Bypass Vlv. •	Positions MO 1-1301-53 CS to open. - Open light lit.	—	—	—
SIMOP: When MO-1301-53 is opened, verify Event Trigger 22 goes true and that the Annunciator 901-4 F-16 alarms to begin Alternate Path segment of the JPM. Provide a copy to the candidate when it is referred to in the 901-4 panel annunciator book.					
	Respond to RCIC TURBINE INLET STM DRN HIGH LEVEL alarm.	References QCAN 901-4 F-16	—	—	—
EVALUATOR NOTE: A caution statement in QCAN 901-4 F-16 warns that this alarm is indicative of excessive water in the RCIC steam line. To avoid damage to the RCIC system, RCIC should not be placed in operation during this alarm condition.					
*B.1	Verifies AO 1-1301-32 opens. •Places handswitch for AO 1-1301-32 to OPEN. •	Places handswitch for AO 1-1301-32 to OPEN.	—	—	—
SIMOP: When AO-1301-32 is opened, verify Event Trigger 23 goes true and that the Annunciator 901-4 F-16 alarm clears in approximately 10 seconds.					
B.2	Verifies STM LINE DRAIN ISOL VLVS AO 1-1301-34 and 35 are open.	AO 1-1301-34 and 35 verified open.	—	—	—
B.3	Dispatch an operator to monitor RCIC Turbine inlet steam drain trap for proper operation.	Dispatches EO to the 1A Core Spray Room to check the RCIC Turbine Inlet steam drain trap.	—	—	—
CUE: Role Play in-plant operator as necessary. There is no apparent problem with the drain trap.					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE:	Role Play Unit Supervisor as necessary: If asked, grant permission to continue with the RCIC startup. If asked, leave the 1-1301-32 valve open. This ends the Alternate Path segment of the JPM.				
*F.6.c.	•Start Vacuum Pmp. •	Positions Vacuum pmp. CS to start. - ON light lit.	—	—	—
*F.6.d.	•Open Turb Clg Wtr Vlv. •	Positions 1302-62 CS to open. - Open light lit.	—	—	—
F.6.e.	Verify Pmp Disch Vlv Closed.	Verifies 1301-49 vlv closed light lit.	—	—	—
*F.6.f.	•Open Min Flow Vlv. •	Positions 1301-60 CS to open. - Open light lit.	—	—	—
*F.6.g.	•Open Stm to Turb Vlv. •	Positions 1301-61 CS to open. - Open light lit.	—	—	—
F.6.h.	Verify flow indication.	Verifies flow increases to 400 gpm on RCIC Flow Controller. (FIC 1-1340-1)	—	—	—
F.6.i.	Verify close MIN FLOW VALVE.	Verifies MO 1-1301-60 closed. - CLOSED light lit.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.6.j.(1) or (2)	<ul style="list-style-type: none"> Adjusts the Flow Controller and/or the Test valve to achieve at least 400 gpm and approximately 100 psig above reactor pressure. 	<p>If necessary, adjusts Flow by: FIC 1-1340-1 in AUTO: Adjusts setpoint to achieve 400 gpm.</p> <p>OR</p> <p>Placing FIC 1-1340-1 in MAN and adjusting manual adjustment lever to achieve 400 gpm.</p> <p>OR</p> <p>If necessary adjusts RCIC Discharge Pressure: Throttles MO 1-1301-53 CS closed until pmp disch press is 100 psig > RPV press.</p>	—	—	—
F.6.k.(1) – (4)	Monitor RCIC for proper operation.	<p>Verifies:</p> <p>Turbine speed 2250 to 4500 rpm. (SI 1-1340-501, Turb. Speed)</p> <p>Pmp Disch Press \leq 1250 psig. (PI 1-1340-7, Pmp Disch Press)</p> <p>Pmp Suction Press 0 to 30 psig. (PI 1-1340-2, Pmp Suct Press)</p> <p>Exhaust Press 1 to 20 psig. (PI 1-1340-3, Turb Exh Press)</p>	—	—	—
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: Control Reactor Pressure with RCIC

JPM Number: d 4 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title:

SR-1300-P02 Given a reactor plant in an accident condition with Drywell pressure above 2.5 psig, start RCIC for pressure control in accordance with QCOP 1300-02.

K/A Number and Importance: K/A: 217000 A4.07 Rating: 3.9/3.8

Ability to manually operate and/or monitor in the control room: Reactor pressure

Suggested Testing Environment: Simulator

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

Reference(s):

QCOP 1300-02 Rev. 27, RCIC SYSTEM MANUAL START-UP (INJECTION/PRESSURE CONTROL)

QCAN 901-4 F-16, Rev. 2, RCIC TURBINE INLET STM DRN HIGH LEVEL

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

- You are the Unit 1 ANSO.
- The unit has been SCRAMMED due to a spurious Group I isolation.
- QGA 100 is being executed and relief valves have been used to initially stabilize reactor pressure.
- The US has ordered reactor pressure to be controlled with RCIC.
- RCIC is in standby IAW QCOP 1300-01 with suction from the CCSTs.
- Another NSO will monitor Torus temperature and start Torus Cooling as required.
- No ECCS initiation signals are present.

INITIATING CUE

Manually start-up RCIC, in the pressure control mode, with suction from the CCSTs.

Establish at least 400 gpm flow and discharge pressure of approximately 100 psig above reactor pressure.

Inform the Unit supervisor when this task is complete.

Exelon Nuclear

Job Performance Measure

Bypass All Group I Isolation Signals

JPM Number: e 5 NRC JPM RO/SRO

Revision Number: 00

Date: 10/08/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

This JPM was revised to reflect procedure revisions and update to a newer template. Bank JPM LS-041-I Rev. 8 was used as the basis for this JPM.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any IC.

NOTE: Due to being done between panels, this JPM can be performed in any IC. The instructors must verify that the actions of this JPM do not conflict with other JPM's.

2. **Manual Actuation:**

NONE

3. **Malfunctions:**

NONE

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

- You are the Unit 1 ANSO
- A transient has occurred on U-1 resulting in having to perform an RPV Blowdown.
- The Unit Supervisor has entered QGA 500-1, RPV Blowdown, but 2 of the 5 ADS valves failed to open.
- RPV to Torus differential pressure is greater than 74 psid.
- The US is currently pursuing alternate depressurization methods.
- This JPM is NOT time critical.

INITIATING CUE

Install the jumpers necessary to bypass all Group I isolation signals on U-1 IAW QCOP 0201-10.

Inform the Unit Supervisor when the task is complete.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
C.1.	Obtains procedure and jumpers.	Locates packet for QCOP 0201-10 in QGA equip storage cabinet.	—	—	—
C.2.	QGA's or SAMG's have directed use of this procedure.	Initials C.1. based on turnover.	—	—	—
	Dons Personnel Protective Equipment (PPE).	Wears: <ul style="list-style-type: none"> • Safety Glasses • No metal on hands • Long-sleeve cotton shirt or cotton PPE jacket. 	—	—	—
CUE:	Provide the examinee a copy of QCOP 0201-10 once the QGA packet has been obtained.				
*F.1.a.	●Install 901-15 panel jumper between pts. A-37 & A-38.●	Installs a jumper on TB-A, between pts. A-37 & A-38.	—	—	—
F.1.a.	Record jumper number.	Records jumper number & initials QCOP 0201-10 step F.1.a.	—	—	—
CUE:	Inform candidate all independent verifications will be done after completion of jumper installation.				
*F.1.b.	●Install 901-15 panel jumper between pts. B-45 & B-46●	Installs a jumper on TB-B, between pts. B-45 & B-46.	—	—	—
F.1.b.	Record jumper number.	Records jumper number & initials QCOP 0201-10 step F.1.b.	—	—	—
*F.1.c.	●Install 901-15 panel jumper between pts. D-50 & D-51.●	Installs a jumper on TB-D, between pts. D-50 & D-51.	—	—	—
F.1.c.	Record jumper number.	Records jumper number & initials QCOP 0201-10 step F.1.c.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.1.d.	●Install 901-15 panel jumper between pts. E-40 & E-41.●	Installs a jumper on TB-E, between pts. E-40 & E-41.	—	—	—
F.1.d.	Record jumper number.	Records jumper number & initials QCOP 0201-10 step F.1.d.	—	—	—
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: Bypass All Group I Isolation Signals

JPM Number: e 5 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title:

SRN-1600-P25 Given a reactor plant in a QGA situation, perform/simulate installing and removing ONE of the following sets of jumpers in accordance with the indicated procedure.

a. Bypass all Group 1 Isolation signals in accordance with QCOP 0201-10

K/A Number and Importance: **K/A:** 223002 A4.03 **Rating:** 3.6/3.5

Ability to manually operate and/or monitor in the Control Room: Reset system isolations.

Suggested Testing Environment: Control Room/Simulator

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

Reference(s): QCOP 0201-10, Rev.16, BYPASSING ISOLATION SIGNALS TO SUPPORT
ALTERNATE RPV DEPRESSURIZATION

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 5.0 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
- A transient has occurred on U-1 resulting in having to perform an RPV Blowdown.
- The Unit Supervisor has entered QGA 500-1, RPV Blowdown, but 2 of the 5 ADS valves failed to open.
- RPV to Torus differential pressure is greater than 74 psid.
- The US is currently pursuing alternate depressurization methods.
- This JPM is NOT time critical.

INITIATING CUE

Install the jumpers necessary to bypass all Group I isolation signals on U-1 IAW QCOP 0201-10.

Inform the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

Energize Bus 14-1 with Crosstie Failure and Subsequent SBO Startup

JPM Number: f 6 NRC JPM RO/SRO

Revision Number: 00

Date: 11/04/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 0, This JPM is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

This JPM was based on bank JPM LS-060-1-A, Rev. 1. JPM was revised to upgrade the setup instructions and to reflect the latest version of the procedure and JPM template.

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 Setup **Malfunctions**:

- Prevent the U-1 EDG from starting: **imf dg03a**
- Prevent 14-14-1 feed breaker from closing: **imf ed04i**
- Prevent the bus 14-1 to 24-1 tie breaker 152-1421 from closing: **imf ed04k**
- Acknowledge alarms.

3. Perform the following Manual Actuations after the malfunctions are inserted.

- Open the Bus 14 to Bus 14-1 breaker.
- Attempt to close the Bus 14 to Bus 14-1 breaker.
 - Leave in normal after close. (Red target)
- Energize Bus 19 from 18.
- Place the following pumps in P-T-L.
 - 1B Core Spray
 - 1C RHR Pump
 - 1D RHR Pump
- Place U1 EDG control switch to start.
- Restore RPS B and reset the "B" Channel ½ scram. Enter both commands in the following order:
 - **irf rp03r mg_set**
 - **irf rp28r reset**

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

- You are the Unit 1 ANSO.
- The Bus 14 to Bus 14-1 tie breaker has tripped and was unable to be re-closed.
- Bus 19 is being powered from Bus 18.
- The Unit 1 Emergency Diesel Generator failed to auto-start and could not be started.
- Bus 14-1 is de-energized.
- Unit 2 is operating at 150 MWE in a split configuration (load is split between the UAT and the RAT).
- Hardcard use has been authorized by the Unit Supervisor.
- Bus 24-1 is energized.
- Unit 2 Emergency Diesel Generator to Bus 24-1 breaker is open.
- The 1B Core Spray pump and the 1C and 1D RHR pump control switches have been verified in PTL.
- This JPM is NOT time critical.

INITIATING CUE

Energize Bus 14-1 from Bus 24-1 using the Hard Card.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

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

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
	Selects hard card	Obtains hardcard QCOP 6500-08, Attachment C, for BUS 14-1 TO BUS 24-1 TIE BREAKER OPERATION (BUS 14-1 DEAD) from the 901-74 panel.	_____	_____	_____
Hardcard step 1	Isolate Bus 14-1.	Places the following control switches in PTL. - Bus 14-1 & Bus 61 Tie breaker - U1 Diesel Gen to Bus 14-1 GCB - Buses 14 and 14-1 Tie GCB - Acknowledges/verifies per Initial Conditions that 1B Core Spray and 1C/1D RHR pumps are all in PTL.	_____	_____	_____
Hardcard step 2	Directs the Unit 2 NSO or Unit 2 ANSO to operate the synchronization switch and close Bus 24-1 & 14-1 tie breaker.	Directs the Unit 2 NSO to perform the following two steps on the 902-8 panel: 1. Place SYNCH switch to ON for BUSSES 24-1 AND 14-1 TIE BKR. 2. Close BUSSES 24-1 AND 14-1 TIE BKR.	_____	_____	_____
SIMULATOR OPERATOR NOTE: When asked by the candidate to close the U-2 Bus 24-1 to 14-1 crosstie breaker, wait 10 seconds, and close the breaker using the command "irf ed34r close". Report to candidate, "Bus 24-1 to 14-1 crosstie breaker on U-2 is closed in".					
Hardcard step 3.a.	Places the synchronization switch ON for the crosstie.	Places the SYNCH switch on the 901-8 panel to ON for BUSSES 14-1 AND 24-1 TIE BKR	_____	_____	_____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
Hardcard step 3.b.	Close bus 14-1 & 24-1 tie breaker.	Closes and holds (for approximately 10 seconds) the BUSSES 14-1 AND 24-1 TIE BKR on the 901-8 panel. Reports BUSSES 14-1 AND 24-1 TIE BKR failed to close.	—	—	—
Alternate path begins at this point.					
CUE:	<p>If the candidate asks for guidance, state “Continue with efforts to energize Bus 14-1”.</p> <p>As EO, report “Bus 14-1 tie breaker to Bus 24-1 at Bus 14-1 is damaged. There is no damage to Bus 14-1.”</p> <p>As the Unit Supervisor, if the candidate asks for permission to energize Bus 14-1 from the SBO Diesel, role play and grant permission.</p>				
	Selects Hardcard	Selects QCOP 6620-14, Attachment B, ENERGIZING BUS 14-1 FROM SBO DG1, Hardcard.	—	—	—
Hardcard Step 1	Verifies conditions met to perform the procedure	Verifies normal power unavailable, U1 EDG unavailable and 14-1 to 24-1 X- ties unavailable.	—	—	—
Hardcard Step 2	Isolates Bus 14-1	Verifies the following in PTL: - U1 EDG TO BUS 14-1 GCB - BUSSES 14-1 AND 24-1 TIE BKR - BUSSES 14 AND 14-1 TIE GCB - BUS 13-1 & 61 TIE BKR	—	—	—
*Hardcard Step 3	•Places SBO in SBO Mode•	Places SBO DG 1 Mode Switch in SBO Mode.	—	—	—
*Hardcard Step 4	•Starts the SBO• and verifies parameters	Places SBO DG 1 C/S to START and verifies voltage 3900-4580, frequency 58.8-61.2 and RPM 900.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*Hardcard Step 5	•Closes the DG Breaker to Bus 61•	Closes DG BKR on DCS screen by selecting DG BKR and then DEAD BUS CLOSE	—	—	—
*Hardcard Step 6	•Closes Bus 14-1 and Bus 61 tie breaker•	Closes Bus 14-1 and Bus 61 TIE BKR by taking C/S to CLOSE.	—	—	—
*Hardcard Step 7	•Closes Bus 14-1 Feed•	Closes Bus 14-1 FEED from DCS screen by selecting BUS 14-1 FEED and DEAD BUS CLOSE	—	—	—
Hardcard Step 8	Verify Bus 14-1 is energized.	Verifies Bus live light lit for Bus 14-1.	—	—	—
EVALUATOR: Candidate should tell 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: Energize Bus 14-1 with Crosstie Failure and Subsequent SBO Startup

JPM Number: f 6 NRC JPM RO/SRO Revision Number: 00

Task Number and Title:

SR-6620-P16 (Freq: LIC=B) (ILT-MP) Given an operating reactor plant when a LOOP or SBO event occurs, manually start an SBO DG and supply an emergency bus in accordance with QCOP 6620-13 or QCOP 6620-14. (SOER 83-1 r9)

K/A Number and Importance: **K/A:** 262001 A4.01 **Rating:** 3.4/3.7

Suggested Testing Environment: Simulator

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

Reference(s): QCOP 6500-08, Rev. 23

QCOP 6620-14, Rev. 13

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 12 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 Bus 14 to Bus 14-1 tie breaker has tripped and was unable to be re-closed.
- Bus 19 is being powered from Bus 18.
- The Unit 1 Emergency Diesel Generator failed to auto-start and could not be started.
- Bus 14-1 is de-energized.
- Unit 2 is operating at 150 MWE in a split configuration (load is split between the UAT and the RAT).
- Hardcard use has been authorized by the Unit Supervisor.
- Bus 24-1 is energized.
- Unit 2 Emergency Diesel Generator to Bus 24-1 breaker is open.
- The 1B Core Spray pump and the 1C and 1D RHR pump control switches have been verified in PTL.
- This JPM is NOT time critical.

INITIATING CUE

Energize Bus 14-1 from Bus 24-1 using the Hard Card.

Exelon Nuclear

Job Performance Measure

Complete a Manual Scram Functional Test

JPM Number: g 7 NRC JPM RO/SRO

Revision Number: 00

Date: 10/08/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.1 "Control Room Systems," for RO/SRO candidates.

This JPM modified an existing JPM into an Alternate Path JPM. LS-004-I Rev. 12 "Complete a Manual Scram Functional Test" was the basis.

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. Run the setup Computer Aided Exercise: **g 7 NRC JPM.cae (or equivalent)**
(This set of commands overrides ON the Ch B RPS Group 2&3 lights on both 901-5 and 901-17. When either RPS Test Switch on 901-17 is placed in TRIP, all four lights will go OFF. This set of commands represents a failure of the 590-109D relay to change state during the test.)
3. Verify the following Overrides are active:
 - **ior LOIL10590500D ON**
 - **ior LOIL10590500M ON**
 - **ior LOIL10590500F ON**
 - **ior LOIL10590500P ON**
4. Verify the following commands for JPM performance
 - **trgset 17 "zdihs10590302b.or.zdihs10590302d"**
 - **trgset 18 "zdihs10590302b.or.zdihs10590302d"**
 - **trgset 19 "zdihs10590302b.or.zdihs10590302d"**
 - **trgset 20 "zdihs10590302b.or.zdihs10590302d"**
 - **trg 17 "dor LOIL10590500D"**
 - **trg 18 "dor LOIL10590500M"**
 - **trg 19 "dor LOIL10590500F"**
 - **trg 20 "dor LOIL10590500P"**
5. Verify current revisions of the following procedures are available:
 - QCOS 0500-02, MANUAL SCRAM INSTRUMENTATION FUNCTIONAL TEST
(With Prerequisites signed off)
 - QCOA 0500-01, PARTIAL SCRAM ACTUATION (Blank)
6. Provide the Evaluator with two (2) 2235 keys for the RPS Channel Test keylock switches.
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.

INITIAL CONDITIONS

- You are the Unit 1 NSO.
- The Unit Supervisor has ordered that a manual scram functional test be performed this shift.
- Both RPS buses are on their normal power supply.
- This JPM is NOT time critical.

INITIATING CUE

Perform a Manual Scram Functional Test IAW QCOS 0500-02.

Inform the Unit Supervisor when the test is complete.

Provide examinee with: Copy of QCOS 0500-02 (with Prerequisites signed off)

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*H.1.a.	•Depress the “Channel A” manual scram pushbutton.•	Depresses “RX SCRAM CH A” pushbutton on the 901-5 panel.	—	—	—
H.1.b.	Verify red light in “Channel A” manual scram pushbutton is lit.	Verifies Red backlight on Rx Scram Ch A pushbutton is lit.	—	—	—
H.1.c.	Verify “Channel A” Scram Solenoid Group lights out.	Verifies four RPS A scram solenoid lights are not lit on 901-5 panel.	—	—	—
H.1.d.	Verify “Channel A Manual Scram” alarm.	Verifies annunciator 901-5 A-10 is in alarm.	—	—	—
*H.1.e.	•Reset half scram and verify all 8 lights lit for Channel A and B.•	Positions RPS scram reset switch first to position 2 and 3 then to position 1 and 4. - Verifies all 8 scram solenoid group light are lit for RPS Channel A and B.	—	—	—
H.1.f.	Reset “Channel A Manual Scram” alarm.	Depresses reset pushbutton and “First Hlt” pushbutton, AND verifies Annunciator 901-5 A-10 is reset.	—	—	—
H.1.g.	Verify Computer points W536 and W537 are reset.	Computer points W536 and W537 verified reset. (Black Font/statement ends with OK).	—	—	—
*H.2.a.	•Depress the “Channel B” manual scram pushbutton.•	Depresses “RX SCRAM CH B” pushbutton on the 901-5 panel.	—	—	—
H.2.b.	Verify red light in “Channel B” manual scram pushbutton is lit.	Verifies red backlight on Rx Scram Ch B pushbutton is lit.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
*H.2.c .	Verify "Channel B" Scram Solenoid Group lights out. •Identifies that Groups 2&3 lights are LIT. •	Observes RPS B Solenoid lights: Group 1 and 4 lights are NOT lit Group 2 and 3 lights are LIT	—	—	—
Alternate path begins at this point.					
EVALUATOR CUE: Role Play Unit Supervisor as necessary. If the candidate asks for guidance, direct him/her to "continue efforts to insert a B Channel half scram."					
F.4.	Notifies Unit Supervisor of partial half scram on RPS B.	Unit Supervisor notified.	—	—	—
EVALUATOR: The remaining actions are from QCOA 0500-01 "Partial Scram Actuation".					
CUE:	When the candidate tries to obtain keys for the RPS test switches, give the candidate the two 2235 keys provided at setup. DO NOT allow candidate in the Simulator Control area.				
*D.3.	If all four RPS SCRAM SOLENOID GROUP indicating lights of the affected channel are NOT de-energized, then obtain keys for RPS Test Switches and •place the PROTECTION SYS SUBCHANNEL TEST switches 1-590-302B and/or 1-590-302D to the TRIP position. •	At the 901-7 back panel: <ul style="list-style-type: none"> Places "Protection Sys Subchannel B1 Test" switch to trip. Places "Protection sys Subchannel B2 Test" switch to trip. Verifies "Control Rod Drive Scram Solenoid Group" lights 2 and 3 are NOT lit. 	—	—	—
EVALUATOR NOTE: The critical task of step D.3 is met when ONE of the B Subchannel Test switches (1-590-302B or 1-590-302D) is taken to the TRIP position. This action will deenergize both Group 2 and Group 3 solenoids. However, the procedure directs the switches for ALL affected channels (B & D) be taken to trip.					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
D.4.	Verify that all four “Channel B” Scram Solenoid Group lights are now out. (The remaining parts of Step d.4. are not applicable when the lights are out)	Verifies all four “Channel B” Scram Solenoid Group lights are out at the 901-5 panel.	—	—	—
D.5.	Notify the Shift Manager.	Shift Manager notified.			
CUE:	As Unit Supervisor, direct the candidate to “terminate the surveillance and do NOT reset the half scram on RPS Channel B. Electrical Maintenance will be contacted to investigate.”				
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: Complete a Manual Scram Functional Test

JPM Number: g 7 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title:

SRN-0500-P01 (Freq: LIC=I) Given an operating reactor plant, perform the manual scram functional test in accordance with QCOS 0500-02.

K/A Number and Importance: **K/A:** 212000 A4.02 **Rating:** 3.6/3.7

Ability to manually operate and/or monitor in the control room: Perform system functional test(s)

Suggested Testing Environment: Simulator

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

Reference(s):

QCOS 0500-02, Rev. 21, MANUAL SCRAM INSTRUMENTATION FUNCTIONAL TEST

QCOA 0500-01, Rev. 7, PARTIAL SCRAM ACTUATION

4E-1466 Sheet 2

4E-1467 Sheet 2

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

- You are the Unit 1 NSO.
- The Unit Supervisor has ordered that a manual scram functional test be performed this shift.
- Both RPS buses are on their normal power supply.
- This JPM is NOT time critical.

INITIATING CUE

Perform a Manual Scram Functional Test IAW QCOS 0500-02.

Inform the Unit Supervisor when the test is complete.

Exelon Nuclear

Job Performance Measure

Unisolate and Start the Reactor Building Ventilation System

JPM Number: h 9 NRC JPM RO/SRO

Revision Number: 00

Date: 11/04/09

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative 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 8 through 12 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 9. Verify cues both verbal and visual are free of conflict.
- _____ 10. Verify performance time is accurate
- _____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 12. 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 is developed IAW guidelines established in NUREG 1021 Rev 9 ES-301 and Appendix C. This JPM meets the criteria of Category B.2 "Control Room Systems," for RO/SRO candidates.

This is a new JPM that was developed for the 2009 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. Isolate the Reactor Building Ventilation system by inserting and deleting the Malfunction for Reactor Building Vent Radiation Monitor: RM02K, PROCESS RADIATION MONITORING FAILURE REAC BLDG VENT CH A:
 - **imf RM02K 100**
 - **dmf RM02K**
 - **Reset the Rx Building Vent Channel A Rad Monitor and reset annunciators 901-3 A-3 and 901-3 G-3**
 - **Place all tripped U-1 and U-2 Reactor Building fan control switches in PTL.**
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.3, 4, 5 – 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.
- All Reactor Building Supply and Exhaust Fans that tripped on the isolation have been placed in Pull-to-Lock (PTL).
- 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. Restart all Unit 1 fans that have been placed in Pull-To-Lock.

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

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

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. 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: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR NOTE: Step F.1a and F.1b 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)	If recovering from a manual or automatic RB Vent isolation, THEN: Verify all isolation signals are reset.	Group II isolation signal is reset. Verifies the following annunciators are <u>NOT</u> in alarm: <ul style="list-style-type: none"> • 901-3 G-3 • 901-3 A-3 • 901-5 A-8 • 901-5 B-5 	_____	_____	_____
F.1.c (2)	Verify RB Vent (Supply and Exhaust fans) control switch targets are GREEN or are in PTL.	On Panel 912-5, control switch positions for all tripped Reactor Building Vent Fans are GREEN or are in PTL.	_____	_____	_____
EVALUATOR NOTE: The candidate 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)	Momentarily place U1 and U2 RX BLDG INLT ISOL DMPRS control switch to CLOSE.	At the 912-1 Panel: Momentarily places the 1-5741-196A HS to CLOSE <u>AND</u> 2-5741-196A HS to CLOSE.	_____	_____	_____
F.1.c (4)	Momentarily place U1 and U2 RX BLDG OUTLT ISOL DMPRS control switch to CLOSE.	A the 912-1 panel: Momentarily places the 1-5741-250A HS to CLOSE <u>AND</u> 2-5741-250A HS to CLOSE.	_____	_____	_____
CUE:	The RB Vent Isolation can also be reset at a local panel. If the candidate tries to contact an EO to perform this task, Role Play as necessary. All EOs are busy at this time.				

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.1.c (5)	•Reset the RB Vent Isolation. •	At the 912-1 panel: Presses the U1 and U2 ISOL DAMPER RESET pushbuttons.	—	—	—
*F.1.c (6)	•Open the RB Isolation Dampers. •	Momentarily places the following control switches at the 912-1 panel to OPEN: <ul style="list-style-type: none"> • 1-5741-196A HS • 1-5741-250A HS 2-5741-196A HS 2-5741-250A HS 	—	—	—
F.1.d	Verify OPEN indication for the U1 and U2 RB isolation dampers on 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 AO 2-5741A AO 2-5741B AO 2-5742A AO 2-5742B	—	—	—
EVALUATOR: Per the NOTE preceding these next two steps, the exhaust and supply fans` are to be started simultaneously to minimize dP swings.					
*F.1.e	•Start one RB EXH FAN, then one RB SUPPLY FAN. •	Simultaneously places the Control Switches for a U1 Reactor Building Exhaust Fan and a Reactor Building Supply Fan to the "ON" position and holds for at least 5 seconds until current indication stabilizes.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*F.1.f	•Start a second RB EXH FAN, then a second RB SUPPLY FAN. •	Simultaneously places the Control Switches for a U1 Reactor Building Exhaust Fan and a Reactor Building Supply Fan to the “ON” position and holds for at least 5 seconds until current indication stabilizes.	—	—	—
F.1.g	Verify RX Building dP −0.1” to −0.25” H ₂ O.	RX Building dP verified to be −0.1” to −0.25” H ₂ O, 912-5 dPI 1-5740-22, RX BLDG TO ATMOS DP.	—	—	—
EVALUATOR NOTE: Rx Bldg D/P may be less than -.25# H ₂ O. This condition will be corrected when U2 RB vents are returned to Normal by another operator. If necessary, inform the candidate 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 the candidate starts to restore Unit-2 fans, remind the candidate that another operator will restart the Unit-2 fans as necessary.				
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: Unisolate and Start the Reactor Building Ventilation System

JPM Number: h 9 NRC JPM RO/SRO

Revision Number: 00

Task Number and Title:

SR-5750-P03 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:** 288000 A4.01 **Rating:** 3.1/2.9

Ability to manually operate and/or monitor in the control room: Start and stop fans

Suggested Testing Environment: Simulator

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

Reference(s): QCOP 5750-02 Rev. 19, Reactor Building Ventilation System

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

Testing Method: ☐ Simulate ☐ Perform

Estimated Time to Complete: 00 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.
- All Reactor Building Supply and Exhaust Fans that tripped on the isolation have been placed in Pull-to-Lock (PTL).
- 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. Restart all Unit 1 fans that have been placed in Pull-To-Lock.

Another operator will restart the Unit-2 fans as necessary.

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