

Exelon Nuclear

Job Performance Measure

Perform One-Rod-Out Interlock Surveillance ~~JPM Title Here~~

JPM Number: 2012 ~~RO Admin 1~~ ~~XXXXZZXX~~

Revision Number: ##019

Date: ~~## 0334/04/ ## 10/ 20121##~~

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative Date

Approved By: _____
Training Department Date

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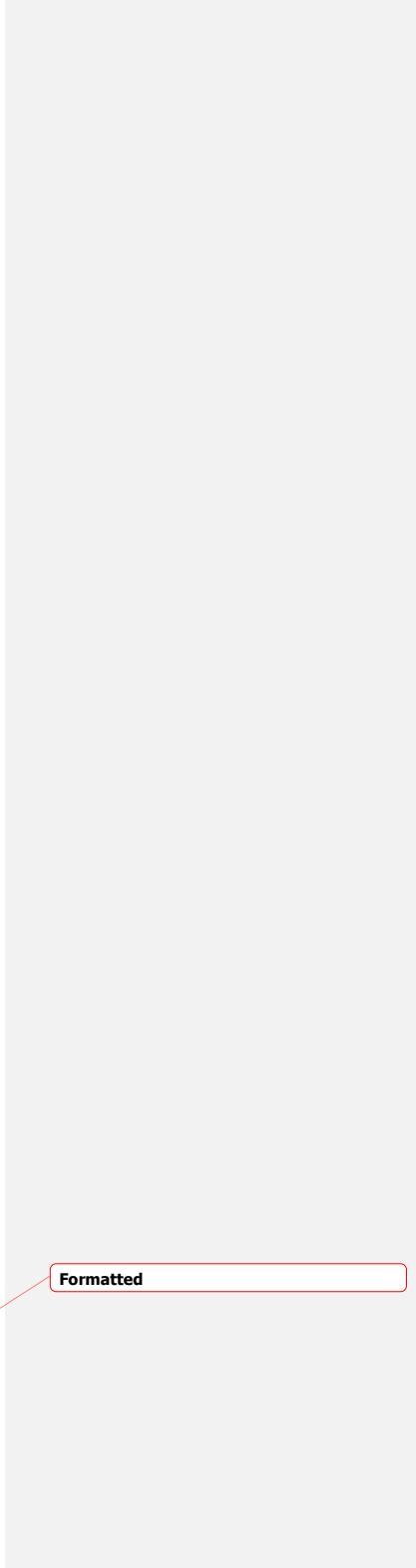
JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 8 and 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

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

Revision Record (Summary)

Revision 00, ~~{Put reason for writing this JPM under Revision 00, for all subsequent revisions annotate the changes that were made.}~~This JPM was developed new for the 2011 ILT NRC Exam.

Revision 01, This JPM was updated for 2012 ILT NRC Exam.

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

SIMULATOR SETUP INSTRUCTIONS

1. ~~Reset the simulator to IC XX~~Reset the Simulator to IC 8.
(Any Shutdown IC in which the Mode Switch can be placed in REFUEL)

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. Go to RUN.
3. Lock the Mode Switch in REFUEL.
4. Verify the RWM is NOT bypassed.
5. Turn Rod Select Power OFF and ON. (Verifies no rod selected at start of JPM)
6. Verify the REFUEL PERMIT light is ON.
7. Verify ROD OUT BLOCK annunciator (901-5, C-3) is ON.
8. Acknowledge annunciators as necessary.

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9. Provide a current revision of the following procedures, signed off as follows:

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- QCOS 0300-17
 - o With applicable Mode-5 Prerequisites signed off.
 - o With Steps H.4.b and H.11.b marked N/A.
- QCOP 0207-02 with Prerequisites signed off.

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10. Provide Equipment Status Tag filled out as follows:

- "Rod Worth Minimizer in Bypass"~~Do this second (Add steps to describe additional simulator setup steps (e.g., Load Computer Aided Exercise ZZZZ or jcael ZZZZ))~~

- 3.~~Do this next (Add steps to describe additional panel setup requirements for this JPM (e.g., re-align systems; hang tags, hang postings, etc.)~~

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- 3-11. _____ 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.

- 5-12. _____ This completes the setup for this JPM.

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

INITIAL CONDITIONS

- Preparations are being made to begin refueling operations.
- The Mode Switch is locked in REFUEL.
- All Prerequisites have been completed for QCOS 0300-17, One-Rod-Out Interlock Surveillance.
- The Unit Supervisor has reviewed steps of QCOS 0300-17 and identified the Not-Applicable (N/A) steps.
- All QCOP 0207-02 All Prerequisites have been completed for bypassing the Rod Worth Minimizer (RWM).
- The ~~necessary~~ Equipment Status Tag has been prepared.

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INITIATING CUE

Perform the One-Rod-Out Interlock Surveillance, QCOS 0300-17.

~~{Put the Initial Conditions here. Include current plant status and the role (by position, e.g., an extra RO, etc.) in which the examinee will be performing the task. This information should be duplicated on the last page for the student copy.}~~

INITIATING CUE

~~{Put the initiating cue the evaluator will read to the students here. This should describe the task clearly. This information should be duplicated on the last page for the student copy.}~~

EVALUATOR: Provide the prepared support material:

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- QCOS 0300-17
- QCOP 0207-02
- Equipment Status Tag

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

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Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

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- [Denotes critical elements of a critical step.](#)

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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.



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

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
H.1	<u>QCOP 0207-02 referenced for bypassing RWM.</u>	<u>Bypass the RWM per QCOP 0207-02.</u>	---	---	---
<u>QCOP 0207-02</u> F.1	<u>Initials step f. (Performing a Procedure or Test which specifically references bypassing the RWM)</u>	<u>Initial the reason that the RWM is being bypassed.</u>	---	---	---
<u>QCOP 0207-02</u> F.1.f (1)	<u>Fills in Procedure/Test # as: QCOS 0300-17.</u>	<u>Fill in Procedure/Test number.</u>	---	---	---
<u>QCOP 0207-02</u> F.1.f (2)	<u>Fills in Step # as: Step H.1.</u>	<u>Fill in Step number.</u>	---	---	---
<u>QCOP 0207-02</u> F.2.a	<u>Attaches the prepared Equipment Status Tag to the ROD MOVEMENT CONT SWITCH.</u>	<u>Prepare an Equipment Status Tag to Read "Rod Worth Minimizer in Bypass" and attach it to the ROD MOVEMENT CONT SWITCH.</u>	---	---	---
<u>QCOP 0207-02</u> *F.2.b* XX	<u>•RWM MODE SELECT switch selected to BYPASS • and the date and time is recorded. Type element of task in this column.</u>	<u>Place the RWM MODE SELECT switch to BYPASS and record the Date and Time. Type specific operator action standards in this column including application of fundamentals, as appropriate.</u>	---	---	---
EVALUATOR NOTE: The ROD OUT BLOCK annunciator will clear when a rod is selected.					

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<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
*H.2	•Select Aa Control Rod, selected, which should be a peripheral rod	Selects a peripheral Control Rod.	---	---	---
H.3	“Rod Out Permit” light is verified ON.	Verify “Rod Out Permit” light is onlit on the 901-5 panel.	---	---	---
*H.4.a	•Withdraw the Sselected Control Rod, withdrawn one (1) notch	Withdraws the selected Control Rod one (1) notch.	---	---	---
<u>EVALUATOR NOTE: The ROD OUT BLOCK annunciator will alarm when ROD SELECT POWER is taken to OFF.</u>					
*H.5	•ROD SELECT POWER switch placed in OFF. •	Turn ROD SELECT POWER switch to OFF.	---	---	---
*H.6	•ROD SELECT POWER switch placed in ON. •	Turn ROD SELECT POWER switch to ON.	---	---	---
*H.7	•Select Aa second Control Rod, is selected, which should be a peripheral Rod on the opposite side of the core	Selects a peripheral Control Rod on the opposite side of the core.	---	---	---
H.8	Control Rod Withdrawal Block verified in effect (Annunciator 901-5 CA-3 ROD OUT BLOCK in alarm).	Verifies or determines that annunciator 901-5 CA-3 cannot be reset.the Control Rod withdrawal block cannot be cleared.	---	---	---
H.9	ROD SELECT POWER switch placed in OFF.	Turn ROD SELECT POWER switch to OFF.	---	---	---

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

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
H.10	ROD SELECT POWER switch placed in ON.	Turn ROD SELECT POWER switch to ON.	---	---	---
H.11.a	Withdrawn Control Rod fully inserted.	Insert the withdrawn Control Rod to Position 00.	---	---	---
<u>CUE:Q</u> <u>COP</u> <u>0207-</u> <u>02</u> <u>F.4.a</u>	<p>As Unit Supervisor, inform the examinee that "another NSO will perform step H.12." RWM MODE SELECT switch selected to NORMAL and the date and time is recorded</p> <p>Place the RWM MODE SELECT switch to NORMAL and record the Date and Time.</p> <p>---</p> <p>---</p> <p>---</p>				
<u>EVALUATOR NOTE: The candidate should inform you that the task is complete.</u>					
<u>EVALUATOR NOTE: Remove the Equipment Status Tag from the Rod Motion Control Switch at the end of the JPM. EVALUATOR ROLE PLAY: As Unit Supervisor when presented with the completed QSOS 0300-17 to approve. You will review the surveillance.</u>					

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JPM Stop Time: _____

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

JPM SUMMARY

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

JPM Title: Perform One-Rod-Out Interlock Surveillance

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JPM Number: 2012 Type JPM number here RO Admin 1 Revision Number: ##010

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Task Number and Title: SR-0280-K20 Given a RMCS operating Mode or

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SR-0280-K20 - (Freq: LIC=B)

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Given a Reactor Manual Control System (RMCS)/ Rod Position Information System (RPIS) operating mode and various plant conditions, EVALUATE the following Reactor Manual Control System (RMCS)/Rod Position Information System (RPIS) indications/responses and DETERMINE if the indication/response is expected and normal:

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a. Full Core Display

(1) Rod status 4-light display (Selected/Drift/Accum/Scram)

(2) Rod position digital readout

b. Four Red Display

(1) LPRM outputs and detector bypassed lights

(2) Rod position digital readout

c. Movement control Indicating lights,

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(1) Rod Out Permissive

(2) Rod Out Settle

(3) Rod Out

(4) Rod In

d. Timer Malfunction Lights

(1) Select Block

(2) 2 Sec Delay

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e. Refuel Permissive

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f. Select matrix rod selected lights

g. Sequence Timer PLC Status Light Indication

K/A Number and Importance: KA: 2.1.44 Type System/Evolution #, K/A, and Importance Ratings here 2.1.44, Knowledge of RO duties in the control room during fuel handling such as responding to alarms from the fuel handling area, communications with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation, Rating: 3/9/3.8

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Knowledge of RO duties in the control room during fuel handling such as responding to alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fuel handling operations, and supporting instrumentation,

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Suggested Testing Environment: Simulator Type suggested testing environment here (e.g., simulator, classroom, mock-up, etc.)

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

Reference(s): ~~Type procedure reference(s), AND revision number(s) here. Delete blank 'Comments' rows during JPM development, as necessary, to maintain this sheet as a single page.~~ QCOS 0300-17, Rev. 10, "One-Rod-Out Interlock Surveillance"
QCOP 0207-02, Rev. 11, "Rod Worth Minimizer Bypass Control"

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Actual Testing Environment: Simulator Control Room In-Plant Other

Testing Method: Simulate Perform

Estimated Time to Complete: 0015 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

The task is successfully completed when the examinee demonstrates the One-Rod Out Interlock is functional by operating the RMCS and RWM in accordance with QCOS 0300-17.

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: _____

~~{JPM Number}—rev XX~~

INITIAL CONDITIONS

- ~~– Preparations are being made to begin refueling operations.~~
- ~~– The Mode Switch is locked in REFUEL.~~
- ~~– All Prerequisites have been completed for QCOS 0300-17, One-Rod-Out Interlock Surveillance.~~
- ~~– The Unit Supervisor has reviewed steps of QCOS 0300-17 and identified the Not-Applicable (N/A) steps.~~
- ~~– All QCOP 0207-02 All Prerequisites have been completed for bypassing the Rod Worth Minimizer (RWM).~~
- ~~– The ~~necessary~~ Equipment Status Tag has been prepared.~~

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INITIATING CUE

~~Perform the One-Rod-Out Interlock Surveillance, QCOS 0300-17. (Put the Initial Conditions here. Include current plant status and the role (by position, e.g., extra RO, etc.) in which the examinee will be performing the task. This information should be duplicated from the evaluator's page.)~~

INITIATING CUE

~~{Put the initiating cue the evaluator will read to the students here. This should describe the task clearly. This information should be duplicated from the evaluator's page.}~~

Exelon Nuclear

Job Performance Measure

Electrical Distribution Surveillance

JPM Number: 2012 RO Admin 2

Revision Number: 01

Date: 03/04/2012

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative Date

Approved By: _____
Training Department Date

Revision Record (Summary)

Revision 00, This JPM was developed for ILT NRC Exam 03-01 IAW NUREG 1021, Rev 9.

Revision 01, This JPM updates bank JPM AD-RO-2 Rev. 00 (from the 2005 NRC Exam) for the 2012 ILT NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC 21 (rst 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. The IC used must have the Electric Plant in a NORMAL lineup.

2. Override the 5 voltage and amperage and vars indicators for Line O403 to ZERO on the 912-2 panel.

- **ior aoai164000403a 0**
- **ior aoai164000403b 0**
- **ior aoai164000403c 0**
- **ior aowi164000403 0**
- **ior aovi164000403 0**

3. Override the green light indication OFF (open light out) for the T12 to Bus 14 GCB OFF

- **ior lohs1650014051 off**

4. OPEN the Line 0403 Line Disconnect mimic on the 912-2 panel.

- VERIFY that ALL OTHER Line disconnect mimics indicate CLOSED

5. Verify a copy of QCOS 0005-08 complete through step D.2.

D.1.a: Reason for test: "Normal Surveillance"

D.1.b: Permission to start test (signed, date / time "today/current")

D.2 Record Operational Mode: "1"

6. Verify Attachment D and E of QCOS 0005-08 are ready to be provided to the Candidate DURING the JPM.

- All steps should be initialed indicating that they are SATISFACTORY, EXCEPT on Attachment D, step 2.a.(2) write "N/A" and "248 VDC" next to it. (This is outside the acceptable range and must be identified by the candidate.)
- All other steps indicating whether or not a voltage is within the acceptable band should have an ACCEPTABLE voltage hand-written next to the signature line. This is so that step 2.a.(2) does not "stand-out" as the only one with handwriting next to it.

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.

INITIAL CONDITIONS

- Unit 1 and 2 are at rated conditions.
- You are the Unit 1 Assist NSO.
- QCOS 0005-08, ELECTRICAL DISTRIBUTION BREAKER AND VOLTAGE VERIFICATION is scheduled to be performed on your shift for the normal weekly surveillance.
- 15 minutes ago, 345 KV line 0403 tripped due to relay failure at Nelson substation. The Line 0403 Disconnects in the Quad Cities 345 KV switchyard have been OPENED. The Ring Bus has been RESTORED.
- The Unit Supervisor has determined that ALL of QCOS 0005-08 must be performed as scheduled.
- T12 Load Tap changer is in Auto with a Tap setting of 9.
- The Unit 2 Assist NSO will provide all Unit 2 information as requested.
- An EO has been dispatched to perform the in-plant sections of the surveillance and provide them to you for review when they are complete.

INITIATING CUE

Complete QCOS 0005-08 thru step H.4 OR H.5 as applicable.

Provide the Candidate with a copy of QCOS 0005-08 completed through step D.2

DO NOT YET GIVE Attachment D & E (as these will be provided during the JPM)

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

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
NOTE: The procedure allows steps may be performed in any order. If the candidate chooses invoke this option, then the sequence below will not be accurate.					
H.1.a	Determines the number of offsite lines available.	Per attachment A, determines that two (2) offsite lines are available.	___	___	___
H.1.a.(1)	Documents at least two lines available.	Initials step complete.	___	___	___
H.1.a.(2)	Verifies switchyard voltage > 338.2 KV.	Check Yard voltage on 912-2 panel. Initials step complete.	___	___	___
CUE: If asked if notifications were received about Predicted Post Unit Trip voltages, then respond: “There have been no notifications from Transmission or the Nuclear Duty Officer.”					
H.1.a.(3)	Verify that there have been no notifications from Transmission or the Nuclear Duty Officer concerning Predicted Post Unit Trip switchyard voltages	No notifications from Transmission or the Nuclear Duty Officer concerning Predicted Post Unit Trip switchyard voltages verified. Step marked N/A.	___	___	___
H.1.b	Verifies XFMR 12 TO BUS 13 GCB capable of being closed.	Checks light indication for XFMR 12 TO BUS 13 GCB. Initials step.	___	___	___
H.1.c.(2)	Verifies XFMR 12 TO BUS 13 GCB is closed.	Checks closed indicating light is ON for XFMR 12 TO BUS 13 GCB. Initials step H.1.c.(2).	___	___	___
NOTE: Candidate may check voltage on multiple phases of Bus 13 by operating the voltmeter switch on the 901-8 panel, but only one phase is required.					
H.1.d	Verifies Bus 13 voltage 4000 to 4400 VAC by verifying voltmeter select switch is selected to Bus 13 and reading the voltage.	Checks Bus 13 voltage 4000 to 4400 VAC. Initials step.	___	___	___

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.e	Verifies Busses 13 AND 13-1 TIE GCBs closed.	Checks CLOSED indicating lights indication for bus 13 and 13-1 GCBs (two sets of lights) are lit on 901-8 panel. Initials steps H.1.e (1) and (2).	—	—	—
H.1.f.	Verify Bus 13-1 voltage 4000 to 4400 VAC.	Checks Bus 13-1 voltage 4000 to 4400 VAC. Initials step.	—	—	—
*H.1.g	Verify XFMR 12 TO BUS 14 capable of being closed. ●Determines that the OPEN light indication for XFMR 12 TO BUS 14 is NOT LIT.●	Checks indicating lights for XFMR 12 to bus 14 and recognizes that the green light is not lit and is NOT a burnt-out bulb.	—	—	—
CUE: IF the candidate indicates intent to change the light bulb, THEN inform the candidate that the light bulb has been changed and the indications are the same.					
CUE: If the candidate dispatches an Operator to Bus 14 to check the feed breaker from Transformer 12 to Bus 14, report that:					
<ul style="list-style-type: none"> ● There are NO lights lit on the breaker cubicle, ● The breaker appears to be physically cocked in the cubicle. ● There is a strong acrid odor coming from the cubicle's upper compartment. ● There is no fire. 					
*H.1.g	●Notifies Unit Supervisor that XFMR 12 TO BUS 14 is NOT available and that the surveillance acceptance criteria are NOT met.● (This notification may occur at the end at step H.5)	Acceptance criteria G.1.a.(3) is NOT met.	—	—	—
CUE: As the Unit Supervisor, inform the candidate that you will determine what Tech Spec actions (if any) are required. Continue performing the surveillance.					
H.1.h	Verifies XFMR 11 TO BUS 14 GCB is closed.	Checks closed indicating light is ON for XFMR 11 TO BUS 14 GCB. Initials step H.1.h.(1).	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.i	Verifies Bus 14 voltage 4000 to 4400 VAC by verifying voltmeter select switch is selected to Bus 14 and reading the voltage.	Checks Bus 14 voltage 4000 to 4400 VAC. Initials step.	—	—	—
H.1.j	Verifies Busses 14 AND 14-1 TIE GCBs closed.	Checks CLOSED indicating lights indication for bus 14 and 14-1 GCBs (two sets of lights) are lit on 901-8 panel. Initials steps H.1.j (1) and (2).	—	—	—
H.1.k	Verifies Bus 14-1 voltage 4000 to 4400 VAC by verifying voltmeter select switch is selected to Bus 14-1 and reading the voltage.	Checks Bus 14-1 voltage 4000 to 4400 VAC. Initials step.	—	—	—

CUE: As the U2 Assist NSO, provide the following Unit 2 information as requested.

H.1.l & H.1.l(1)	Verifies at least <u>ONE</u> of the following: Bus 13-1 capable of being energized from Transformer 21: Transformer 21 is NOT on backfeed	H.1.l(1) recognized as NOT satisfied (Information also provided In Initial Conditions as Unit 2 at Rated Power)	—	—	—
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CUE: As the U2 Assist NSO:

- Transformer 21 is **NOT** on backfeed.

(The remaining H.1.l(1) steps are unnecessary if T21 is not on backfeed, but can be answered affirmatively if asked.)

- H.1.l(1)b XFMR 21TO BUS 23 GCB capable of being closed? **YES**
- H.1.l(1)c Bus 23 voltage 4000 to 4400 VAC? **4300 VAC**
- H.1.l(1)d Busses 23 AND 23-1 TIE GCBs capable of being closed? **YES for both**
- H.1.l(1)e Bus 23-1 voltage 4000 to 4400 VAC? **4300 VAC**
- H.1.l(1)f Bus 13-1 AND 23-1 TIE GCB capable of being closed? **(Answered by U1)**
- H.1.l(1)g Bus 23-1 AND 13-1 TIE GCB capable of being closed? **YES**

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.I & H.1.I(2)	<p>Verifies at least <u>ONE</u> of the following:</p> <p>Bus 13-1 capable of being energized from Transformer 22:</p> <p>H.1.I(2)a XFMR 22 TO BUS 23 GCB capable of being closed?</p> <p>H.1.I(2)b Bus 23 voltage 4000 to 4400 VAC?</p> <p>H.1.I(2)c Busses 23 AND 23-1 TIE GCBs capable of being closed?</p> <p>H.1.I(2)d Bus 23-1 voltage 4000 to 4400 VAC?</p> <p>H.1.I(2)e BUS 13-1 AND 23-1 TIE GCB capable of being closed?</p> <p>H.1.I(2)f Bus 23-1 AND 13-1 TIE GCB capable of being closed?</p>	H.1.I.(2) recognized as satisfied. Appropriate steps initialed.	—	—	—
<p>CUE: As the U2 Assist NSO:</p> <ul style="list-style-type: none"> • H.1.I(2)a XFMR 22 TO BUS 23 GCB capable of being closed? YES • H.1.I(2)b Bus 23 voltage 4000 to 4400 VAC? 4300 VAC • H.1.I(2)c Busses 23 AND 23-1 TIE GCBs capable of being closed? YES for both • H.1.I(2)d Bus 23-1 voltage 4000 to 4400 VAC? 4300 VAC • H.1.I(2)e Bus 13-1 AND 23-1 TIE GCB capable of being closed? (Answered by U1) • H.1.I(2)f Bus 23-1 AND 13-1 TIE GCB capable of being closed? YES 					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.I & H.1.I(3)	Verifies at least <u>ONE</u> of the following: Bus 14-1 capable of being energized from Transformer 21: Transformer 21 is NOT on backfeed	H.1.I.(3) recognized as NOT satisfied. (Information also provided In Initial Conditions as Unit 2 at Rated Power)	---	---	---
<p>CUE: As the U2 Assist NSO:</p> <ul style="list-style-type: none"> Transformer 21 is <u>NOT</u> on backfeed. <p>(The remaining H.1.I(3) steps are unnecessary if T21 is not on backfeed, but can be answered affirmatively if asked.)</p> <ul style="list-style-type: none"> H.1.I(3)b XFMR 21TO BUS 24 GCB capable of being closed? YES H.1.I(3)c Bus 24 voltage 4000 to 4400 VAC? 4300 VAC H.1.I(3)d Busses 24 AND 24-1 TIE GCBs capable of being closed? YES for both H.1.I(3)e Bus 24-1 voltage 4000 to 4400 VAC? 4300 VAC H.1.I(3)f Bus 14-1 AND 24-1 TIE GCB capable of being closed? (Answered by U1) H.1.I(3)g Bus 24-1 AND 14-1 TIE GCB capable of being closed? YES 					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<p>H.1.I & H.1.I(4)</p>	<p>Verifies at least <u>ONE</u> of the following:</p> <p>Bus 14-1 capable of being energized from Transformer 22:</p> <p>H.1.I(4)a XFMR 22 TO BUS 24 GCB capable of being closed?</p> <p>H.1.I(4)b Bus 24 voltage 4000 to 4400 VAC?</p> <p>H.1.I(4)c Busses 24 AND 24-1 TIE GCBs capable of being closed?</p> <p>H.1.I(4)d Bus 24-1 voltage 4000 to 4400 VAC?</p> <p>H.1.I(4)e BUS 14-1 AND 24-1 TIE GCB capable of being closed?</p> <p>H.1.I(4)f Bus 24-1 AND 14-1 TIE GCB capable of being closed?</p>	<p>H.1.I(4) recognized as satisfied. Appropriate steps initialed.</p> <p>(Note: It is acceptable to N/A this step if Step H.1.I.(2) was initialed as satisfied. Only one of the four steps contained in Step H.1.I needs to be satisfied)</p>	<p>—</p>	<p>—</p>	<p>—</p>
<p>CUE: As the U2 Assist NSO:</p> <ul style="list-style-type: none"> • H.1.I(4)a XFMR 22 TO BUS 24 GCB capable of being closed? YES • H.1.I(4)b Bus 24 voltage 4000 to 4400 VAC? 4300 VAC • H.1.I(4)c Busses 24 AND 24-1 TIE GCBs capable of being closed? YES for both • H.1.I(4)d Bus 24-1 voltage 4000 to 4400 VAC? 4300 VAC • H.1.I(4)e Bus 14-1 AND 24-1 TIE GCB capable of being closed? (Answered by U1) • H.1.I(4)f Bus 24-1 AND 14-1 TIE GCB capable of being closed? YES 					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.m & H.1.m(1)	<p>Verify Bus 29 is energized to meet the opposite unit requirements by <u>ONE</u> of the following four methods:</p> <p>(1) Bus 29 is capable of being energized from Transformer 22 via Bus 24-1:</p> <p>H.1.m(1)a XFMR 22 TO BUS 24 GCB capable of being closed?</p> <p>H.1.m(1)b Bus 24 voltage 4000 to 4400 VAC?</p> <p>H.1.m(1)c Busses 24 AND 24-1 TIE GCBs capable of being closed?</p> <p>H.1.m(1)d Bus 24-1 voltage 4000 to 4400 VAC?</p> <p>H.1.m(1)e BUS 24-1 to Bus 29 breakers capable of being closed?</p> <p>H.1.m(1)f Bus 29 voltage 435 to 515 VAC?</p>	H.1.m.(1) recognized as satisfied. Appropriate steps initialed.	---	---	---

CUE: As the U2 Assist NSO:					
•	H.1.m(1)a XFMR 22 TO BUS 24 GCB capable of being closed?	YES			
•	H.1.m(1)b Bus 24 voltage 4000 to 4400 VAC?	4300 VAC			
•	H.1.m(1)c Busses 24 AND 24-1 TIE GCBs capable of being closed?	YES for both			
•	H.1.m(1)d Bus 24-1 voltage 4000 to 4400 VAC?	4300 VAC			
•	H.1.m(1)e Bus 24-1 to Bus 29 breakers capable of being closed?	YES for both			
•	H.1.m(1)f Bus 29 voltage 435 to 515 VAC?	480 VAC			

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
EVALUATOR NOTE: Because Unit 2 is NOT shutdown, the following step, using the Bus 28/Bus 29 crosstie, is not permissible.					
H.1.m & H.1.m(2)	<p>Verify Bus 29 is energized to meet the opposite unit requirements by <u>ONE</u> of the following four methods:</p> <p>(2) Bus 29 is capable of being energized from Transformer 22 via Bus 23-1 through the 480V cross tie:</p> <p>H.1.m(2)a XFMR 22 TO BUS 23 GCB capable of being closed?</p> <p>H.1.m(2)b Bus 23 voltage 4000 to 4400 VAC?</p> <p>H.1.m(2)c Bus 23 and 23-1 tie GCBs capable of being closed?</p> <p>H.1.m(2)d Bus 23-1 voltage 4000 to 4400 VAC?</p> <p>H.1.m(2)e Bus 23-1 to Bus 28 breakers capable of being closed?</p> <p>H.1.m(2)f Bus 28 voltage 435 to 515 VAC?</p> <p>H.1.m(2)g BUS 28/29 crosstie breakers capable of being closed?</p> <p>H.1.m(2)h Bus 29 voltage 435 to 515 VAC?</p>	H.1.m.(2) recognized as not usable based on the NOTE preceding this step.	_____	_____	_____
<p>CUE: (Applicable only if asked) As the U2 Assist NSO:</p> <ul style="list-style-type: none"> • H.1.m(2)a XFMR 22 TO BUS 23 GCB capable of being closed? YES • H.1.m(2)b Bus 23 voltage 4000 to 4400 VAC? 4300 VAC • H.1.m(2)c Bus 23 and 23-1 tie GCBs capable of being closed? YES for both • H.1.m(2)d Bus 23-1 voltage 4000 to 4400 VAC? 4300 VAC • H.1.m(2)e Bus 23-1 to Bus 28 breakers capable of being closed? YES for both • H.1.m(2)f Bus 28 voltage 435 to 515 VAC? 480 VAC • H.1.m(2)g Bus 28/Bus 29 crosstie breakers capable of being closed? YES for both • H.1.m(2)h Bus 29 voltage 435 to 515 VAC? 480 VAC 					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.1.m & H.1.m(3)	Verify Bus 29 is energized to meet the opposite unit requirements by <u>ONE</u> of the following four methods: (3) Bus 29 is capable of being energized from Transformer 21 on a backfeed via Bus 24-1:	H.1.I.(3) recognized as NOT satisfied (Information also provided In Initial Conditions as Unit 2 at Rated Power)	---	---	---
<p>CUE: As the U2 Assist NSO:</p> <ul style="list-style-type: none"> • (H.1.m(3)a) Transformer 21 is NOT on backfeed. <p>(The remaining H.1.m(3) steps are unnecessary if T21 is not on backfeed, but can be answered affirmatively if asked.)</p> <ul style="list-style-type: none"> • H.1.m(3)b XFMR 21 TO BUS 24 GCB capable of being closed? YES • H.1.m(3)c Bus 24 voltage 4000 to 4400 VAC? 4300 VAC • H.1.m(3)d Busses 24 AND 24-1 TIE GCBs capable of being closed? YES for both • H.1.m(3)e Bus 24-1 voltage 4000 to 4400 VAC? 4300 VAC • H.1.m(3)f Bus 24-1 to Bus 29 breakers capable of being closed? YES for both • H.1.m(3)g Bus 29 voltage 435 to 515 VAC? 480 VAC 					
H.1.m & H.1.m(4)	Verify Bus 29 is energized to meet the opposite unit requirements by <u>ONE</u> of the following four methods: (4) Bus 29 is capable of being energized from Transformer 21 on backfeed via Bus 23-1 through the 480 Volt Crosstie:	H.1.I.(4) recognized as NOT satisfied. (Information also provided In Initial Conditions as Unit 2 at Rated Power)	---	---	---

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE: As the U2 Assist NSO: <ul style="list-style-type: none"> (H.1.m(4)a) Transformer 21 is <u>NOT</u> on backfeed. (The remaining H.1.m(4) steps are unnecessary if T21 is not on backfeed, but can be answered affirmatively if asked.) <ul style="list-style-type: none"> H.1.m(4)b XFMR 21TO BUS 23 GCB capable of being closed? YES H.1.m(4)c Bus 23 voltage 4000 to 4400 VAC? 4300 VAC H.1.m(4)d Busses 23 AND 23-1 TIE GCBs capable of being closed? YES for both H.1.m(4)e Bus 23-1 voltage 4000 to 4400 VAC? 4300 VAC H.1.m(4)f Bus 23-1 to Bus 28 breakers capable of being closed? YES for both H.1.m(4)g Bus 28 voltage 435 to 515 VAC? 480 VAC H.1.m(4)h Bus 28/Bus 29 crosstie breakers capable of being closed? YES for both H.1.m(4)i Bus 29 voltage 435 to 515 VAC? 480 VAC 					
H.2	Determines that step H.2 is NOT applicable.	H.2 not applicable because Unit 1 is in Mode 1.	___	___	___
H.3.a.(1)(a)	Checks Bus 13-1 to Bus 18 breaker (on Bus 13-1) CLOSED.	Checks closed indicating light for Bus 13-1 to Bus 18 breaker (on Bus 13-1). Initials step.	___	___	___
H.3.a.(1)(b)	Checks Bus 13-1 to Bus 18 breaker (on Bus 18) CLOSED.	Checks closed indicating light for Bus 13-1 to Bus 18 breaker (on Bus 18). Initials step.	___	___	___
H.3.a.(1)(c)	Verifies Bus 18 voltage 435 to 515 VAC	Checks Bus 18 voltage 435 to 515 VAC by verifying voltmeter select switch is selected to Bus 18 and reading the voltage. Initials step.	___	___	___
H.3.a.(2)(a)	Checks Bus 14-1 to Bus 19 breaker (on Bus 14-1) CLOSED.	Checks closed indicating light for Bus 14-1 to Bus 19 breaker (on Bus 14-1). Initials step.	___	___	___
H.3.a.(2)(b)	Checks Bus 14-1 to Bus 19 breaker (on Bus 19) CLOSED.	Checks closed indicating light for Bus 14-1 to Bus 19 breaker (on Bus 19). Initials step.	___	___	___

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	<u>SAT</u>	<u>UNSAT</u>	<u>Comment Number</u>
H.3.a.(2)(c)	Verifies Bus 19 voltage 435 to 515 VAC.	Checks Bus 19 voltage 435 to 515 VAC by verifying voltmeter select switch is selected to Bus 19 and reading the voltage. Initials step.	—	—	—
CUE: As the U2 Assist NSO, provide the following Unit 2 information as requested:					
H.3.a.(3)(a)	Verifies Opposite unit AC distribution system. Busses 24 AND 24-1 TIE GCBs closed Bus 24 breaker Bus 24-1 breaker	H.3.a.(3)(a) recognized as satisfied. Initials step.	—	—	—
CUE: As the U2 Assist NSO; Both the Bus 24 breaker and the Bus 24-1 breaker are closed					
H.3.a.(3)(b)	Verifies Opposite unit AC distribution system. Bus 24-1 voltage 4000 to 4400 VAC	H.3.a.(3)(b) recognized as satisfied. Initials step.	—	—	—
CUE: As the U2 Assist NSO; bus 24-1 voltage is 4300 VAC.					
H.3.a.(3)(c)	Verifies Opposite unit AC distribution system. Bus 24-1 TO Bus 29 breakers closed	H.3.a.(3)(c) recognized as satisfied. Initials step.	—	—	—
CUE: As the U2 Assist NSO; Both the Bus 24-1 breaker and the Bus 29 breakers are closed.					
H.3.a.(3)(d)	Verifies Opposite unit AC distribution system. Bus 29 voltage 435 to 515 VAC	H.3.a.(3)(d) recognized as satisfied. Initials step.	—	—	—
CUE: As the U2 Assist NSO; bus 29 voltage is 480 VAC.					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.3.b	Perform Attachment D & E to complete in-plant AC and DC Distribution system requirements.	Verifies that EO is performing attachment D & E. Indicates that he will review it when the EO is complete.	—	—	—
CUE: Provide the candidate with completed Attachment D (faulted) and E (all steps marked as met).					
*H.3.b	Reviews Attachment D and verifies all steps initialed as being MET EXCEPT that step 2.a.(2) is incorrectly marked "N/A" and • identifies that the voltage written next to the step is TOO LOW•	Identifies that the EO who performed Attachment D recorded an unacceptable voltage for 250 VDC Turbine Building MCC 1 and that the step should NOT have been marked "N/A"	—	—	—
CUE: Candidate may contact the EO who performed Attachment D & E to determine if the out of spec reading listed is correct, OR the candidate may dispatch another EO to re-check the voltage. In either case, respond as the EO that the voltage was checked again, and that it is 248 VDC.					
*H.3.b	•Notifies the Unit Supervisor that 250 VDC Turbine Building MCC 1 bus voltage is TOO LOW• (This notification may occur at the end at step H.5)	Identifies that the EO who performed Attachment D recorded an unacceptable voltage for 250 VDC Turbine Building MCC 1 and that the step should NOT have been marked "N/A"	—	—	—
CUE: As the Unit Supervisor, repeat back what the candidate reports and direct the candidate to give you the surveillance paperwork when it is completed.					
H.3.b	Reviews Attachment E and verifies all steps initialed as being MET.	Reviews Attachment E and verifies that all steps initialed as being met.	—	—	—
H.3.c.	Determines that H.3.c does NOT apply with Unit 1 in Mode 1.	Marks Step H.3.c as N/A.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
H.4.	Determines that H.4 does NOT apply since surveillance was NOT satisfactory.	Indicates all of step H.4 as N/A.	—	—	—
<p>CUE: IF the Candidate previously identified the two deficiencies to be recorded in the next step, BUT fails to record EACH ONE in step H.5 below, THEN a follow-up question should be asked to determine whether or not the candidate recognizes that <i>EACH FAILURE, INDIVIDUALLY</i> would render the whole surveillance UNSATISFACTORY.</p>					
*H.5.	<ul style="list-style-type: none"> ●Completes step H.5 because surveillance was UNSATISFACTORY.● 	<p>(1) Records deficiencies:</p> <ul style="list-style-type: none"> ● XFMR 12 feed to Bus 14 is NOT available. ● 250 VDC Turbine Building MCC 1 voltage too low. <p>(2) Issue Report initiated.</p> <p>(3) Signs and dates “performed by” section.</p>	—	—	—
<p>CUE: As the Unit Supervisor, inform the candidate that you will initiate the IR and record the number on the surveillance.</p>					
<p>NOTE: Candidate should inform examiner that the task is complete.</p>					

JPM Stop Time: _____

JPM SUMMARY

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

JPM Title: Electrical Distribution Surveillance

JPM Number: 2012 RO Admin 2 Revision Number: 01

Task Number and Title:

SR-6500-P05 Given an operating reactor plant and a loss of T-12, determine if the auto bus transfer has occurred and if Tech Spec requirements are being met IAW QOA 6100-01 (Note: QCOS 0005-05 is embedded in QOA 6100-01.)

K/A Number and Importance: **KA:** 2.1.31 **Rating:** RO 4.6

Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.

Suggested Testing Environment: Simulator

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

Reference(s): QCOS 0005-08, Rev. 28

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

- Unit 1 and 2 are at rated conditions.
- You are the Unit 1 Assist NSO.
- QCOS 0005-08, ELECTRICAL DISTRIBUTION BREAKER AND VOLTAGE VERIFICATION is scheduled to be performed on your shift for the normal weekly surveillance.
- 15 minutes ago, 345 KV line 0403 tripped due to relay failure at Nelson substation. The Line 0403 Disconnects in the Quad Cities 345 KV switchyard have been OPENED. The Ring Bus has been RESTORED.
- The Unit Supervisor has determined that ALL of QCOS 0005-08 must be performed as scheduled.
- T12 Load Tap changer is in Auto with a Tap setting of 9.
- The Unit 2 Assist NSO will provide all Unit 2 information as requested.
- An EO has been dispatched to perform the in-plant sections of the surveillance and provide them to you for review when they are complete.

INITIATING CUE

Complete QCOS 0005-08 thru step H.4 OR H.5 as applicable.

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 and 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, {Put reason for writing this JPM under Revision 00, for all subsequent revisions annotate the changes that were made.}This JPM was developed new for the 2012 ILT NRC Exam.

SRRS: 3D.105 (when utilized for operator initial or continuing training)G:\DRSIII\License Examinations\2012\Quad Cities\AS GIVEN EXAM\JPMs\RO Admin 3.docC:\Documents and Settings\nrc1\Desktop\Quad Cities 2012 ILT NRC Exam As Administered\JPMs\2012 NRC ADMIN\JPMs\RO Admin 3.docC:\Documents and Settings\ilt1\Desktop\z-2012 NRC Exam\NRC JPMs\2012 NRC JPMs Working\2012 NRC ADMIN\JPMs\RO Admin-3.doc

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

SIMULATOR SETUP INSTRUCTIONS

- ~~1. Reset the simulator to IC-XX Simulator setup is not applicable.~~
- ~~4. Initiate this JPM in front of the 912-1 Panel.~~
- ~~2. 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.~~

~~Do this second {Add steps to describe additional simulator setup steps (e.g., Load Computer Aided Exercise ZZZZ or jcae! ZZZZ)}~~

- ~~3. Do this next {Add steps to describe additional panel setup requirements for this JPM (e.g., re-align systems; hang tags, hang postings, etc.)}~~
- ~~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.~~
- ~~5-2. This completes the setup for this JPM.~~

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

INITIAL CONDITIONS

- ~~{Put the Initial Conditions here. Include current plant status and the role (by position, e.g., an extra RO, etc.) in which the examinee will be performing the task. This information should be duplicated on the last page for the student copy.}You are the Unit 1 ANSO.~~
- QOS 5600-01, Turbine Control Valve (TCV) Fast Closure Scram Instrument Channel Functional Test was being performed.
- When #3 TCV went closed during this test, NONE of the expected responses were received:
 - o DEHC did NOT indicate FAST CLOSURE DETECTED.
 - o Expected Annunciator 901-5 A-13, CHANNEL A/B TURB-GEN LOAD MISMATCH EHC LOW PRESS, did NOT alarm.
 - o The Test Box indicating light did NOT illuminate.
 - o The two sets of associated relay contacts did NOT open.

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INITIATING CUE

Reference electrical schematics 4E-1464 through 4E-1467.

Identify the following:

- 1) The RELAY associated with TCV #3 in the TCV Fast Closure RPS logic.
- 2) The FUSE that would have to be removed to deenergize the relay identified in Part 1.~~{Put the initiating cue the evaluator will read to the students here. This should describe the task clearly. This information should be duplicated on the last page for the student copy.}~~

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.

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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.

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2012 RO Admin 3(JPM Number)- rRev. 00-XX

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.

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

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
<p>EVALUATOR NOTES:</p> <p>QOS 5600-01 is NOT provided.</p> <p>This JPM is performed in the Simulator where the QOS and other necessary reference material can be obtained.</p> <p>The relay number can be determined from either the QOS or Schematic Drawing 4E-1466 Sheet 3.</p> <p>The fuse number can be determined from 4E-1466 Sheet 3 but not the QOS.</p> <p>Do not allow the candidate to mark on electrical drawings.</p>					
*Part 1*XX	<p>•Type element of task in this column. Correctly identify the number of the TCV Fast Closure RPS relay associated with TCV #3. •</p>	<p>Type specific operator action standards in this column including application of fundamentals, as appropriate. Relay 590-121B identified</p>	---	---	---
*XXPart 2	<p>•Correctly identify the number of the fuse that would have to be removed to deenergize the relay identified in Part 1. •Type next element of task.</p>	<p>Type specific operator action standards in this column including application of fundamentals, as appropriate. Fuse 590-725B identified.</p>	---	---	---

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JPM Stop Time: _____

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JPM SUMMARY

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

JPM Title: ~~Type JPM title here~~ Print Reading Exercise

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JPM Number: ~~Type JPM number here~~ 2012 RO Admin 3 Revision Number: ##00

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Task Number and Title: Given the Electrical and Mechanical Drawings, LOCATE the necessary drawings and ACCOMPLISH the following activities: a. Locate a given component b. Determine the component power supply
~~Type Task Number and Title here~~

K/A Number and Importance: K/A, Type System/Evolution #, K/A, and Importance Ratings here-2.2.41 Rating RO 3.5

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Ability to obtain and interpret station electrical and mechanical drawings.

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Suggested Testing Environment: ~~Type suggested testing environment here (e.g., simulator, classroom, mock-up, etc.)~~ Simulator

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

Reference(s): ~~Type procedure reference(s), AND revision number(s) here. Delete blank 'Comments' rows during JPM development, as necessary, to maintain this sheet as a single page.~~

QOS 5600-01, Rev. 45, Turbine Control Valve Fast Closure Scram Instrument Channel Functional Test

IR1294079, (Dated 11/23/11) "Relay 590-123C did not drop out when pressure switch opened"
4E-1466 Sheet 3, Schematic Drawing RPS CH B Scram and Aux Trip Relays

Actual Testing Environment: Simulator Control Room In-Plant Other

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Testing Method: Simulate Perform

Estimated Time to Complete: 0020 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: _____

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

2012 RO Admin 3(JPM Number)- rRev_00-XX

Evaluator's Name: _____ (Print)
Evaluator's Signature: _____ Date: _____

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

INITIAL CONDITIONS

- You are the Unit 1 ANSO.
- QOS 5600-01, Turbine Control Valve (TCV) Fast Closure Scram Instrument Channel Functional Test was being performed.
- When #3 TCV went closed during this test, NONE of the expected responses were received:
 - o DEHC did NOT indicate FAST CLOSURE DETECTED.
 - o Expected Annunciator 901-5 A-13, CHANNEL A/B TURB-GEN LOAD MISMATCH EHC LOW PRESS, did NOT alarm.
 - o The Test Box indicating light did NOT illuminate.
 - o The two sets of associated relay contacts did NOT open.

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INITIATING CUE

Reference electrical schematics 4E-1464 through 4E-1467.

Identify the following:

- 1) The RELAY associated with TCV #3 in the TCV Fast Closure RPS logic.
- 2) The FUSE that would have to be removed to deenergize the relay identified in Part 1. {Put the Initial Conditions here. Include current plant status and the role (by position, e.g., extra RO, etc.) in which the examinee will be performing the task. This information should be duplicated from the evaluator's page.}

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INITIATING CUE

{Put the initiating cue the evaluator will read to the students here. This should describe the task clearly. This information should be duplicated from the evaluator's page.}

Exelon Nuclear

Job Performance Measure

Select Personnel for Radiation Work

JPM Number: 2012 RO Admin 4

Revision Number: 01

Date: 03/04/2012

Developed By: _____
Instructor Date

Validated By: _____
SME or Instructor Date

Reviewed By: _____
Operations Representative Date

Approved By: _____
Training Department Date

Revision Record (Summary)

Revision 00, This JPM was developed for ILT NRC Exam 03-01 IAW NUREG 1021, Rev 9.

Revision 01 This JPM is based on bank JPM AD-RO-4 from the 2005 NRC Exam It was revised and updated for the 2012 ILT NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. None. This JPM may be completed at any location, provided that the appropriate reference material (listed below) is available.
2. Ensure the following reference material is available
 - A prepared copy of RWP #: 10004577 rev. 0.
 - A prepared Survey map of the U-1 CLEAN UP HEAT EXCHANGER ROOM with dose rate for these 5 valves AO-1-1239; MO-1201-77; MO-1-1-1201-78; 1-1201-148B; 1-1201-148A at 80 mr/hr and with a dose rate for the valves 1-1201-75; MO-1-1201-133. at 120 mr/hr
 - RP-AA procedures, QCRP procedures. (both are available in Simulator, RP-AA procedures behind 901-8, QCRP below Digital FW& Recirc Monitors)
3. This completes the setup for this JPM.

INITIAL CONDITIONS

- You will be assigning Non Licensed Operators to perform a Clearance Order First Hang in the RWCU Heat Exchanger Room under RWP 10004577.
- Five Non-Licensed Operators are available this shift.
 - None of the five have received dose at any location other than Quad Cities.
 - None of the five have received dose since midnight on any RWPs other than 10004577.
- The Radiation Protection Department has provided the attached Survey map, RWP and the following dose history for the five Operators to assist you in your planning:

Name	Annual TEDE dose <u>as of</u> <u>Midnight Today</u>	DDE dose received on RWP 10004577 Today
Carrie ¹	440 mrem	0 mrem
Terry	1500 mrem	35 mrem
George	1800 mrem	8 mrem
Steve	1900 mrem	5 mrem
Mary	1950 mrem	0 mrem

¹ Carrie became “Declared Pregnant.” on 3-31-2012.

- The total expected stay time for each Operator will be 45 minutes. Based on past job history, it will breakdown as follows:
 - 30 minutes total in the area near the following **five** valves:
AO-1-1239, MO-1201-77, MO-1-1-1201-78, 1-1201-148B, 1-1201-148A
 - 15 minutes total in the area near the following **two** valves:
1-1201-75, MO-1-1201-133

INITIATING CUE

CALCULATE the expected dose for the work in RWCU Heat Exchanger Room. DETERMINE which Operators CAN and which Operators CAN NOT be assigned to perform the task. EXPLAIN the basis for your determination.

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.

EVALUATOR: The candidate must determine that dose for the task will be 70 mrem and determine that only two Operators can receive the dose, necessary to complete the task. They are George and Steve. See the table below for projected job dose, 24-hour total dose on RWP 10004577, and total Annual TEDE dose for each Operator.

Calculation:

5 valve clearance projected dose = 0.50 hr x 80 mr/hr = 40mrem
 2 valve clearance projected dose = 0.25hr x 120 mr/hr = 30mrem
 40mrem + 30 mrem = **70 mrem projected dose for clearance**

Name	Projected job dose	Projected dose on RWP 1000457 for 24 hour period	Projected Annual TEDE (including all dose from last 24 hours)
Carrie	70 mrem	(0+70) 70 mrem	510 mrem
Terry	70 mrem	(35+70) 105 mrem	1605 mrem
George	70 mrem	(8+70) 78 mrem	1878 mrem
Steve	70 mrem	(5+70) 75 mrem	1975 mrem
Mary	70 mrem	(0+70) 70 mrem	2020 mrem

The **bolded** values in the table exceed the applicable Company, RWP, or 10CFR limit.

JPM Start Time: _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
<p>NOTE:</p> <p>EVALUATOR: Give the candidate a copy of the following documents:</p> <ul style="list-style-type: none"> • RWP #: 10004577 rev. 0. • Survey map of the U-1 CLEAN UP HEAT EXCHANGER ROOM 					
<p>EVALUATOR: The following steps can be performed in any order.</p>					
	Reviews the RWP to determine approved Dose rates.	Reviews the RWP and determines the ED Dose alarm is set for 80 mrem.	—	—	—
<p>EVALUATOR: The next step requires the candidate to correctly read the survey map to determine dose rates. The candidate calculations will be wrong if the candidate chooses smearable contamination count instead of area dose rate.</p>					
	Reviews Survey Maps to determine area dose rates.	Reviews the survey maps and determines area dose rates to be 80 mr/hr for the first group of 5 valves and 120 mr/hr for the remaining 2 valves.	—	—	—
<p>EVALUATOR: The candidate will need to perform the following calculation to determine total projected dose the EOs are expected to receive. This calculation is listed here for your reference:</p> <ul style="list-style-type: none"> • 5 valve clearance projected dose = 0.50 hr x 80 mr/hr = 40 mrem • 2 valve clearance projected dose = 0.25hr x 120 mr/hr = 30 mrem • projected dose for the job = 40mrem + 30 mrem = 70 mrem 					
*	•Calculates the projected dose that will be received for the task is 70 mrem. •	Determines the EOs will receive 40 mrem on the first 5 valves and 30 on the next 2.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number																								
<p>EVALUATOR: In the next step the candidate will compare the projected dose for the task (70 mrem) to the list of available operators. Determines that only George and Steve will not exceed either the RWP or company annual TEDE dose limit. (Exceeded limits in bold below.)</p>																													
<table border="1"> <thead> <tr> <th data-bbox="172 554 315 695">Name</th> <th data-bbox="315 554 534 695">Projected job dose</th> <th data-bbox="534 554 938 695">Projected dose on RWP 1000457 for 24 hour period</th> <th data-bbox="938 554 1442 695">Projected Annual TEDE (including all dose from last 24 hours)</th> </tr> </thead> <tbody> <tr> <td data-bbox="172 695 315 764">Carrie</td> <td data-bbox="315 695 534 764">70 mrem</td> <td data-bbox="534 695 938 764">70 mrem</td> <td data-bbox="938 695 1442 764">510 mrem</td> </tr> <tr> <td data-bbox="172 764 315 833">Terry</td> <td data-bbox="315 764 534 833">70 mrem</td> <td data-bbox="534 764 938 833">105 mrem</td> <td data-bbox="938 764 1442 833">1605 mrem</td> </tr> <tr> <td data-bbox="172 833 315 903">George</td> <td data-bbox="315 833 534 903">70 mrem</td> <td data-bbox="534 833 938 903">78 mrem</td> <td data-bbox="938 833 1442 903">1878 mrem</td> </tr> <tr> <td data-bbox="172 903 315 972">Steve</td> <td data-bbox="315 903 534 972">70 mrem</td> <td data-bbox="534 903 938 972">75 mrem</td> <td data-bbox="938 903 1442 972">1975 mrem</td> </tr> <tr> <td data-bbox="172 972 315 1045">Mary</td> <td data-bbox="315 972 534 1045">70 mrem</td> <td data-bbox="534 972 938 1045">70 mrem</td> <td data-bbox="938 972 1442 1045">2020 mrem</td> </tr> </tbody> </table>						Name	Projected job dose	Projected dose on RWP 1000457 for 24 hour period	Projected Annual TEDE (including all dose from last 24 hours)	Carrie	70 mrem	70 mrem	510 mrem	Terry	70 mrem	105 mrem	1605 mrem	George	70 mrem	78 mrem	1878 mrem	Steve	70 mrem	75 mrem	1975 mrem	Mary	70 mrem	70 mrem	2020 mrem
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<p>CUE: IF the candidate inquires at to whether or not any of the EOs has received permission to exceed any dose limits, respond, “None of the Equipment Operators have received permission to exceed any limits.”</p>																													
*RP-AA-203 Step 4.1.1	<ul style="list-style-type: none"> •Determines that Carrie CANNOT perform the job because she would exceed the 500 mrem limit.• 	Carrie’s total Annual dose would be 510 mrem.	___	___	___																								
*RWP 1000457	<ul style="list-style-type: none"> •Determines that Terry CAN NOT perform the job because he would exceed the 100 mrem daily limit on RWP 1000457.• 	Terry’s total dose on RWP 100457 would be 105 mrem.	___	___	___																								
	Determines that George CAN perform the job because no limits will be exceeded.	George’s total RWP daily dose and Annual dose will remain below the limits.	___	___	___																								

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
	Determines that Steve CAN perform the job because no limits will be exceeded.	Steve’s total RWP daily dose and Annual dose will remain below the limits.	—	—	—
*RP-AA-203 Step 4.1.2	•Determines that Mary CAN NOT perform the job because she would exceed the 2000 mrem Exelon Annual limit. •	Mary’s total Annual dose would be 2020 mrem.	—	—	—
CUE	Candidate should report the task is complete.				

JPM Stop Time: _____



JPM SUMMARY

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

JPM Title: Select Personnel for Radiation Work

JPM Number: 2012 RO Admin 4 Revision Number: 01

Task Number and Title: **RP-AA-203** Exposure Control and Authorization. **FundOp04**
Radiological Safety

K/A Number and Importance: **K/A:** 2.3.4 **Rating:** RO 3.2

Knowledge of radiation exposure limits under normal or emergency conditions

Suggested Testing Environment: Simulator or Classroom

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

Reference(s):

RP-AA-203, Rev. 3, Exposure Control and Authorization

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

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INITIATING CUE

CALCULATE the expected dose for the work in RWCU Heat Exchanger Room. DETERMINE which Operators CAN and which Operators CAN NOT be assigned to perform the task. EXPLAIN the basis for your determination.