

# Exelon Nuclear

## Job Performance Measure

### Select Personnel for Radiation Work

JPM Number: 2014 ILT NRC JPM RO Admin 4

Revision Number: 00

Date: 10/22/2013

Developed By: \_\_\_\_\_  
Instructor Date

Validated By: \_\_\_\_\_  
SME or Instructor Date

Reviewed By: \_\_\_\_\_  
Operations Representative Date

Approved By: \_\_\_\_\_  
Training Department Date

## JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

- \_\_\_\_\_ 1. Task description and number, JPM description and number are identified.
- \_\_\_\_\_ 2. Knowledge and Abilities (K/A) references are included.
- \_\_\_\_\_ 3. Performance location specified. (in-plant, control room, simulator, or other)
- \_\_\_\_\_ 4. Initial setup conditions are identified.
- \_\_\_\_\_ 5. Initiating cue (and terminating cue if required) are properly identified.
- \_\_\_\_\_ 6. Task standards identified and verified by SME review.
- \_\_\_\_\_ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*).
- \_\_\_\_\_ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- \_\_\_\_\_ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:  
     Procedure RP-AA-203 Rev: 3  
     Procedure RP-AA-270 Rev: 6  
     Procedure \_\_\_\_\_ Rev: \_\_\_\_\_
- \_\_\_\_\_ 10. Verify cues both verbal and visual are free of conflict.
- \_\_\_\_\_ 11. Verify performance time is accurate
- \_\_\_\_\_ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- \_\_\_\_\_ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

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

## **Revision Record (Summary)**

**Revision 00**, Renamed JPM to 2014 ILT NRC JPM RO Admin 4. Restarted numbering accordingly.

### **Previous revisions were:**

**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 specially prepared copy of RWP #: 10014587 changed to be applicable for entry into the U-1 RWCU Heat Exchanger Room. [entry limit of 100 mrem, ED Dose alarm of 80 mrem, Dose Rate Alarm of 800 mrem/hr]
  - A copy of RWP 10015068 for “RCA ACCESS FOR DECLARED RADIATION WORKERS”
  - 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)
  - This file contains the survey map and RWPs



RO Admin 4 survey  
map.pdf



RO Admin 4 RWP  
10014587.pdf



RO Admin 4 RWP  
10015068.pdf



RO Admin 4  
RP-AA-203, Rev 003, RP-AA-270, Rev 006,



RO Admin 4

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 10014587.
- Five Equipment 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 10014587.
- 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 10014587 Today
Carrie <sup>1</sup>	120 mrem	0 mrem
Terry	1500 mrem	35 mrem
Larry	1800 mrem	8 mrem
Harry	1900 mrem	5 mrem
Mary	1950 mrem	0 mrem

<sup>1</sup> Carrie became “Declared Pregnant.” on 12-31-2013.

- 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

This JPM is NOT time critical

### INITIATING CUE

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

**{When candidate acknowledges the cue, provide the candidate the RWPs and the radiation survey map}**

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.
- 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 Larry and Harry. See the table below for projected job dose, 24-hour total dose on RWP 10014587, 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 10014587 for 24 hour period	Projected Annual TEDE (including all dose from last 24 hours)
Carrie	70 mrem	(0+70) <b>70 mrem</b>	190 mrem
Terry	70 mrem	(35+70) <b>105 mrem</b>	1605 mrem
Larry	70 mrem	(8+70) 78 mrem	1878 mrem
Harry	70 mrem	(5+70) 75 mrem	1975 mrem
Mary	70 mrem	(0+70) 70 mrem	<b>2020 mrem</b>

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
<b>EVALUATOR: The following steps can be performed in any order.</b>					
	Reviews the RWP to determine approved Dose rates.	Reviews the RWP and determines the ED Dose alarm is set for 80 mrem.	—	—	—
<b>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.</b>					
	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.	—	—	—
<b>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:</b> <ul style="list-style-type: none"> <li>• 5 valve clearance projected dose = <math>0.50 \text{ hr} \times 80 \text{ mr/hr} = \mathbf{40 \text{ mrem}}</math></li> <li>• 2 valve clearance projected dose = <math>0.25\text{hr} \times 120 \text{ mr/hr} = \mathbf{30 \text{ mrem}}</math></li> <li>• projected dose for the job = <math>40\text{mrem} + 30 \text{ mrem} = \mathbf{70 \text{ mrem}}</math></li> </ul>					
*	•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.	—	—	—

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number																							
<b>EVALUATOR:</b> 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 Larry and Harry will not exceed either the RWP or company annual TEDE dose limit. (Exceeded limits in bold below.)																												
	<table><tr><th>Name</th><th>Projected job dose</th><th>Projected dose on RWP 10014587 for 24 hour period</th><th>Projected Annual TEDE (including all dose from last 24 hours)</th></tr><tr><td>Carrie</td><td>70 mrem</td><td><b>70 mrem</b></td><td>190 mrem</td></tr><tr><td>Terry</td><td>70 mrem</td><td><b>105 mrem</b></td><td>1605 mrem</td></tr><tr><td>Larry</td><td>70 mrem</td><td>78 mrem</td><td>1878 mrem</td></tr><tr><td>Harry</td><td>70 mrem</td><td>75 mrem</td><td>1975 mrem</td></tr><tr><td>Mary</td><td>70 mrem</td><td>70 mrem</td><td><b>2020 mrem</b></td></tr></table>	Name	Projected job dose	Projected dose on RWP 10014587 for 24 hour period	Projected Annual TEDE (including all dose from last 24 hours)	Carrie	70 mrem	<b>70 mrem</b>	190 mrem	Terry	70 mrem	<b>105 mrem</b>	1605 mrem	Larry	70 mrem	78 mrem	1878 mrem	Harry	70 mrem	75 mrem	1975 mrem	Mary	70 mrem	70 mrem	<b>2020 mrem</b>			
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<b>CUE:</b> 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.”																												
*RP-AA-270 Step 1.4 and/or RWP “RCA ACCESS FOR DECLARED RADIATION WORKERS”	•Determines that <b>Carrie CANNOT</b> perform the job because she would exceed the 40 mrem per month limit / 20 mrem entry limit for the RWP and she would enter a contaminated area.	Carrie’s total monthly dose would exceed allowable dose and she would enter a contaminated area.	—	—	—																							
*RWP 10014587	•Determines that <b>Terry CANNOT</b> perform the job because he would exceed the 100 mrem daily limit on RWP 10014587•	Terry’s total dose on RWP 10014587 would be 105 mrem.	—	—	—																							
	Determines that Larry CAN perform the job because no limits will be exceeded.	Larry’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 Harry CAN perform the job because no limits will be exceeded.	Harry's total RWP daily dose and Annual dose will remain below the limits.	—	—	—
*RP-AA-203 Step 4.1.2	•Determines that <b>Mary CANNOT</b> perform the job because she would exceed the 2000 mrem Exelon Annual limit.•	Mary's total Annual dose would be 2020 mrem.	—	—	—
<b>CUE</b>	<b>Candidate should report the task is complete.</b>				

JPM Stop Time: \_\_\_\_\_

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**JPM SUMMARY**

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

JPM Title: Select Personnel for Radiation Work

JPM Number: 2014 ILT NRC JPM RO Admin 4

Revision Number: 00

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

RP-AA-270, Rev. 6, Prenatal Radiation Exposure

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:** \_\_\_\_\_  
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**Evaluator's Name:** \_\_\_\_\_ (Print)

**Evaluator's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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