

REGION III
INITIAL LICENSE EXAM
JOB PERFORMANCE MEASURE

JPM: ADM 1b

**TITLE: CALCULATE BLEND RATIO FOR MAKEUP
TO SIRWT**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Perform Safety Injection Refueling Water Tank Operations

Alternate Path: NO

Facility JPM #: NEW

K/A: 2.1.34 Importance: RO: 2.3 SRO: 2.9

K/A Statement: Ability to maintain primary and secondary plant chemistry within allowable limits.

Task Standard: Correct volume of Boric Acid and Primary Makeup Water Calculated for addition to SIRWT

Preferred Evaluation Location: Any

Preferred Evaluation Method: Perform Simulate

References: SOP-2A, revision 63
Technical Data Book, figure 8.2, revision 3

Validation Time: 12 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

- SOP-2A, revision 63
- Calculator
- Pencil and paper

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- Safety Injection Refueling Water Storage Tank boron concentration = 2149ppm
- Safety Injection Refueling Water Storage Tank level = 96%
- Boric Acid Storage Tank T-53A boron concentration = 12,524ppm

INITIATING CUES:

- The Control Room Supervisor directs you to perform SOP-2A section 7.6.1.a to calculate the volumes of Boric Acid and Primary Makeup water needed to raise SIRWT level by 3000 gallons, maintaining current SIRWT boron concentration.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
n/a	Operator locates correct procedure	SOP-2A section 7.6.1 located	S U
Comment: Evaluator Cue: Provide references			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
7.6.1.a Caution	During makeup operations to the SIRWT: 1. Makeup to the volume control tank is not available. 2. Opening CV-2155, Boric Acid Blender Outlet Control Valve, will inject the blended batch intended for the SIRWT into the PCS. 3. Additions that exceed 2500 ppm may result in exceeding boron concentration limits of Technical Specifications LCO 3.5.4. SITs may also be affected during fill and drain operations	Operator reviews caution	S U
Comment:			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
7.6.1.a.1	To determine the amount of boric acid and primary makeup water to be transferred to SIRW tank, REFER TO the following formulas: $\text{SIRW Tank Volume} = (\% \text{ meter reading} \times 2797) + 18,646$ Where: SIRW Tank Volume = SIRW total gallons % meter reading = LIA-0332A or LIA-0331.	Operator calculates the following: Amount of volume to add = 3000 gallons (give in initial conditions)	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.6.1.a.2	Blend Ratio = (BAST ppm/SIRW ppm) - 1 Where: Blend Ratio = gallons of PMW per 1 gallon of concentrated Boric Acid BAST ppm = 12,524 SIRWT ppm = 2149	Operator calculates the following: $(12,524/2149) - 1 = 4.83$ (allow 4.80 – 4.85)	S U
Comment: Evaluator Note: Allow 4.80 to 4.85 CRITICAL STEP			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
7.6.1.a.3	Gallons of concentrated boric acid to add = Total Volume Makeup to SIRW/(Blend Ratio + 1) Where: Total Volume Makeup to SIRWT = Desired SIRWT level in gallons minus current level in gallons Blend Ratio = gallons of PMW per 1 gallon of concentrated Boric Acid	Operator calculates the following: $3000/(4.83 + 1) = 514.6$ gal of boric acid	S U
Comment: Evaluator Note: Allow 512.5 – 517 CRITICAL STEP			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
7.6.1.a.4	Gallons of PMW to add = Total volume makeup to SIRWT - Gallons of Boric Acid to add Where: Total Volume Makeup to SIRWT = Desired SIRWT level in gallons minus current level in gallons Gallons of Boric Acid to Add = Item 3. above	Operator calculates the following: $3000 - 514.6 = 2485.4$ gal	S U
Comment: Evaluator Note: Allow 2480 – 2490 CRITICAL STEP			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
n/a	Operator informs Control Room Supervisor of the volume of boric acid and primary makeup water to add.	CRS informed of the following volumes: Primary Makeup Water: 2485.4 gal Concentrated Boric Acid: 514.6 gal	S U
<p>Comment:</p> <p>Evaluator Note: Allow 2480 – 2490 gal for Primary Makeup Water and 512.5 – 517 gal for Boric Acid</p> <p>Evaluator Cue: Role play as CRS</p>			

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Safety Injection Refueling Water Storage Tank boron concentration = 2149ppm
- Safety Injection Refueling Water Storage Tank level = 96%
- Boric Acid Storage Tank T-53A boron concentration = 12,524ppm

INITIATING CUES:

- The Control Room Supervisor directs you to perform SOP-2A section 7.6.1.a to calculate the volumes of Boric Acid and Primary Makeup water needed to raise SIRWT level by 3000 gallons, maintaining current SIRWT boron concentration.

SIMULATOR OPERATOR INSTRUCTIONS

- N/A

REGION III
INITIAL LICENSE EXAM
JOB PERFORMANCE MEASURE

JPM: ADM 3

**TITLE: VERIFY WASTE GAS RELEASE HIGH
ALARM SETPOINT**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Direct setpoint changes to process radiation monitors

Alternate Path: NO

Facility JPM #: PL-OPS-RMS-002J

K/A: 2.3.8 Importance: RO: 2.3 SRO: 3.2

K/A Statement: Knowledge of the process for performing a planned gaseous radioactive release.

Task Standard: Correct setpoint is calculated for Waste Gas release

Preferred Evaluation Location: Simulator In Plant

Preferred Evaluation Method: Perform Simulate

References: SOP-18A, revision 41
HP 6.6, revision 18
SOP-38, revision 21

Validation Time: 20 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

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Tools/Equipment/Procedures Needed:

- SOP-18A, revision 41
- Partially completed form HP 6.6-3
- Calculator

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

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INITIAL CONDITIONS:

- Plant is at 100% power. A Containment purge is NOT in progress. RIA-1113, Waste Gas Monitor is operable per DWO-1.

INITIATING CUES:

- T-101C, Waste Gas Decay Tank, has been authorized for release. The NCO has performed the Control Room Operator actions of Form HP 6.6-3, WGDT Release Authorization for Waste Gas Batch number 07-013-G, including calculating and setting the HIGH alarm setpoint. The NCO asks you to verify RIA-1113 Background Reading per SOP-18A 7.5.g and HIGH alarm setpoint per SOP-18A step 7.5.i.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
n/a	Obtain partially completed Authorized Batch Release Order from Shift Manager	Obtains batch release	S U
<p>Comment:</p> <p>Evaluator Note: Role play as the NCO and ask candidate to approve high alarm setpoint. Provide the batch release order, Form HP 6.6-3, page 1 only (last page of JPM)</p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
n/a	Operator obtains correct procedure	SOP-18A step 7.5.i is obtained	S U
<p>Comment:</p>			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
7.5.i	Operator reads RIA-1113 background	<p>___ Operator depresses HS-2317 for 1 minute and releases</p> <p>___ Operator reads background $\sim 9.5 \times 10^1$ cpm</p>	S U
<p>Comment:</p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
7.5.i	DETERMINE Hi Alarm setpoint. (This is the sum of the observed background and the established release limit provided on Form HP 6.6-3.)	<p>___ SRO adds RIA-1113 background to the release limit to obtain high alarm setpoint:</p> <ul style="list-style-type: none"> • 9.5×10^1 cpm + 8.5×10^3 cpm <p>___ Determines high alarm setpoint to be 8.59×10^3 cpm <u>not</u> 9.45×10^3 cpm</p>	S U
<p>Comment:</p> <p>Evaluator Note: (Acceptable range is $8.4 - 8.75 \times 10^3$ cpm).</p> <p>CRITICAL STEP</p>			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
n/a	Operator returns HP form 6.6-3 to NCO for re-calculation.	Operator recognizes that high alarm setpoint must be re-calculated by NCO and does not sign form.	S U
<p>Comment:</p> <p>Evaluator Note: Role play as NCO and inform candidate that you will re-calculate.</p>			

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Plant is at 100% power. A Containment purge is NOT in progress. RIA-1113, Waste Gas Monitor is operable per DWO-1.

INITIATING CUES:

- T-101C, Waste Gas Decay Tank, has been authorized for release. The NCO has performed the Control Room Operator actions of Form HP 6.6-3, WGDT Release Authorization for Waste Gas Batch number 07-013-G, including calculating and setting the HIGH alarm setpoint. The NCO asks you to verify RIA-1113 Background Reading per SOP-18A 7.5.g and HIGH alarm setpoint per SOP-18A step 7.5.i.
-

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-17
- Ensure V-6A, Main Exhaust Fan, is in service
- Change setpoint for RIA-1113 to 9.45×10^3 cpm

WGDT RELEASE AUTHORIZATION

WGDT to be Released T- T-101C Batch Number 07 - 013 - G

RETS

RETS

Isolation Date 07/01/07 Time 1200
Isolation Pressure 93 psig
Release Pressure 93 psig

Release Volume 32.5	m ³
Gamma Conc 7.24E⁻⁵	μCi/cc
Expected RIA-1113 RDG 9.5 x 10¹	cpm

APPROVAL TO RELEASE

RIA-1113 Release Limit 8.5E⁻³ cpm

Date / Time

RETS Supv Jane Retssup Today / 0815

Shift Manager Ralph Manager Today / 0840

C O N T R O L R M O P E R	Main Exhaust Fan In Service V-6A <input checked="" type="checkbox"/> V-6B <input type="checkbox"/> <i>I/S fan</i>
	Purge RIA-1113 <input checked="" type="checkbox"/>
	*Source Check RIA-1113 (6.2 X 10³) cpm
	RIA-1113 Release Limit (8.5 x 10³) cpm
	RIA-1113 Background + (9.5 x 10¹) cpm
	RIA-1113 Alarm Setpt = (9.45 x 10³) cpm
	Alarm Set By:
	Alarm Verified By:
	Purge RIA-1113 After Release <input type="checkbox"/>
	Reset Alarm to 2500 cpm
	Alarm Reset By:
Alarm Reset Verified By:	

If RIA-1113 is not operational, effluent releases may continue provided that prior to release:

1. At least two independent samples are analyzed; and
2. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge line valving.

Palisades ODCM Appendix A, Table A-1, Item 1.a Action 1.

Remarks: * ODCM Appendix A, Table A-2, Item 1.a

REGION III
INITIAL LICENSE EXAM
JOB PERFORMANCE MEASURE

JPM: ADM 4

TITLE: CALCULATE OFF SITE DOSE RATE

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Calculate Off Site Dose

Alternate Path: NO

Facility JPM #: PL-OPS-SEP-003J

K/A: 2.4.40 Importance: RO: 2.3 SRO: 4.0

K/A Statement: Knowledge of the SRO's responsibilities in emergency plan implementation.

Task Standard: Off Site Dose Calculated Correctly

Preferred Evaluation Location: Simulator In Plant _____

Preferred Evaluation Method: Perform Simulate _____

References:EI-6.0, Revision 9

Validation Time: 15 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

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Tools/Equipment/Procedures Needed:

- EI-6.0, revision 9
- Quick Dose Assessment Computer with attached printer

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE**DIRECTION TO CANDIDATE:**

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INITIAL CONDITIONS:

- A plant trip occurred approximately 1 hour ago.
- Reactor and Containment conditions are normal and stable.
- A radioactive release is currently in progress via the plant stack.
- RGEM is operable and "Alert" alarm has been in on RIA-2326, normal range noble gas stack monitor for 65 minutes.
- PC dose assessment computer programmed with "Offsite" Dose Assessment program is available and functioning and is connected to a printer.
- RMC has verified stack activity is consistent with the Radiation Monitor reading.
- It is currently raining outside.
- An Alert has been declared
- The SED will review EI-6.13 to determine any additional requirements, and assign other personnel to complete and process EI-3 notification forms.

INITIATING CUES:

- During the performance of EI-2.1, Emergency Actions/Notifications/Responsibilities", you have been directed to perform offsite dose estimates, using the "quick" method of EI-6.0, Section 6.1 and Attachment 1 and turn in printed Palisades Event Technical Data Sheet to SED.

Proc. Step	TASK ELEMENT 1	STANDARD	Grade
n/a	Correct Procedure located	EI-6.0, section 6.1 located	S U
Comment:			

Proc. Step	TASK ELEMENT 2	STANDARD	Grade
6.1.1	The "Quick Method" Dose Assessment is intended for use by the Control Room staff during the initial phases of an event when a quick offsite dose calculation or protective action recommendation is required	Operator reviews note	S U
Comment:			

Proc. Step	TASK ELEMENT 3	STANDARD	Grade
6.1.2	<p>Due to the limitations of the "Quick Method," the following prerequisites must be met:</p> <ul style="list-style-type: none"> • The release is through the Plant Stack or Atmospheric Steam Dump/Code • Safety Relief Valves. • The RGEM system or Main Steam Gamma Monitors are operational (depending on release path). • The Reactor is currently at power or was shutdown within the last 2 hours. • An IBM PC computer with the "Offsite" Dose Assessment program installed and a printer, tied directly to the computer are available. 	Operator determines prerequisites are met via information given in Initial Conditions.	S U
Comment:			

Proc. Step	TASK ELEMENT 4	STANDARD	Grade
6.1.3	IF the above prerequisites are met, THEN use Attachment 1 to perform the "Quick Method" Dose Assessment with meteorology from the PPC	Operator locates attachment 1	S U
Comment: 			

Proc. Step	TASK ELEMENT 5	STANDARD	Grade
2.1	Obtain meteorological data from the PPC, page 351 or from the Dose Assessment Main Menu via the Met tower (Selection #9). Stability Class (STAB) ___ A-G Wind Speed (WS10 or WS60) ___ MPH Wind Direction (WD10 or WD60) ___ (°From)	Data recorded as follows: Stability Class (STAB) C Wind Speed (WS10 or WS60) 8 Wind Direction (WD10 or WD60) 270°	S U
Comment: Evaluator Note: (WS60 and WD60 should only be used if WS10 or WD10 are not available.) CRITICAL STEP			

Proc. Step	TASK ELEMENT 6	STANDARD	Grade
2.2	Obtain noble gas release rate	On back of Panel C-11A, determines noble gas release rate (QN) is 1.0E-2 (8E-3 to 1.2E-2) Ci/sec using RIA-2326, Normal Range Stack Monitor and records.	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 7	STANDARD	Grade
2.3	Obtain iodine release rate.	Calculates iodine release rate (Q1) of 1.0E-5 (8E-6 to 1.2E-5) Ci/sec and records.	S U
Comment: Evaluator Note: Note: Value determined by dividing noble gas release rate by 1000. CRITICAL STEP			

EVALUATOR NOTE: Steps 2.4, 2.5 and 2.6 are completed via step 3.4

Proc. Step	TASK ELEMENT 8	STANDARD	Grade
3.1	Initiate the Offsite Dose Assessment Program on the IBM compatible PC:	If the computer is ON, operator will reboot by pressing CTRL, DEL, and ALT keys simultaneously. If the computer is OFF, operator will turn power ON by pressing the power switch on the master power board.	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 9	STANDARD	Grade
3.2	Select Option 1 "Palisades Dose Assessment Program" from the menu.	The Palisades Dose Assessment Main Menu is displayed.	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 10	STANDARD	Grade
3.3	Select Option 7 "Execute Dose Model" to allow inputting data.	Selects Option 7 from Offsite Dose Assessment menu.	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 11	STANDARD	Grade
3.4	Input the data obtained in Section 2.0 and press <Enter>.	Operator inputs the following data: ___ Noble gas release rate = 1.0E-2 (8E-3 to 1.2E-2) ___ Iodine release rate (Q1) = 1.0E-5 (8E-6 to 1.2E-5) ___ Stability Class (STAB) = C ___ Wind Speed (WS10 or WS60) = 8 ___ Wind Direction (WD10 or WD60) = 270° ___ E-Bar = 0.7 MeV/dis (from step 2.4) ___ Release duration = 2.0 hours (from step 2.5) ___ Release height = 0.0 meters (from step 2.6) ___ Then presses <Enter>	S U
Comment: CRITICAL STEP			

Proc. Step	TASK ELEMENT 12	STANDARD	Grade
3.5	IF the output display indicates that "PAGs ARE EXCEEDED," THEN:	Operator determines that this step is not applicable because PAGs are not exceeded.	S U
Comment:			

Proc. Step	TASK ELEMENT 13	STANDARD	Grade
3.6	IF the output display indicates that "PAGs ARE NOT EXCEEDED," THEN:	Operator determines this to be applicable because PAGs are not exceeded.	S U
Comment:			

Proc. Step	TASK ELEMENT 14	STANDARD	Grade
3.6.a	Print the emergency notification forms using Option 8 then sub-option 2 on the Palisades Dose Assessment Main Menu.	Technical Data Sheet is printed and handed to Site Emergency Director.	S U
Comment:			
Evaluator Note: Role Play as Site Emergency Director.			
Evaluator Note: Candidate is required to print the Event Technical Data Sheet for the dose assessment. Sub-option 3 can additionally be selected to print an Event Notification Form.			

Proc. Step	TASK ELEMENT 15	STANDARD	Grade
3.6.b	Review Emergency Implementing Procedure EI-6.13...	Not required	S U
Comment:			
Evaluator Cue: Inform candidate that the Site Emergency Director is reviewing Protective Action Recommendations.			

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A plant trip occurred approximately 1 hour ago.
- Reactor and Containment conditions are normal and stable.
- A radioactive release is currently in progress via the plant stack.
- RGEM is operable and "Alert" alarm has been in on RIA-2326, normal range noble gas stack monitor for 65 minutes.
- PC dose assessment computer programmed with "Offsite" Dose Assessment program is available and functioning and is connected to a printer.
- RMC has verified stack activity is consistent with the Radiation Monitor reading.
- It is currently raining outside.
- An Alert has been declared
- The SED will review EI-6.13 to determine any additional requirements, and assign other personnel to complete and process EI-3 notification forms.

INITIATING CUES:

- During the performance of EI-2.1, Emergency Actions/Notifications/Responsibilities", you have been directed to perform offsite dose estimates, using the "quick" method of EI-6.0, Section 6.1 and Attachment 1 and turn in printed Palisades Event Technical Data Sheet to SED.

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-8, or similar shutdown IC.
- Enter MF RM07V for RIA-2326 (Final Value = 54.5 with 10 sec ramp).
- Ensure dose assessment computer is working properly with paper in the printer.
- Wait for RGEM to alert alarm on RIA-2326 and wait for it to steady out at about 1.0 E-2 Ci/sec (2 E+4 cpm).
- Enter the data into the dose assessment computer and print out results to use as a key, if desired.
- Consider making a CAE for the following Met Data: (not required, only an option)
 - Stability Class: C
 - Wind Speed: 8
 - Wind Direction: 270°