

*Draft*

Facility: HB ROBINSON

Date of Examination: 2008 NRCExamination Level (circle one): **RO** / SRO

Operating Test Number: \_\_\_\_\_

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N	G2.2.1 (3.9); 001 A4.10 (3.5) Given a set of conditions and applicable references, perform a Manual Estimated Critical Condition Calculation.
Conduct of Operations	M	015 A1.04 (3.5) Given a set of conditions, perform a Manual Quadrant Power Tilt Calculation.
Equipment Control	N	G2.2.12 (3.7) Given a set of conditions, perform the Administrative Daily Checks to determine potentiometer settings for FCV-113A, Boric Acid Flow and HFC-114, Primary Water Flow Auto Mode.
Radiation Control	N	G2.3.7 (3.5) Given an RWP and a Survey Map, fill out a Radiation Worker RCA Card (ALARA Card).
Emergency Plan		Not selected for RO.

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

\*Type Codes & Criteria:

- (C)ontrol room
- (D)irect from bank ( $\leq 3$  for ROs;  $\leq$  for SROs & RO retakes)
- (N)ew or (M)odified from bank ( $> 1$ )
- (P)revious 2 exams ( $\leq 1$ ; randomly selected)
- (S)imulator

*Draft*

Facility: HB ROBINSON

Date of Examination: 2008 NRCExamination Level (circle one): RO / **SRO**

Operating Test Number: \_\_\_\_\_

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N	G2.2.1 (4.2); 001 A4.10 (3.9) Given a set of conditions and applicable references, perform a Manual Estimated Critical Condition Calculation.
Conduct of Operations	M	015 A1.04 (3.7) Given a set of conditions, perform a Manual Quadrant Power Tilt Calculation.
Equipment Control	N	G2.2.12 (4.1) Given a set of conditions, perform the Administrative Daily Checks to determine potentiometer settings for FCV-113A, Boric Acid Flow and HFC-114, Primary Water Flow Auto Mode.
Radiation Control	N	G2.3.7 (3.6) Given an RWP and a Survey Map, fill out a Radiation Worker RCA Card (ALARA Card).
Emergency Plan	N	G2.4.41 (4.6); G2.4.44 (4.4) Given a set of conditions, classify the event IAW the Emergency Action Level Matrices.

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

\*Type Codes & Criteria:

- (C)ontrol room
- (D)irect from bank ( $\leq 3$  for ROs;  $\leq$  for SROs & RO retakes)
- (N)ew or (M)odified from bank ( $> 1$ )
- (P)revious 2 exams ( $\leq 1$ ; randomly selected)
- (S)imulator

*Draft*

Facility:	<b>HB ROBINSON</b>	Date of Examination:	<b>2008 NRC</b>
Exam Level (circle one):	RO / SRO(I) / <b>SRO (U)</b>	Operating Test No.:	
Control Room Systems <sup>@</sup> (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U, including 1 ESF)			
System / JPM Title		Type Code*	Safety Function
a. (IRPI/014): Perform Rod Control Exercise and IRPI Surveillance per OST-011. (S8)		A, M, S	1
b. (ECCS/006): Fill a Safety Injection Accumulator to clear the Low Level Alarm. (S1)		D, S	2
c. (RCS/002): Start a RCP per OP-101. (S4)		D, L, S	4P
d. (CSS/026): Reactor Trip/Safety Injection response with Failure of Containment Spray to Actuate. (S5)		A, N, S	5
e. (AC DIST/062): Restore Control Power to ECCS Valves. (S2).		A, D, S	6
f. (NIS/015): Remove N-44 from service. (S6)		D, S	7
g. (RMS/072): Respond to a Loss of Circulating Water Pump. (S7)		A, D, S,	8
h. (SW/076): Limit Radiation Exposure in response to a Radiation alarm. (S3) (SRO-I do not perform).		D, S	9
In-Plant Systems <sup>@</sup> (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i. (Rod Control/001): Trip the Reactor as Inside AO. (IP2)		D, E, R	1
j. (PZR Pressure/010): Energize PZR Heaters from Emergency busses using EPP-21. (IP3)		D, E	3
k. (EDG/064): Manually start EDG using Air Start Solenoids. (IP1)		A, E, N, R	6
<p><sup>@</sup> All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>			
* Type Codes		Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator		4-6 / 4-6 / 2-3  $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	

Facility: HB ROBINSON Task No.: 01006100101

Task Title: Manually Calculate an Estimated Critical Condition JPM No.: 2008 NRC JPM A1

K/A Reference: G2.1.25 (3.9/4.2)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:   X  

Classroom   X   Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

**Initial Conditions:**

- The plant is in Mode 3 with  $T_{AVG}$  at 547 degrees F following a unit trip.
- The trip occurred from equilibrium conditions following a 78 day run at full power conditions.
- Critical Data Stamp initiated 1 hour prior to trip lists the following conditions at time of trip:
  - 602 ppm Boron
  - Control rods at 218 steps on CB "D"
  - Power at 100% RTP
  - Burnup is at 333.01 EFPD (11668.5 MWD/MTU)
- Projected return to criticality is 15 hours from the trip, at Boron Concentration of 602 ppm.
- The next Criticality number is 501.
- You have been directed to perform a Manual Estimated Critical Conditions calculation for the given conditions.

Task Standard: Calculate Estimated Critical Condition within +/- 250 PCM of Reactor Engineering validated condition.

Required Materials: Calculator  
GP-003, Attachment 10.1  
Applicable Plant Curve Book curves: Section 1, Section 2

General References: GP- 003, NORMAL PLANT STARTUP FROM HOT SHUTDOWN TO CRITICAL  
Station Curve Book

Handouts: GP-003, Attachment 10.1  
Applicable Plant Curve Book curves: Section 1, Section 2

Initiating Cue: Perform a Manual Estimated Critical Condition Calculation IAW GP-003, Attachment 10.1 for a projected Critical condition time of 15 hours from trip.

Time Critical Task: NO

Validation Time: 75 minutes

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PERFORMANCE INFORMATION

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(Denote Critical Steps with an asterisk)

**Start Time:** \_\_\_\_\_

**Performance Step: 1** Enter Attachment 10.1 pre-trip data (Steps 1.1, 1.2, 1.3)

**Standard:** Enters Criticality number as 501.  
Correctly enters CB "D" at 218 steps (Step 1.1).  
Power Level at 100% (Step 1.2)  
Boron Concentration at 602 (Step 1.3.1)  
Number of days since last Critical Data Stamp and shutdown as 0. (Step 1.3.2)

**Examiner's Note:**

**Comment:**

**Performance Step: 2** Transitions to Step 1.3.6 IAW Step 1.3.3, Records Current Critical Boron Concentration.

**Standard:** Enters 602 ppm in Step 1.3.6.

**Examiner's Note:**

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 3** Using Integral Boron Worth Curve 1.13, enter Integral Boron Worth.

**Standard:** Using Integral Boron Worth Curve 1.13, enters Integral Boron Worth as 5166 pcm in Step 1.4.

**Examiner's Note:** Interpolated data: BOL Value = 5500, EOL value 4500, .66% interpolation BOL-EOL,  $4500 + .66\% \text{ of } \Delta = 4500 + 666 = 5166$ .

Acceptable ranges/tolerances for curves are NOT given for this JPM. Final PCM change has an acceptable range of +/- 250 pcm, which includes all individual curve and math tolerances.

**Comment:**

**Performance Step: 4** Using Xenon Worth Curve 2.1, enter Xenon Worth at time of trip.

**Standard:** Using Xenon Worth Curve 2.1, enters Xenon Worth at time of trip as 2720 pcm, in Step 1.5.

**Examiner's Note:** Interpolated data: BOL value = 2560, EOL value = 2800.  
Interpolating EOL-BOL,  $= 240 \times .66 = 160 + 2560 = 2720$ .

**Comment:**



## PERFORMANCE INFORMATION

**Performance Step: 5** Using Power Defect Curve 1.3, enter Power Defect at time of trip.

**Standard:** Using Power Defect Curve 1.3, enters Power Defect at time of trip as 2115 pcm, in Step 1.6.

**Examiner's Note:** Power Defect Curves 1.3B (MOL) and 1.3C (EOL) should be used to interpolate power defect for 100% power, Boron concentration of 602 ppm. Interpolated data: MOL = 1950 pcm, EOL = 2450 pcm. Interpolate EOL – MOL = 500 pcm x .33 = 165 (MOL-EOL delta).  $1950 + 165 = 2115$  pcm.

**Comment:**

**Performance Step: 6** Using Samarium Worth Curves 2.4A, 2.4B, 2.5, enter Samarium Worth at time of trip.

**Standard:** Using Samarium Worth Curves 2.4A, 2.4B, 2.5, enters Samarium Worth at time of trip as 915 pcm in Step 1.7.

**Examiner's Note:** Per Note #2, should use Curves 2.4A and 2.4B for Equilibrium Samarium conditions at time of trip.  
Interpolated data: BOL from Curve 2.4A = 790, EOL from Curve 2.4B = 980.  $EOL - BOL = 190 \times .66 = 125$ .  $790 + 125 = 915$ .

**Comment:**

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PERFORMANCE INFORMATION

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**Performance Step: 7**      Using Inserted Rod Worth curve 1.6, 1.8 enter Inserted Rod Worth at time of trip.

**Standard:**                Using Inserted Rod Worth curve 1.6, 1.8 enters Inserted Rod Worth at time of trip as 0 pcm in Step 1.8.

**Examiner's Note:**        **Should use Curve 1.6 per Note #3.**

**Comment:**

**Performance Step: 8**      Enter Projected Boron Concentration, temperature, and time since shutdown.

**Standard:**                Enters Projected Boron Concentration and temperature as 602 ppm, 547 deg. F., 15 hours in Steps 2.1, 2.2, 2.3.

**Examiner's Note:**

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 9** Enter Integral Boron Worth.

**Standard:** Enters Integral Boron Worth as 5166 pcm in Step 2.4.

**Examiner's Note:** Should enter same value as Step 1.4, above.

**Comment:**

**Performance Step: 10** Enter Projected Xenon Worth at Startup.

**Standard:** Enters Projected Xenon Worth at Startup as 3928 pcm in Step 2.5.

**Examiner's Note:** Interpolated data from BOL Curve 2.3A (3400 pcm @ 15 hours) and EOL Curve 2.3B (4200 pcm @ 15 hours).  
Interpolating  $4200 - 3400 = 800 \times .66 = 528$ .  $3400 + 528 = 3928$  pcm.

**Comment:**

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PERFORMANCE INFORMATION

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**Performance Step: 11** Enter Samarium Worth at Startup.

**Standard:** Enters Samarium Worth at Startup as 1000 pcm in Step 2.6.

**Examiner's Note:** Interpolated data: BOL Curve 2.4A = 865, EOL Curve 2.4.B = 1070.  $205 \times .66 = 135 + 865 = 1000$  pcm.

**Comment:**

**Performance Step: 12** Enter Samarium change before equilibrium.

**Standard:** Enters Samarium change before equilibrium as 0 pcm.

**Examiner Cue:**

**Comment:**

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PERFORMANCE INFORMATION

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**Performance Step: 13** Enter determined values, perform calculation per Step 3.2 to determine calculated change in Reactivity.

**Standard:** Enter determined values, perform calculation per Step 3.2 to determine calculated change in Reactivity. Calculate Change in Reactivity = 822 pcm +/- 250 pcm (572-1072 pcm).

**Examiner's Note:**

**Comment:**

**\*Performance Step: 14** Calculate and enter New Controlling Rod Worth per Step 4.1.

**Standard:** Step 4.1: 0 pcm (from Step 1.8) + 822 pcm (from Step 3.2.5) = 822 pcm. (acceptable range = 572 – 1072 pcm)

**Examiner's Note:** AT Step 4.2, inform candidate: "Reactor Engineer's calculation is the same as yours."

**Comment:**

## PERFORMANCE INFORMATION

**\*Performance Step: 15** Determine new Critical Rod Position associated with the integral worth in Step 4.1 using Curve 1.8.

**Standard:** Determines new Critical Rod Position associated with the integral worth in Step 4.1 using Curve 1.8. as listed in the table below.

Candidate value from step 4.2.	Allowable Tolerance Band.	
$\geq 572 - 672$ pcm	95 steps	168 steps
$\geq 672 - 772$ pcm	80 steps	155 steps
$\geq 772 - 872$ pcm	70 steps	128 steps
$\geq 872 - 972$ pcm	58 steps	90 steps
$\geq 972 - 1072$ pcm	50 steps	82 steps

**Examiner's Note:** Tolerance Bands vary by pcm calculated and are calculated based on  $\pm \frac{1}{2}$  of the range between the EOL and MOL curves on Curve 1.8 for the pcm band.

**Comment:**

**Performance Step: 16** Enter Estimated Critical Condition data in Step 5.1.

**Standard:** Enters Estimated Critical Condition data in Step 5.1 (77 steps on CB "D", 602 ppm boron, 547 °F  $T_{AVG}$ ).

**Examiner's Note:**

**Comment:**

**Performance Step: 17**    Answers questions in Steps 5.2 and 5.3.

**Standard:**                Answers questions in Steps 5.2 and 5.3 as “YES”.

**Examiner’s Note:**

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 18** Calculate the tolerance band of plus OR minus 500 pcm from the ECP in Steps 6.1.1 and 6.1.2.

**Standard:** Calculates the tolerance band of plus OR minus 500 pcm from the ECP as **5 steps to 200 steps** on Bank "D".

**Examiner's Note:**

**Comment:**

**Performance Step: 19** Record ECP completion time.

**Standard:** Candidate records the present time that the ECP calculation was completed.

**Examiner's Note:** To allow use of this ECP, criticality must be achieved within 4 hours of the completion time recorded. This will ensure compliance with ITS SR 3.1.6.1.

**Comment:**

**END OF TASK**

**Terminating Cue:** GP-003, Attachment 10.1 completed.

**STOP TIME:** \_\_\_\_\_



VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2008 NRC JPM A1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Initial Conditions:

- The plant is in Mode 3 with  $T_{AVG}$  at 547 degrees F following a unit trip.
- The trip occurred from equilibrium conditions following a 78 day run at full power conditions.
- Critical Data Stamp initiated 1 hour prior to trip lists the following conditions at time of trip:
  - 602 ppm Boron
  - Control rods at 218 steps on CB "D"
  - Power at 100% RTP
  - Burnup is at 333.01 EFPD (11668.5 MWD/MTU)
- Projected return to criticality is 15 hours from the trip, at Boron Concentration of 602 ppm.
- The next Criticality number is 501.
- You have been directed to perform a Manual Estimated Critical Conditions calculation for the given conditions.

## Initiating Cue:

Perform a Manual Estimated Critical Condition Calculation IAW GP-03, Attachment 10.1 for a projected Critical Condition time of 15 hours from trip.

Facility: HB ROBINSON Task No.: 01015100402  
Task Title: Perform a Manual QPTR Calculation JPM No.: 2008 NRC JPM A2  
K/A Reference: 015 A1.04 (3.5/3.7)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance:

Classroom

X

Simulator

Plant

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

- The plant is at 60% RTP.
- Power Range Nuclear Instrument PRNI-42 is inoperable due to a failed power supply.
- APP-005-F4, PR LOWER CH HI FLUX DEV/AUTO DEFEAT is illuminated.
- ERFIS is inoperable.
- Detector Currents are as follows:
  - N41: Upper – 63 Normalizing – 123
  - N41: Lower – 55 Normalizing – 120
  - N43: Upper – 50 Normalizing – 104
  - N43: Lower – 45 Normalizing – 99
  - N44: Upper – 48 Normalizing – 97
  - N44: Lower – 45 Normalizing – 95

Task Standard:

Perform a MANUAL QPTR calculation IAW FMP-007, QUADRANT POWER TILT with an accuracy of +/- 0.5%.

Required Materials:

Calculator  
FMP-007, QUADRANT POWER TILT

General References: FMP-007, QUADRANT POWER TILT, Section 8.2.4, Manual QPTR Calculations.  
FMP-007 Attachment 10.2, MANUAL QPTR CALCULATIONS.

Handouts: FMP-007, QUADRANT POWER TILT.

Initiating Cue: Perform a MANUAL QPTR calculation IAW FMP-007, QUADRANT POWER TILT, section 8.2.4.

Time Critical Task: NO

Validation Time: 15 minutes

- INITIAL CONDITIONS:
- The plant is at 60% RTP.
  - Power Range Nuclear Instrument PRNI-42 is inoperable due to a failed power supply.
  - APP-005-F4, PR LOWER CH HI FLUX DEV/AUTO DEFEAT is illuminated.
  - ERFIS is inoperable
  - FMP-007, Attachment 10.2 Manual QPTR Calculations has been initiated, with Indicated Detector Currents and Normalizing Detector Currents recorded.

INITIATING CUE: Complete Attachment 10.2 IAW FMP-007, QUADRANT POWER TILT.

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PERFORMANCE INFORMATION

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(Denote Critical Steps with an asterisk)

**Start Time:** \_\_\_\_\_

**Performance Step: 1**

Enter each Indicated and Normalizing Detector Current in Attachment 10.2

**Standard:**

Enters detector currents as given in initiating cue in correct boxes of Attachment 10.2.

**Examiner's Note:**

**Comment:**

## PERFORMANCE INFORMATION

**Performance Step: 2** Divide each Indicated Detector Current by its corresponding Normalizing Detector Current and record the result as the Normalized Detector Ratio on Attachment 10.2.

**Standard:** Divides each Indicated Detector Current by its corresponding Normalizing Detector Current and records the result as the Normalized Detector Ratio on Attachment 10.2:

Upper N41 = 0.5122                      Lower N41 = 0.4583

Upper N42 = 0                              Lower N42 = 0

Upper N43 = 0.4808                      Lower N43 = 0.4545

Upper N44 = 0.4948                      Lower N44 = 0.4737

**Examiner's Note:** Calculated values rounded to 4th decimal place.

**Comment:**

**Performance Step: 3** Average the Upper Normalized Detector Ratios and record the result as the Average Normalized Detector Ratio in the Upper column on Attachment 10.2.

Average the Lower Normalized Detector Ratios and records the result as the Average Normalized Detector Ratio in the Lower column on Attachment 10.2.

**Standard:** Upper Average Normalized Detector Ratio = 0.4959  
Lower Average Normalized Detector Ratio = 0.4621

**Examiner's Note:** Calculated values rounded to 4<sup>th</sup> decimal place.  
Candidate should NOT include data from the failed NI Channel.

**Comment:**

## PERFORMANCE INFORMATION

**\*Performance Step: 4** Determine the maximum Upper Normalized Detector Ratio and divide it by the Average Upper Normalized Detector Ratio from Performance Step 2 and record the resulting Upper QPTR on Attachment 10.2.

**Standard:** Determines the maximum Upper Normalized Detector Ratio and divides it by the Average Upper Normalized Detector Ratio from Performance Step 2 and records the resulting Upper QPTR on Attachment 10.2.

$$\text{Upper QPTR} = 0.5122 / 0.4959 = 1.0329$$

**Examiner's Note:** Calculated values rounded to 4<sup>th</sup> decimal place.

**Comment:**

**\*Performance Step: 5** Determine the maximum Lower Normalized Detector Ratio and divide it by the Average Lower Normalized Detector Ratio and record the resulting Lower QPTR on Attachment 10.2.

**Standard:** Determines the maximum Lower Normalized Detector Ratio and divides it by the Average Lower Normalized Detector Ratio and records the resulting Lower QPTR on Attachment 10.2.

$$\text{Lower QPTR} = 0.4737 / 0.4621 = 1.0251$$

**Examiner's Note:** Calculated values rounded to 4<sup>th</sup> decimal place.

**Comment:**



PERFORMANCE INFORMATION

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**\*Performance Step: 6** Record the larger of the Upper QPTR or the Lower QPTR as the Maximum QPTR on Attachment 10.2 along with the reactor power and any comments.

**Standard:** Records the larger of the Upper QPTR or the Lower QPTR as the Maximum QPTR on Attachment 10.2 along with the reactor power and any comments.

Records the Maximum QPTR as 1.0329, Power Level as 60%.

**Examiner's Note:** **Correct Calculated Maximum QPTR is 1.0329**  
**Acceptable range is +/- 0.5% (1.0277 to 1.0380)**

**Comment:**

**Performance Step: 7** Enter appropriate comments regarding the Manual QPTR Calculation.

**Standard:** Enters comment that the Calculated Maximum QPTR exceeds allowable Tech Spec limit of  $\leq 1.02$  or enters 90.4% as Reactor Power limit.

**Examiner's Note:** **Calculated values rounded to 4<sup>th</sup> decimal place.**

**Comment:**

**END OF TASK**

**Terminating Cue:** **Manual QPTR has been completed.**

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2008 NRC JPM A2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Facility: HB ROBINSON

Task No.:

Task Title: Determine If Required Shift Manning Is Met.

JPM No.: 2008 NRC ADM SRO b

K/A Reference: 2.1.4

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance:

Actual Performance: XClassroom XSimulator       Plant       **READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:

You are the CRSS.

Unit 2 is operating at 100% RTP.

The following operators are available at the beginning of the shift:

**(√ = PRESENT)**

	Qualifications and/or License held						
Name	SSO	CRSS	RO	AO	FPAO	WCC SRO	STA
Auten	√						
Bailes					√		
Blair			√				
Brown		√					
Ellis						√	
Grant							
Harbin							√
Hinds			√				
Horton				√			
Hunt							

Task Standard:

Determine that proper shift manning is NOT met.

Required Materials:

OMM-001-2, SHIFT ROUTINES AND OPERATING PRACTICES.

General References: OMM-001-2, SHIFT ROUTINES AND OPERATING PRACTICES.

Initiating Cue: Determine whether the shift complement requirements are met.

Time Critical Task: NO

Validation Time: 10 minutes

## PERFORMANCE INFORMATION

**Examiner Note:** The required reference for this JPM is OMM-001-2, Section 8.1.3.

★ **Performance Step: 1** Determine whether the MINIMUM shift complement is met

**Standard:** Candidate determines that the shift complement is one individual less than required.

**Examiner Note:**

**Comment:**

★ **Performance Step: 2** Determine what additional resources, by qualification, are required.

**Standard:** Candidate determines that the additional individual needed can be an SCO, CO or AO as specified in OMM-001-2, Section 8.1.3.4.a.

**Examiner's Note:**

**Examiner's Cue:**

**Comment:**

## PERFORMANCE INFORMATION

**\* Performance Step: 3**

Candidate Question – What allowances are provided for the shift to be one less than the minimum requirement?

**Standard:**

The shift complement may be one less than the minimum requirement for a period NOT to exceed 2 hours in order to accommodate unexpected absence of on-duty shift members provided immediate action is taken to restore the shift complement to within the minimum requirements.

This provision does NOT permit any shift member position to be unmanned upon shift change due to an oncoming shift member being late or absent.

**Examiner's Note:**

OMM-001-2, Section 8.1.2.1 is reference to the question.

**Examiner's Cue:****Comment:**

**Termination:** When the minimum shift manning has been determined and the question responded to.

**STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2008 NRC ADM SRO b

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

INITIAL CONDITIONS: You are the CRSS.

Unit 2 is operating at 100% RTP.

The following operators are available at the beginning of the shift:

(√ = PRESENT)

	Qualifications and/or License held						
Name	SSO	CRSS	RO	AO	FPAO	WCC SRO	STA
Auten	√						
Bailes					√		
Blair			√				
Brown		√					
Ellis						√	
Grant							
Harbin							√
Hinds			√				
Horton				√			
Hunt							

INITIATING CUE:

Determine whether the shift complement requirements are met.



Facility: HB ROBINSON

Task No.:

Task Title: Evaluate the Radiological conditions  
for two situations below, and answer  
Questions #1 and #2

JPM No.: 2008 NRC JPM A3

K/A Reference: 2.3.12 (3.2/3.7)

Examinee:

NRC Examiner:

Facility Evaluator:

Date:

Method of testing:

Simulated Performance: \_\_\_\_\_

Actual Performance:  X Classroom  X 

Simulator \_\_\_\_\_

Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions (A):

- An accident has resulted in the declaration of a Site Area Emergency (SAE).
- There is no release in progress, but fuel damage has resulted in increased radiation levels in the RCA.
- The operating crew/TSC has determined it is necessary to re-position two manual valves in a 17 R/hr field to ensure continued operation of available ECCS components.
- The Radiological Control Director has authorized an annual dose extension of up to the "Repair and Re-entry Limit" for each of the two operators who will operate the valves.
- The work plan specifies that both operators must enter, work, and leave the area at the same time.
- Operator A has 31 mRem this quarter and 174 mRem for the year.
- Operator B has 75 mRem this quarter and 203 mRem for the year.

**Considering only the radiation levels in the area of work, what is the maximum stay time?**

- Initial Conditions (B):
- A manual isolation valve in the Excess Letdown HX discharge line was closed for maintenance.
  - The valve was re-opened by an AO who received 22 mRem while doing so.

**What is the acceptable method for performing verification of position on this valve?**

Task Standard: Correctly answer the questions associated with the two situations.

Required Materials: Calculator

General References: None

Initiating Cue: Answer the questions associated with the two situations.

Time Critical Task: NO

Validation Time: 12 min.

## VERIFICATION OF COMPLETION

Start Time: \_\_\_\_\_

## \* Performance Step: 1

## Answer Condition "A":

- Repair and re-entry Limit is 10 REM.
- Most limiting person is Operator "B"
- Operator "B":  $10,000 \text{ mRem} - 203 \text{ mRem} = 9797 \text{ mRem}$  left for the year.
- $(9797 \text{ mRem})(1 \text{ hour}/17,000 \text{ mRem}) = (.576 \text{ hrs.})(60 \text{ mins/hour}) = \mathbf{34.577 \text{ minutes.}}$

## Standard:

Calculates a stay time of 33.0 -34.6 minutes.

## Examiner Note:

## Comment:

## \* Performance Step: 2

## Answer Condition "B":

Answers that **FUNCTIONAL VERIFICATION** is the acceptable method for verifying position. (Also acceptable; concludes that verifying position via flow verification, temperature monitor, or tank level change.)

## Standard:

## Examiner Note:

## Comment:

Per OPS-NGGC-1303, 10 mRem is considered to be excessive for INDEPENDENT/CONCURRENT VERIFICATION. FUNCTIONAL VERIFICATION is the acceptable alternative. In this case it would involve verifying flow in the line via a flow meter, temperature monitor, tank level change or a combination thereof.

## END OF TASK

## Terminating Cue:

Questions for conditions "A" and "B" have been answered.

Stop time: \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2008 NRC JPM A3

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Initial Conditions (A):

- An accident has resulted in the declaration of a Site Area Emergency (SAE)
- There is no release in progress, but fuel damage has resulted in increased radiation levels in the RCA.
- The operating crew/TSC has determined it is necessary to re-position two manual valves in a 17 R/hr field to ensure continued operation of available ECCS components.
- The Radiological Control Director has authorized an annual dose extension of up to the "Repair and Re-entry Limit" for each of the two operators who will operate the valves.
- The work plan specifies that both operators must enter, work, and leave the area at the same time.
  - Operator A has 31 mRem this quarter and 174 mRem for the year.
  - Operator B has 75 mRem this quarter and 203 mRem for the year.

**Considering only the radiation levels in the area of work, what is the maximum stay time?**

## Initial Conditions (B):

- A manual isolation valve in the excess Letdown HX discharge line was closed for maintenance.
- The valve was re-opened by an AO who received 22mRem while doing so.

**What is the acceptable method for performing verification of position on this valve?**

Facility: HB ROBINSON Task No.: 02344100403  
Task Title: Declare an Emergency Event JPM No.: 2008 NRC JPM A5  
K/A Reference: G2.4.41 (2.9/4.6)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance:  X   
Classroom  X  Simulator \_\_\_\_\_ Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

- Initial Conditions:
- The plant was operating at 100% RTP with a CV Pressure Relief in progress when a Large Break LOCA occurred.
  - The crew is progressing through PATH-1.
  - R-32A, CV High Range Monitor, is reading 6.4 Rem/hr.
  - CV Pressure Relief Valves V12-10 and V12-11 did not close.
  - Core Exit thermocouples currently read 685 degrees F and are slowly trending down.
  - Reactor Engineering has reported that NO substantial core damage has occurred.
  - Full Range RVLIS is reading 44% and is stable.
  - Weather conditions: Wind direction from 100 degrees, Wind Speed is 3 MPH, Stability Class is D, Precipitation is Zero.
  - You are the SSO.

Task Standard: Identifies event as a SITE AREA EMERGENCY, per FS 1.1.

Required Materials: EPCLA-01, EMERGENCY CONTROL, Revision 23  
EPCLA-04, EMERGENCY ACTION LEVEL TECHNICAL BASES  
DOCUMENT  
EAL Matrices

General References: EPCLA-01, EMERGENCY CONTROL, Revision 23  
EPCLA-04, EMERGENCY ACTION LEVEL TECHNICAL BASES  
DOCUMENT  
EAL Matrices

Handouts: EPCLA-01, EMERGENCY CONTROL, Revision 23  
EPCLA-04, EMERGENCY ACTION LEVEL TECHNICAL BASES  
DOCUMENT  
EAL Matrices

Initiating Cue: Classify the event IAW the EAL matrices. Refer to EPCLA-01 for  
guidance on the EAL classification. Provide the selected classification to  
the Examiner within 15 minutes.

Time Critical Task: YES (Emergency classification is a 15 minute time critical task)

Validation Time: 12 minutes

PERFORMANCE INFORMATION

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(Denote Critical Steps with an asterisk)

**START TIME:** \_\_\_\_\_ **CRITICAL TASK START TIME:** \_\_\_\_\_

**Performance Step: 1** Confirms that an off-normal condition exists.

**Standard:** Candidate concludes that an off-normal condition is observed and obtains a copy of the EAL matrices.

**Examiner's Note:** Provide the candidate with a copy of the EAL matrices.

**Comment:**

**Performance Step: 2** Refers to EPCLA-01, EMERGENCY CONTROL.

**Standard:** Candidate obtains a copy of EPCLA-01, EMERGENCY CONTROL.

**Examiner's Note:** Provide the candidate with a copy of EPCLA-01.

**Comment:**



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PERFORMANCE INFORMATION

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**\* Performance Step: 3** Evaluate ALL CONDITIONS Matrix per EPCLA-01 (Step 8.3.1).

**Standard:** Candidate reviews and evaluates ALL CONDITIONS Matrix.

**Examiner's Note:**

**Comment:**

**\* Performance Step: 4** Evaluate HOT CONDITIONS Matrix per EPCLA-01 (Step 8.3.2).

**Standard:** Candidate reviews and evaluates HOT CONDITIONS Matrix.

**Examiner's Note:**

**Comment:**

## PERFORMANCE INFORMATION

**\* Performance Step: 5** Select EAL condition conforming to the available information.

**Standard:** Candidate selects SITE AREA EMERGENCY.

**Examiner's Note:** Site Area Emergency based on the following:

**HOT CONDITIONS – EAL Matrix (Sheet 2 of 3)**

**F, Fission Product Barriers; Applicable in Modes 1, 2, 3 & 4.**

**FS1.1, Loss or Potential Loss of any two barriers. (Table F-1)**

- **Reactor Coolant System Barrier – Loss 1**  
(Containment High Range Radiation Monitor R-32A or R-32B > 5 Rem/hr).
- **Containment Barrier – Loss 5** (Containment isolation valve(s) not closed after Containment isolation AND Downstream pathway to the environment exists.

**Comment:**

**END OF TASK**

**Terminating Cue:** EAL classification has been determined.

**STOP TIME:** \_\_\_\_\_ **CRITICAL TASK STOP TIME:** \_\_\_\_\_

VERIFICATION OF COMPLETION

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Job Performance Measure No.: 2008 NRC JPM A5

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

Examiner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## INITIAL CONDITIONS:

- The plant was operating at 100% RTP with a CV Pressure Relief in progress when a Large Break LOCA occurred.
- The crew is progressing through PATH-1.
- R-32A, CV High Range Monitor, is reading 6.4 Rem/hr.
- CV Pressure Relief Valves V12-10 and V12-11 did not close.
- Core Exit thermocouples currently read 685 degrees F and are slowly trending down.
- Reactor Engineering has reported that NO substantial core damage has occurred.
- Full Range RVLIS is reading 44% and is stable.
- Weather conditions: Wind direction from 100 degrees, Wind Speed is 3 MPH, Stability Class is D, and Precipitation is Zero.
- You are the SSO.

## INITIATING CUE:

Classify the event IAW the EAL matrices. Refer to EPCLA-01 for guidance on the EAL classification. Provide the selected classification to the Examiner within 15 minutes.