Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility:	Shearon Harris	Task No.:	119015H301
Task Title:	Determine Active / Inactive Status Of Off Shift License Personnel	JPM No.:	2013 NRC Admin JPM RO SRO A1-1
K/A Reference:	G2.1.1 3.8 / 4.2	**Alternate Path: No**	
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 at 100% power, when the OAC has a medical emergency and will not be able to work his next scheduled shift. The Operations Resource Scheduler has contacted four off shift individuals to replace the OAC on the following day.

Initiating Cue:	You are to determine if each of the Licensed Operators is eligible to work the OAC position on the 0700 - 1900 shift on September 13, 2013.

9/3/13

Task Standard:	Determines the Training Department Rotation of Assignment and Work Control Operator license are Active and eligible to stand the 0700 - 1900 shift on September 13, 2013
Required Materials:	Calculator
General References:	OMM-001, rev 98
Handouts:	JPM Cue Sheets Pages 7 - 8
Time Critical Task:	No
Validation Time:	15 minutes

Critical Step Justification	
Step 2	Must determine the Active / Inactive status of Operator license correctly or an ineligible Operator may stand watch
Step 3	Must determine the Active / Inactive status of Operator license correctly or an ineligible Operator may stand watch
Step 4	Must determine the Active / Inactive status of Operator license correctly or an ineligible Operator may stand watch
Step 5	Must determine the Active / Inactive status of Operator license correctly or an ineligible Operator may stand watch

Start Time: _____.

Performance Step: 1 OBTAIN PROCEDURE

Standard: Obtains OMM-001 and refers to Section 5.5 Maintenance of NRC Operator Licenses.

Comment:

✓ **Performance Step: 2** Determine if the Active / Inactive status of FIN Team Operator license

Standard: Candidate determines the license is Inactive and **NOT ELIGIBLE** because the operator did not work the required 5 twelve hour shifts in a license position during the previous quarter.

Comment:

✓ **Performance Step: 3** Determine if the Active / Inactive status of Training Department Rotation of Assignment Operator license

Standard: Candidate determines the license is Active and **ELIGIBLE** because the license was reactivated in the previous quarter. There is not a requirement to complete the normally required 5 twelve hour shifts in a license position during the quarter. *(i.e. could complete the reactivation during the last week of a quarter, thus the opportunity would not be available to work the 5 shifts)*

Comment:

✓ **Performance Step: 4** Determine if the Active / Inactive status of Work Control Operator license

Standard: Candidate determines the license is Active and **ELIGIBLE** because the operator worked the required 5 twelve hour shifts in a license position during the previous quarter.

Comment:

✓ **Performance Step: 5** Determine if the Active / Inactive status of Procedure Writer's Group Operator license

Standard: Candidate determines the license is Inactive and **NOT ELIGIBLE** because a required license position was NOT reactivated in the previous quarter AND the individual did not work the required 5 twelve hour shifts in a license position during the quarter. *(i.e. STA position is not an on shift position that is credited for a license operator watch)*

Comment:

Performance Step: 6 Determines the licensed operators eligible to stand the 0700 - 1900 shift on September 13, 2013

Standard: Determines the Training Department Rotation of Assignment and Work Control Operator license are Active and eligible to stand the 0700 - 1900 shift on September 13, 2013

Evaluator Cue:	**CRS acknowledges determination of eligible watch standers** **END OF JPM**

Comment:

Stop Time: _____

KEY

Four Reactor Operators have the following history:

- All four are current in License Operator Requalification Training and have had a medical examination in the past 2 years.
- None of the 4 have worked any shift since 06/30/13.
- None of the 4 would exceed 10 CFR Part 26 (fatigue hours) requirements by standing this shift
- Active/Inactive status and time on shift since April 1, 2013 is as follows for each

Reactor Operators:

- FIN Team Operator License was active on April 1, 2013
  - 4/02/13 - worked 0700-1900 shift as OAC
  - 4/03/13 - worked 0700-1900 shift as BOP
  - 5/04/13 - worked 0700-1900 shift as CRS
  - 6/14/13 - worked 0700-1900 shift as STA
  - 6/17/13 - worked 1900-0700 shift as CRS

- Training Department Rotation of Assignment Operator License was inactive on April 1, 2013
  - ***5/02/13 thru 5/06/13 worked 40 hours under the direction of the OAC and completed all requirements for reactivation.***
  - 5/10/13 - worked 0700-1900 shift as BOP
  - 5/12/13 - worked 0700-1900 shift as OAC
  - 5/14/13 - worked 1900-0700 shift as OAC
  - 5/31/13 - worked 1900-0700 shift as BOP

- Work Control Operator License was active on April 1, 2013
  - ***4/23/13 - worked 0700-1900 shift as OAC***
  - ***4/25/13 - worked 0700-1900 shift as BOP***
  - ***5/05/13 - worked 0700-1900 shift as OAC***
  - ***5/14/13 - worked 1900-0700 shift as BOP***
  - ***6/17/13 - worked 1900-0700 shift as OAC***

- Procedure Writer's Group Operator License was active on April 1, 2013
  - 4/12/13 thru 4/16/13 worked 40 hours under the direction of the STA and completed all requirements for reactivation.
  - 4/14/13 - worked 1900-0700 shift as STA
  - 4/18/13 - worked 0700-1900 shift as STA
  - 5/12/13 - worked 0700-1900 shift as OAC
  - 5/14/13 - worked 1900-0700 shift as BOP
  - 5/31/13 - worked 1900-0700 shift as CRS

To maintain active status, licensed individuals shall actively perform the functions of an operator or senior operator on a minimum of five 12-hour shifts per calendar quarter.

OR

A minimum of 40 hours of shift functions under the direction of an operator or senior operator as appropriate and in the position to which the individual will be assigned. The 40 hours must have included a complete review of all required shift turnover procedures.

KEY

1. FIN Team Operator.....ELIGIBLE / (NOT ELIGIBLE)
2. Training Department Rotation of Assignment Operator.....(ELIGIBLE) / NOT ELIGIBLE
3. Work Control Operator.....(ELIGIBLE) / NOT ELIGIBLE
4. Procedure Writer's Group Operator.....ELIGIBLE / (NOT ELIGIBLE)

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC JPM RO SRO A1-1

Determine Active / Inactive Status Of Off Shift License Personnel

OMM-001

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Name: _____

Date: _____

Initial Conditions:	The plant was at 100% power, when the OAC has a medical emergency and will not be able to work his next scheduled shift. The Operations Resource Scheduler has contacted four off shift individuals to replace the OAC on the following day.

Initiating Cue:	You are to determine if each of the Licensed Operators is eligible to work the OAC position on the 0700 - 1900 shift on September 13, 2013.

After making the determination of License Operator eligibility circle their status below:

1. FIN Team Operator.....ELIGIBLE / NOT ELIGIBLE
2. Training Department Rotation of Assignment Operator.....ELIGIBLE / NOT ELIGIBLE
3. Work Control Operator.....ELIGIBLE / NOT ELIGIBLE
4. Procedure Writer's Group Operator.....ELIGIBLE / NOT ELIGIBLE

Four Reactor Operators have the following history:

- All four are current in License Operator Requalification Training and have had a medical examination in the past 2 years.
- None of the 4 have worked any shift since 06/30/13.
- None of the 4 would exceed 10 CFR Part 26 (fatigue hours) requirements by standing this shift
- Active/Inactive status and time on shift since April 1, 2013 is as follows for each

Reactor Operators:

- FIN Team Operator License was active on April 1, 2013
  4/02/13 - worked 0700-1900 shift as OAC
  4/03/13 - worked 0700-1900 shift as BOP
  5/04/13 - worked 0700-1900 shift as CRS
  6/14/13 - worked 0700-1900 shift as STA
  6/17/13 - worked 1900-0700 shift as CRS

- Training Department Rotation of Assignment Operator License was inactive on April 1, 2013
  5/02/13 thru 5/06/13 worked 40 hours under the direction of the OAC and completed all requirements for reactivation.
  5/10/13 - worked 0700-1900 shift as BOP
  5/12/13 - worked 0700-1900 shift as OAC
  5/14/13 - worked 1900-0700 shift as OAC
  5/31/13 - worked 1900-0700 shift as BOP

- Work Control Operator License was active on April 1, 2013
  4/23/13 - worked 0700-1900 shift as OAC
  4/25/13 - worked 0700-1900 shift as BOP
  5/05/13 - worked 0700-1900 shift as OAC
  5/14/13 - worked 1900-0700 shift as BOP
  6/17/13 - worked 1900-0700 shift as OAC

- Procedure Writer's Group Operator License was active on April 1, 2013
  4/12/13 thru 4/16/13 worked 40 hours under the direction of the STA and completed all requirements for reactivation.
  4/14/13 - worked 1900-0700 shift as STA
  4/18/13 - worked 0700-1900 shift as STA
  5/12/13 - worked 0700-1900 shift as OAC
  5/14/13 - worked 1900-0700 shift as BOP
  5/31/13 - worked 1900-0700 shift as CRS

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: HARRIS Task No.: 301179H601

Task Title: Determine Average RCS Boron Concentration JPM No.: 2013 NRC Admin JPM RO SRO A1-2

K/A Reference: 004 A4.04 3.2 / 3.6 **Alternate Path: No**

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:

Following a loss of offsite power, recovery actions are being taken in accordance with EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required

Plant conditions are as follows:

- PRZ pressure 2230 psig
- RCS Hot Leg temperatures 555°F
- Core Exit thermocouples 560°F
- PRZ Liquid space temperature 650°F
- PRZ Steam space temperature 650°F
- PRZ level 45 %
- Charging and letdown are in service, with letdown flow at 45 gpm.

Chemistry has just taken RCS boron samples and reports the following results:

- Loop 'B' Hot Leg 930 ppm
- Loop 'C' Hot Leg 940 ppm
- PRZ Liquid Space 961 ppm

Initiating Cue: The CRS requires that you calculate the average RCS boron concentration for these conditions per EOP-ECA-0.1, Attachment 1 to TWO decimal places.

a/2/17

Task Standard: Average RCS boron calculation determined to be 937.42 ± 0.50 ppm.

Required Materials:
- Calculator
- Curve Book

General References:
- EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required, Rev. 0
- Curve D-X-40, Pressurizer Volume

Handouts:
- JPM Cue Sheets
- EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required, Rev. 0 Attachment 1
- Curve Book (preferred) or at a minimum Curve D-X-40

Time Critical Task: No

Validation Time: 11 minutes

Critical Step Justification	
Step 3	Must correctly determine PRZ volume based on PRZ level and curve D-X-40 to obtain correct final values of calculation for average RCS boron concentration.
Step 4	Must correctly determine CVCS volume (V_{CVCS}) based on letdown status to obtain correct final values of calculation for average RCS boron concentration.
Step 8	Must correctly calculate average RCS boron concentration (C_{AVG}) using the formula to obtain correct final values of calculation for average RCS boron concentration.

Start Time: _____.

Performance Step: 1 Locate ECA-0.1, Attachment 1, and Curve Book (Attachment 1 provided with handout)

Standard: Obtains ECA-0.1, Attachment 1, and Curve Book

Comment:

ECA-0.1, Att. 1, Step 1

Performance Step: 2 Record PRZ level at the time of PRZ sample

Standard: Records PRZ level as 45%

Comment:

ECA-0.1, Att. 1, Step 2

✓ **Performance Step: 3** Determine PRZ volume (V_{PRZ}) based on PRZ level and curve D-X-40

Standard:

- References curve D-X-40
- Determines intersection of "653°F PRZ LIQUID SPACE TEMP LINE" and 45% on "INDICATED PRESSURIZER LEVEL" axis (X) to correspond to 2900 ± 100 gallons on "VOLUME" axis (Y)

Comment:

ECA-0.1, Att. 1, Step 3

✓ **Performance Step: 4** Determine CVCS volume (V_{CVCS}) based on letdown status:
- If letdown in service = 2136 gal ÷ 2 = 1068 gal
- If letdown isolated = 0

Standard: Determines letdown volume of 1068 gallons due to letdown being in service

Comment:

ECA-0.1, Att. 1, Step 4

Performance Step: 5 Record RCS loop B boron concentration C_2

Standard: Records RCS loop B boron concentration as 930 ppm

Comment:

ECA-0.1, Att. 1, Step 5

Performance Step: 6 Record RCS loop C boron concentration C_3

Standard: Records RCS loop C boron concentration as 940 ppm

Comment:

ECA-0.1, Att. 1, Step 6

Performance Step: 7 Record PRZ liquid space boron concentration C_{PRZ}

Standard: Records PRZ liquid space boron concentration as 961 ppm

Comment:

ECA-0.1, Att. 1, Step 7

✓ **Performance Step: 8** Calculate average RCS boron concentration (C_{AVG}) using the following formula (formula on Att. 1, Step 7)

Standard: Calculates average RCS boron concentration to be 937.42 ± 0.5 ppm. (Range 936.92 - 937.92 ppm)

Evaluator Note: **NOTE: ALLOWED TOLERANCE BORDERS TOLERANCE FOR ALLOWED ERROR IN READING CURVE D-X-40, BUT WILL NOT BE MET IF APPLICANT FAILS TO ACCOUNT FOR CVCS LETDOWN OR OTHER SIMILAR ERRORS.**

Comment:

Evaluator Cue: **When boration calculation is completed**
END OF JPM

Stop Time: _____

Terminating Cue: **Calculation of average boration concentration completed.**

KEY

LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED

Attachment 1
Sheet 1 of 1
CALCULATION FOR AVERAGE RCS BORON CONCENTRATION

1. Record PRZ level at the time of PRZ sample: **45** %
2. Determine PRZ volume (V_{PRZ}) based on PRZ level and curve D-X-40: **2900 ± 100** GAL
3. Determine CVCS volume (V_{CVCS}) based on letdown status: **1068** GAL
   - If letdown in service = 2136 GAL ÷ 2 = 1068 GAL
   - If letdown isolated = 0 GAL
4. Record RCS loop B boron concentration C_2: **930** PPM
5. Record RCS loop C boron concentration C_3: **940** PPM
6. Record PRZ liquid space boron concentration C_{PRZ}: **961** PPM
7. Calculate average RCS boron concentration (C_{avg}) using the following formula:

[(930 + 940) x (31218 + 1068)] + [961 x (2900 + 3700)]

$$C_{avg} = \frac{[(C_2 + C_3) \times (31218 + V_{CVCS})] + [C_{PRZ} \times (V_{PRZ} + 3700)]}{(V_{PRZ} + 2 \times (V_{CVCS}) + 66135)} = \mathbf{937.42} \text{ PPM}$$

(2900 + 2 x (1068) + 66135)

NOTE 1: RCS Volume not including PRZ, Upper Head, Surge Line or CVCS = 62,435 GAL. (Value halved in calculation to account for averaging the boron concentration for Loops B and C = 31,218 GAL.)

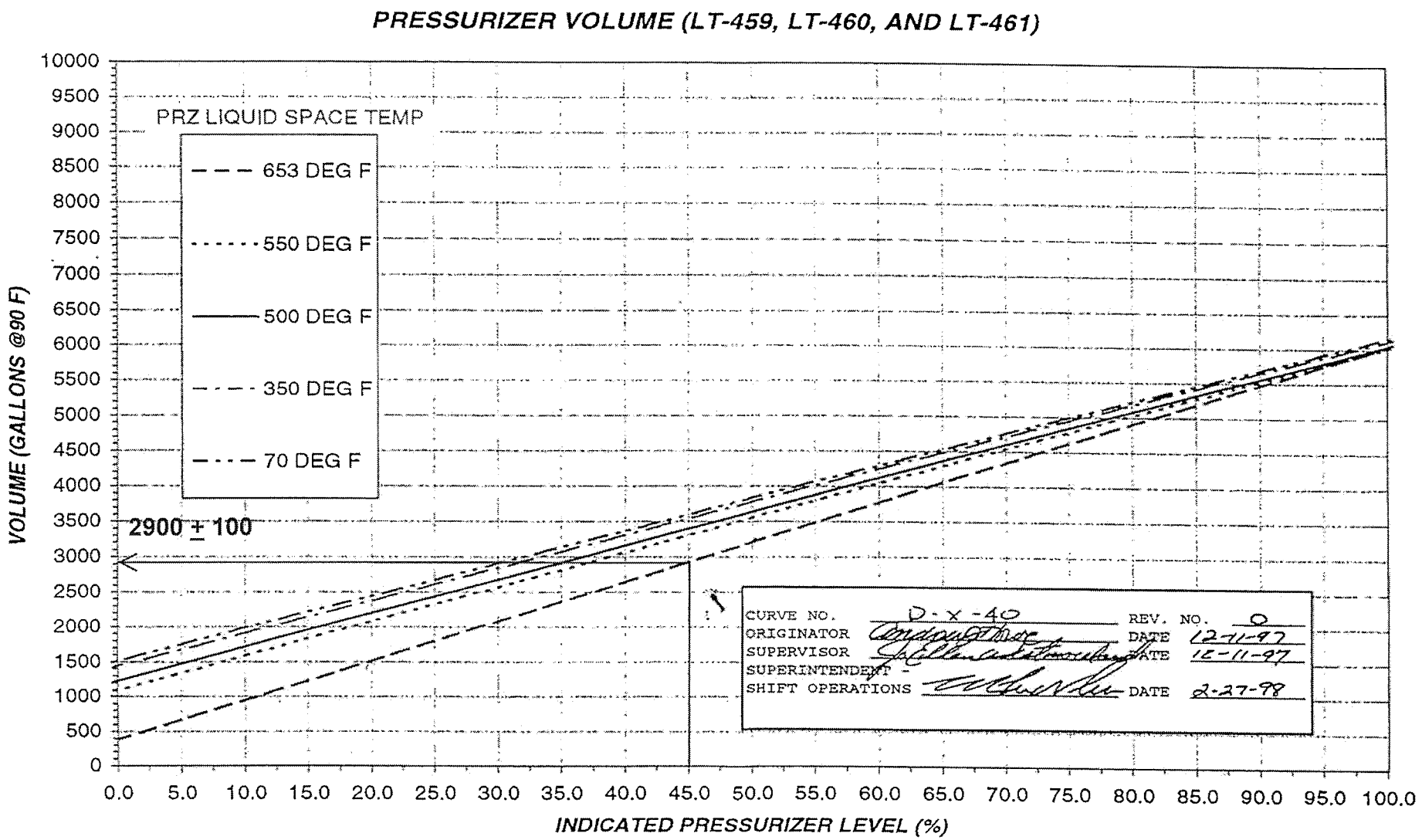
NOTE 2: RCS Volume not including PRZ or CVCS = 66,135 GAL.

NOTE 3: Combined Upper Head and Surge Line Volume = 3700 GAL. (Upper Head Volume = 3365 GAL and Surge Line Volume = 335 GAL.)

NOTE 4: CVCS Volume = 2136 GAL (Value halved in Step 3 to account for averaging the boron concentration for RCS loop B and C = 1068 GAL.)

NOTE 5: The boron concentration of the Upper Head and Surge Line is assumed to be that of the PRZ since these volumes also stagnate when RCPs are lost. CVCS boron concentration is assumed to be that of the RCS.

KEY


PRESSURIZER VOLUME (LT-459, LT-460, AND LT-461)
PRZ LIQUID SPACE TEMP
653 DEG F
550 DEG F
500 DEG F
350 DEG F
70 DEG F
2900 ± 100
VOLUME (GALLONS @90 F)
INDICATED PRESSURIZER LEVEL (%)
CURVE NO. D-X-40
REV. NO. 0
ORIGINATOR
DATE 12-11-97
SUPERVISOR
DATE 12-11-97
SUPERINTENDENT -
SHIFT OPERATIONS
DATE 2-27-98

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC Exam Admin JPM RO SRO A1-2
Determine Average RCS Boron Concentration

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:	Following a loss of offsite power, recovery actions are being taken in accordance with EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required Plant conditions are as follows: • PRZ pressure 2230 psig • RCS Hot Leg temperatures 555°F • Core Exit thermocouples 560°F • PRZ Liquid space temperature 650°F • PRZ Steam space temperature 650°F • PRZ level 45 % • Charging and letdown are in service, with letdown flow at 45 gpm. Chemistry has just taken RCS boron samples and reports the following results: • Loop 'B' Hot Leg 930 ppm • Loop 'C' Hot Leg 940 ppm • PRZ Liquid Space 961 ppm

Initiating Cue:	The CRS requires that you calculate the average RCS boron concentration for these conditions per EOP-ECA-0.1, Attachment 1 to TWO decimal places.

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility:	Shearon Harris	Task No.:	015004H201
Task Title:	Perform the Quadrant Power Tilt Ratio Surveillance	JPM No.:	2013 NRC Exam Admin JPM RO A2
K/A Reference:	G2.2.12 RO 3.7 SRO 4.1	**Alternate Path: No**	

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 operating at 90% power when a rod in Control Bank 'A' (P-10) dropped. • The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM. • There are NO deficiency tags on PR NIs. • ERFIS points ANM9112U and ANM9113L have a BAD quality code. HNP IT has been notified and they are evaluating the ERFIS points.

Initiating Cue:	The CRS has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR. The Power Range NIS indications are provided. **For the purposes of the examination, there will be no independent verification. Show values of your work.**

a/2/1

Task Standard: Calculations within required band.
Correct Tech Spec actions are identified.

Required Materials: Calculator

General References: OST-1039, CALCULATION OF QPTR, Revision 16
Technical Specifications

Handouts:
- OST-1039
- Power Range NI – Current and Voltage Set point Table
- Technical Specifications

Time Critical Task: No

Validation Time: 10 minutes

Critical Step Justification	
Step 9	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 10	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 11	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 14	Must identify that the QPTR upper is outside the band which will make this overall results unsatisfactory.
Step 15	Must determine that QPTR is greater than 1.02 (which is a Tech Spec limit) and that the QPTR is unsatisfactory.
Step 19	Must correctly identify through documentation that the QPTR limits are exceeded.

Start Time: _____.

Performance Step: 1 Obtain procedure.

Standard: Reviews procedure.

Evaluator Cue:	**Provide OST-1039.**

Evaluator Note: **A KEY is provided for your use on JPM prior to candidate pages.**

Comment:

Evaluator Note:	**NOTE: The NI curve numbers provided in this JPM are numbers from the 2013 NRC Exam Frozen Procedures Curve Book folder.**

Procedure Note: Precaution and Limitation 4.0.1 has guidance if performing this OST with one Power Range Channel inoperable.

Performance Step: 2 Completes Prerequisites section:

- Verify instrumentation needed for the performance of this test is free of deficiencies that affect instrument indication.
- Verify the most recent Curve F-X-8 is used in the performance of this procedure. (Reference 2.1.1 and 2.1.2)
- OBTAIN CRS permission to perform this OST.

Standard:

- Logs F-18-8 revision number : 6
- Initials/signs all blocks

Comment:

Performance Step: 3

- IF Quadrant Power Tilt Ratio Calculation Computer Program is used, THEN PERFORM the following:
  - MARK Step 7.0.2 N/A.
  - MARK Section 7.2 N/A.
  - PERFORM Section 7.1.
- IF manual calculation of the Quadrant Power Tilt Ratio is used, THEN PERFORM the following:
  - MARK Section 7.1 N/A.
  - PERFORM Section 7.2.

Standard:

- Marks Section 7.1 N/A
- Proceeds to Section 7.2

Comment:

OST-1039 Section 7.2 Note prior to step 1

Performance Step: 4

NOTE: The detector current meters on each power range channel drawer are designated as left-upper, right-lower.

Standard:

Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 1

Performance Step: 5

Prior to reading the value of detector current, VERIFY the meter range/rate switch is in the 400 μA/SLOW position.

Standard:

Prior to reading the value of detector current, VERIFIES the Meter Range/Rate switch is in the 400 μA/SLOW position.

Evaluator Note:	**This information is on the JPM Cue Sheet**

Comment:

OST-1039 Section 7.2, Step 2

Performance Step: 6 RECORD on Attachment 2, in column A, the upper and lower detector currents from all operable power range channels as read on the Nuclear Instrumentation Cabinet.

Standard: Transposes readings from PRNIS Readings Table onto Attachment 2.

Comment:

OST-1039 Section 7.2, Step 3

√ **Performance Step: 7** RECORD on Attachment 2, in column B, the 100% power normalized current for each channel from Curve F-x-8.

Standard: Transposes TOP and BOTTOM 100% current values from the Curve Book provided.

Comment:

OST-1039 Section 7.2, Note prior to Step 4

Performance Step: 8 NOTE: When recording all fractions and ratios, record to four decimal places, dropping the fifth and subsequent decimal places.

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 4

√ **Performance Step: 9** Divide values in Column A by the respective normalized current in Column B and record the result in Column C as the Normalized Fraction.

Standard: Divides each Upper and Lower reading by the respective 100% normalized current value and records in Column C.

Comment:

OST-1039 Section 7.2, Step 5

√ **Performance Step: 10** CALCULATE the average value for the upper and the lower Normalized Fractions as follows:

- ADD the Normalized Fraction in each section of column C, recording the sum in the space provided.
- DIVIDE the sum obtained in Step 7.2.5.a by the number of operable NI channels, recording the result in column D of Attachment 2.

Standard: Adds all Normalized Fractions for the same plane and records the sum in the space provided.

Divides by the sum by four and records result in Column D.

Comment:

OST-1039 Section 7.2, Step 6

√ **Performance Step: 11** Using the formula and values from Attachment 2, CALCULATE the Upper and Lower Ratios.

Standard:

- Divides the Maximum Normalized Fraction by the Average Normalized Fraction on each plane.
- Determines the UPPER ratio is ≥ 1.02

Evaluator Note:	**The applicant may inform the CRS as soon as any calculation is > 1.02. If so, acknowledge and direct applicant to complete Attachment 2.**

Comment:

OST-1039 Section 7.2, Step 7

Performance Step: 12 PERFORM independent verification of all calculations made on Attachment 2.

Standard: Requests Independent Verifier.

Evaluator Cue: **If necessary, repeat Initiating Cue: For the purpose of this examination, there will be no independent verification of your work.**

Comment: **Candidate may choose to check calculations.**

OST-1039 Section 7.2, Note prior to Step 8

Performance Step: 13 NOTE: The upper ratio or the lower ratio, whichever is greater, is the quadrant power tilt ratio (QPTR).

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 8

√ **Performance Step: 14** RECORD QPTR:

Standard: Records QPTR value as 1.0902 to 1.0912 (N43 UPPER)
Identifies Upper as outside the band

0.05 %

Comment: **Acceptable band is +/- 5% (rounded to .0005).**
UPPER calculated band is 1.0902 to 1.0912
LOWER calculated band is 1.0665 to 1.0675

BK

OST-1039 Section 7.2, Step 9

√ **Performance Step: 15** CHECK QPTR is less than or equal to 1.02.

Standard: **Identifies Upper QPTR as greater than 1.02 and QPTR is unacceptable**

Comment:

OST-1039 Section 7.2, Note prior to Step 10

Performance Step: 16 NOTE: ERFIS turn on codes used to obtain ERFIS QPTR values include "QPTR" and "GD QPTR".

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 10

Performance Step: 17 IF the ERFIS calculated QPTR value is available, THEN COMPARE OST-1039 results to the ERFIS QPTR calculated output as a quality check.

Standard: Request status of ERFIS calculated QPTR value, and N/A's step 7.2.10 when notified ERFIS QPTR is not available.

Evaluator Note:	This information is on the JPM Cue Sheet

Evaluator Cue:

Comment:

OST-1039 Section 7.2, Step 11

Performance Step: 18 IF any ERFIS QPTR quality codes do not have a good quality code or the higher of ANM9112U or ANM9113L do not approximate the value for QPTR determined above, THEN CONTACT HNP IT to investigate.

Standard: Request if notification of the status of the ERFIS calculated QPTR value to HNP IT has been completed.

Evaluator Note:	This information is on the JPM Cue Sheet

Evaluator Cue:

Comment:

OST-1039 Section 7.3, Test Completion Step 1

Performance Step: 19

- IF this test was performed due to an inoperable QPTR alarm, THEN DOCUMENT completion of PMID 22125 RQ 01.
- COMPLETE applicable sections of Attachment 3, Certifications and Reviews.
- INFORM the CRS this test is completed.

Standard:

- Check marks Periodic Surveillance or notes AOP-001 in Comments section
- Plant Condition: 90% Power (may note dropped rod)
- Mode 1
- Today's Date
- Current Time
- OST Completed By: Applicant's name
- Initials/Name

√	• Indicate in General Comments Section and/or informs CRS that the limit is exceeded

Evaluator Cue: **Acknowledge any report.**

Comment:

Terminating Cue:	**After the CRS has been notified:** **Evaluation on this JPM is complete.**

STOP Time: _____.

KEY

Record QPTR = **1.0907** Acceptable band is +/- 5% (rounded to .0005) 1.0902 to 1.0912

CHECK QPTR is less than or equal to 1.02 (circle) YES / (NO)

UPPER DETECTOR	A UPPER DETECTOR CURRENT	B UPPER 100% POWER NORMALIZED CURRENT	C UPPER NORMALIZED FRACTION (NOTE 1)	D AVERAGE UPPER NORMALIZED FRACTION
N-41	145.6	164.1	0.8872	0.8840
N-42	162.5	187.6	0.8662	
N-43	199.8	207.2	0.9642	
N-44	138.4	169.1	0.8184	
		SUM	3.5360	

$$\text{Upper Ratio} = \frac{\text{Maximum Upper Normalized Fraction}}{\text{Average Upper Normalized Fraction}} = \frac{0.9642}{0.8840} = 1.0907^{*}$$

* Standard for this calculation is 1.0902 to 1.0912

LOWER DETECTOR	A LOWER DETECTOR CURRENT	B LOWER 100% POWER NORMALIZED CURRENT	C LOWER NORMALIZED FRACTION (NOTE 1)	D AVERAGE LOWER NORMALIZED FRACTION
N-41	159.6	183.0	0.8721	0.8632
N-42	172.1	209.9	0.8199	
N-43	209.3	224.7	0.9314	
N-44	165.2	199.1	0.8297	
		SUM	3.4531	

$$\text{Lower Ratio} = \frac{\text{Maximum Lower Normalized Fraction}}{\text{Average Lower Normalized Fraction}} = \frac{0.9314}{0.8632} = 1.0790^{**}$$

** Standard for this calculation is 1.0785 to 1.0795

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC Exam Admin JPM RO A2
Perform a Quadrant Power Tilt Ratio Surveillance

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

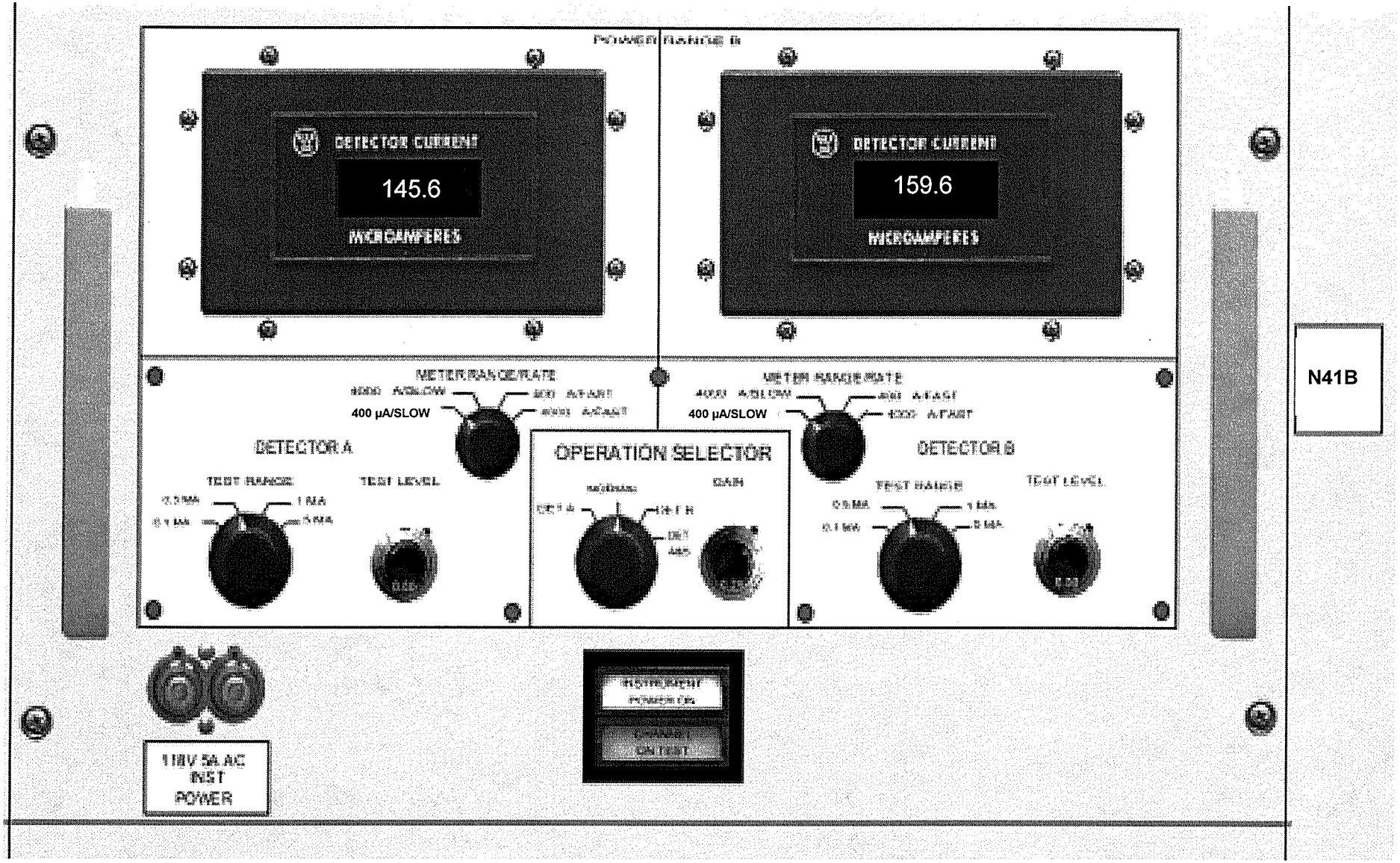
JPM CUE SHEET

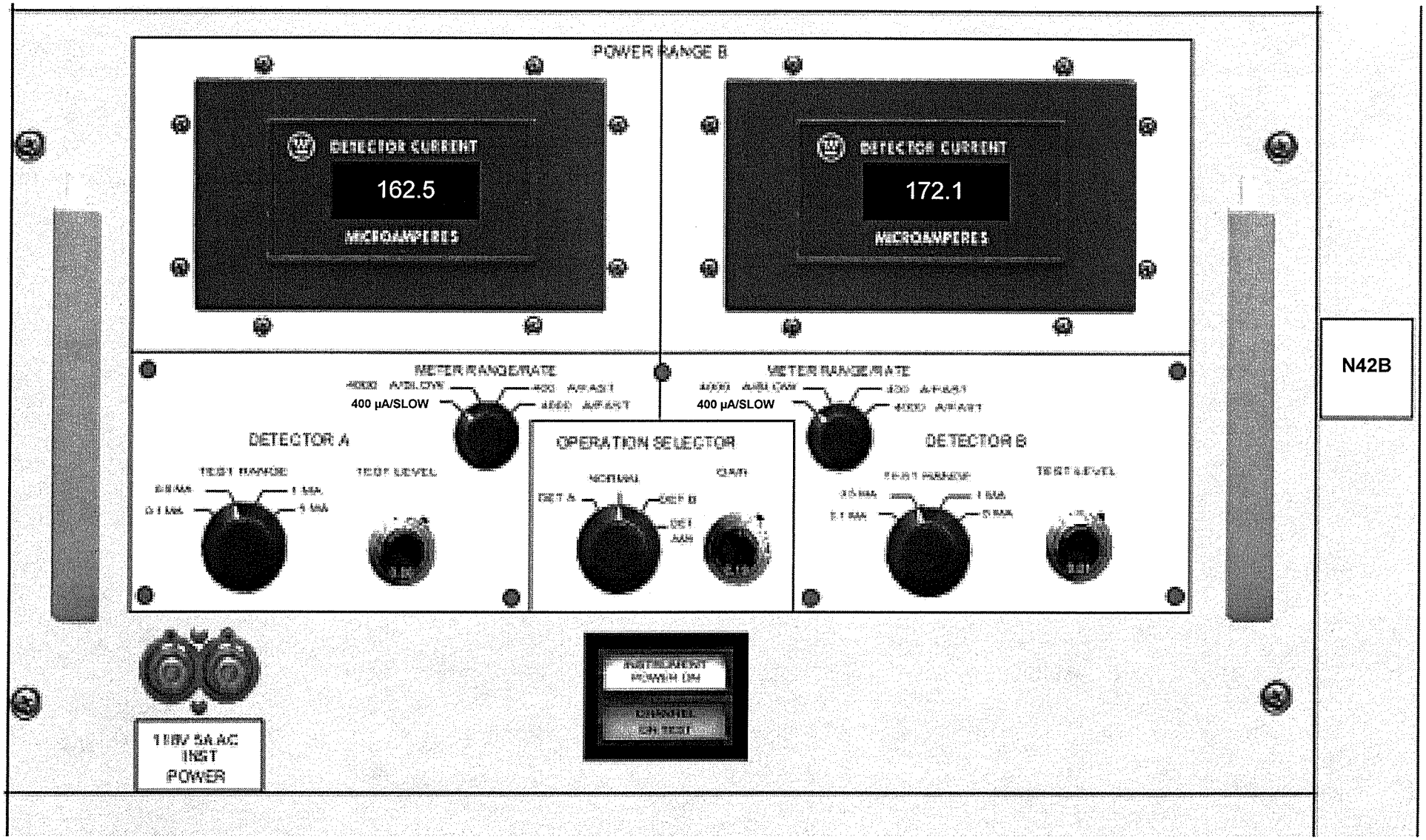
Name: _____

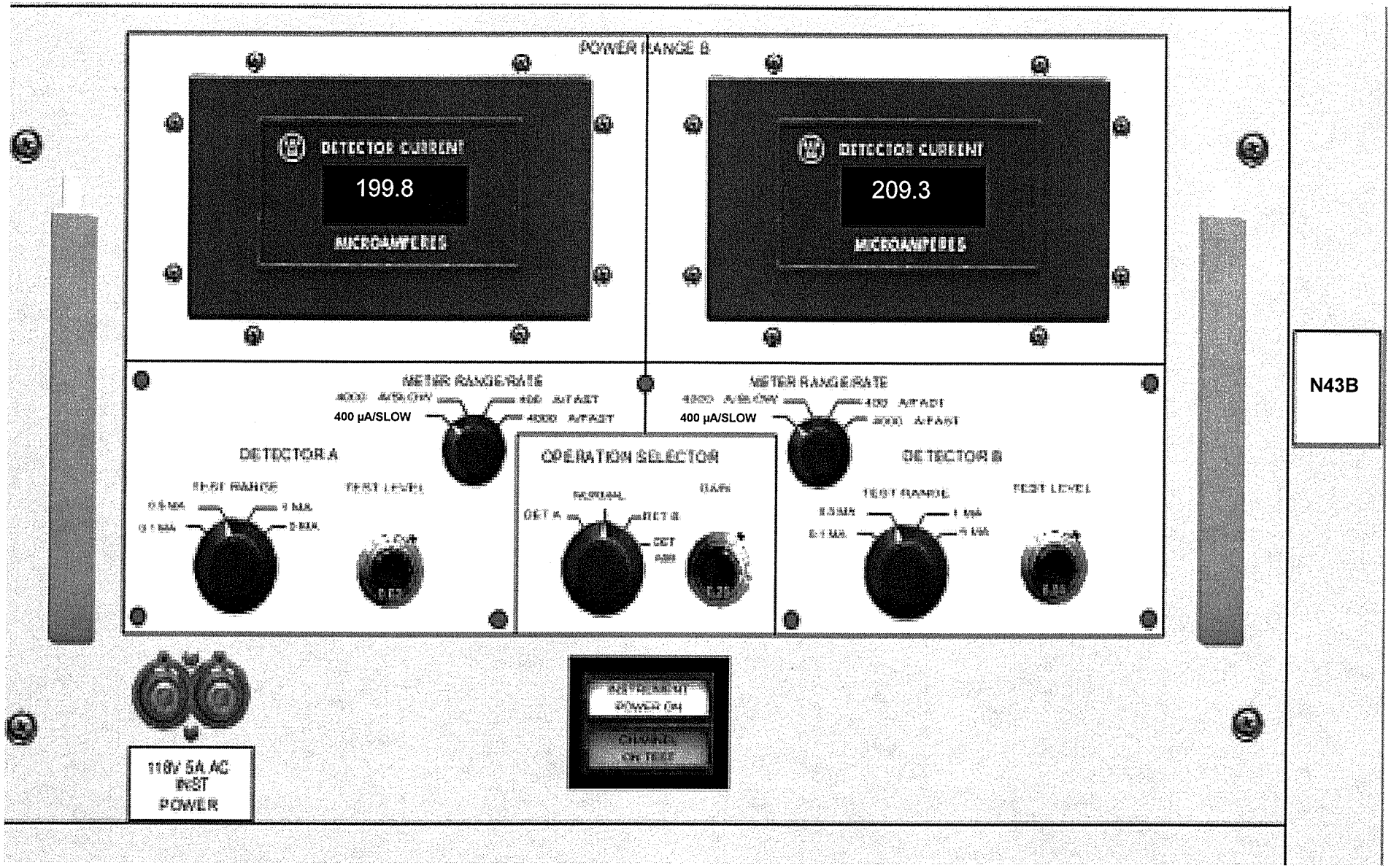
Date: _____

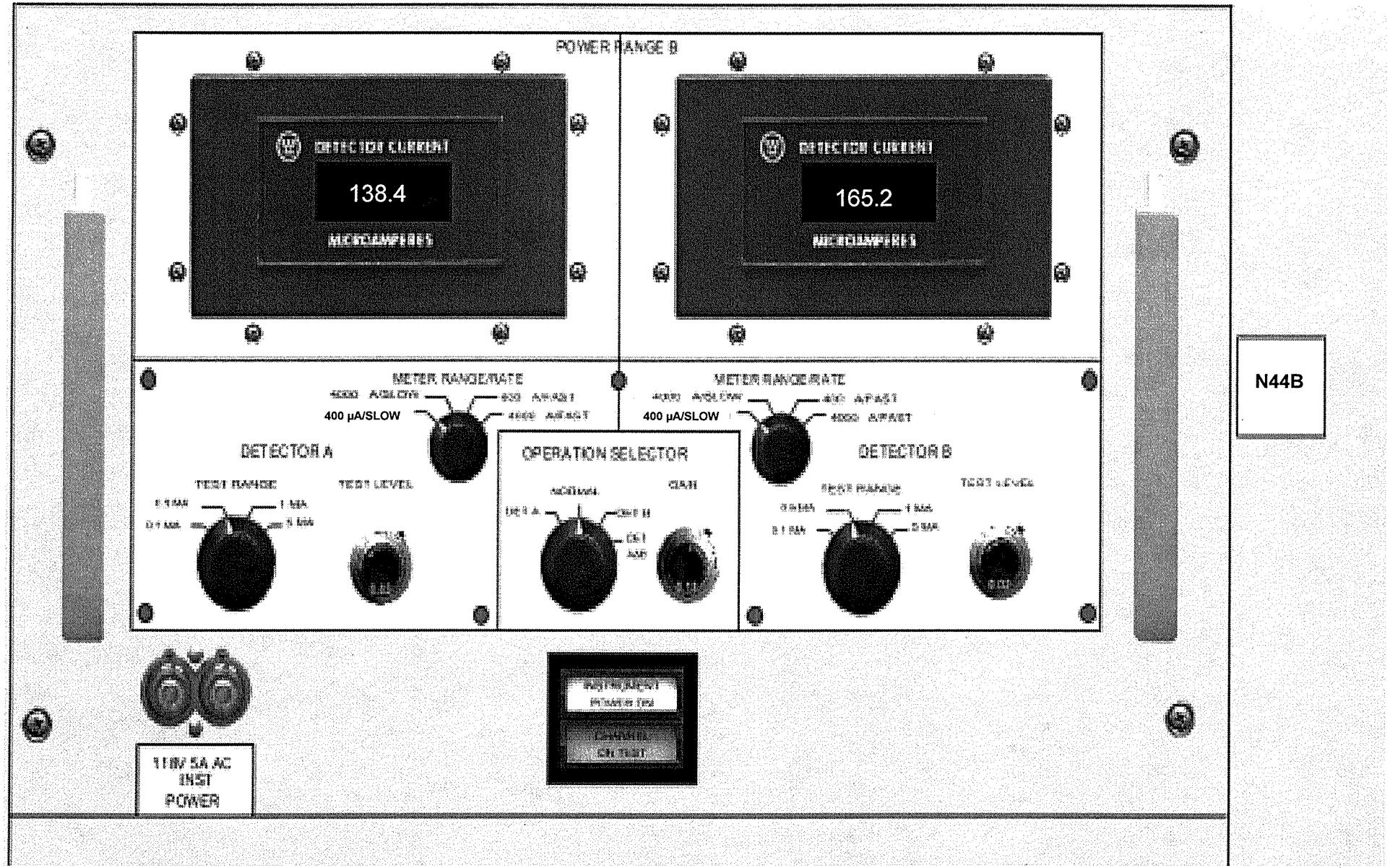
Initial Conditions:	• The plant is operating at 90% power when a rod in Control Bank 'A' (P-10) dropped. • The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM. • There are NO deficiency tags on PR NIs. • ERFIS points ANM9112U and ANM9113L have a BAD quality code. HNP IT has been notified and they are evaluating the ERFIS points.

Initiating Cue:	The CRS has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR. The Power Range NIS indications are provided. **For the purposes of the examination, there will be no independent verification. Show values of your work.**


DETECTOR CURRENT
145.6
MICROAMPERES
DETECTOR CURRENT
159.6
MICROAMPERES
400 µA/SLOW
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
DETECTOR B
N41B
118V 5A AC
INST
POWER


POWER RANGE B
DETECTOR CURRENT
162.5
MICROAMPERES
DETECTOR CURRENT
172.1
MICROAMPERES
METER RANGE/RATE
400 µA/SLOW
METER RANGE/RATE
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
DETECTOR B
N42B


POWER RANGE B
DETECTOR CURRENT
199.8
MICROAMPERES
DETECTOR CURRENT
209.3
MICROAMPERES
METER RANGE/RATE
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
METER RANGE/RATE
400 µA/SLOW
DETECTOR B
N43B
118V 5A AC
INST
POWER


POWER RANGE B
138.4
165.2
400 µA/SLOW
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
DETECTOR B
N44B
110V 5A AC
INST
POWER

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility:	Shearon Harris	Task No.:	015004H201
Task Title:	Perform the Quadrant Power Tilt Ratio Surveillance	JPM No.:	2013 NRC Exam Admin JPM SRO A2
K/A Reference:	G2.2.12 RO 3.7 SRO 4.1	**Alternate Path: No**	

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 operating at 90% power when a rod in Control Bank 'A' (P-10) dropped. • The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM. • There are NO deficiency tags on PR NIs. • ERFIS points ANM9112U and ANM9113L have a BAD quality code. HNP IT has been notified and they are evaluating the ERFIS points.

Initiating Cue:	The CRS has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR, AND evaluate the actions, if any, of the applicable Technical Specification. The Power Range NIS indications are provided. **For the purposes of the examination, there will be no independent verification. Show values of your work.**

4/2/13

Task Standard: Calculations within required band.
Correct Tech Spec actions are identified.

Required Materials: Calculator

General References: OST-1039, CALCULATION OF QPTR, Revision 16
Technical Specifications

Handouts:
- OST-1039
- Power Range NI – Current and Voltage Set point Table
- Technical Specifications

Time Critical Task: No

Validation Time: 15 minutes

Critical Step Justification	
Step 9	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 10	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 11	Must accurately determine the correct calculation based on collecting and inputting either provided data or visual inspection data. The calculation will yield an unsatisfactory QPTR.
Step 14	Must identify that the QPTR upper is outside the band which will make this overall results unsatisfactory.
Step 15	Must determine that QPTR is greater than 1.02 (which is a Tech Spec limit) and that the QPTR is unsatisfactory.
Step 19	Must correctly identify through documentation that the QPTR limits are exceeded.
Step 20	Must accurately identify associated Technical Specifications with a QPTR that has exceeded the limits specified in HNP Technical Specifications.

Start Time: _____.

Performance Step: 1 Obtain procedure.

Standard: Reviews procedure.

Evaluator Cue:	**Provide OST-1039.**

Evaluator Note: **A KEY is provided for your use on JPM prior to candidate pages.**

Comment:

Evaluator Note:	**NOTE: The NI curve numbers provided in this JPM are numbers from the 2013 NRC Exam Frozen Procedures Curve Book folder.**

Procedure Note: Precaution and Limitation 4.0.1 has guidance if performing this OST with one Power Range Channel inoperable.

Performance Step: 2 Completes Prerequisites section:

- Verify instrumentation needed for the performance of this test is free of deficiencies that affect instrument indication.
- Verify the most recent Curve F-X-8 is used in the performance of this procedure. (Reference 2.1.1 and 2.1.2)
- OBTAIN CRS permission to perform this OST.

Standard:

- Logs F-18-8 revision number : 6
- Initials/signs all blocks

Comment:

Performance Step: 3

- IF Quadrant Power Tilt Ratio Calculation Computer Program is used, THEN PERFORM the following:
  - MARK Step 7.0.2 N/A.
  - MARK Section 7.2 N/A.
  - PERFORM Section 7.1.
- IF manual calculation of the Quadrant Power Tilt Ratio is used, THEN PERFORM the following:
  - MARK Section 7.1 N/A.
  - PERFORM Section 7.2.

Standard:

- Marks Section 7.1 N/A
- Proceeds to Section 7.2

Comment:

OST-1039 Section 7.2 Note prior to step 1

Performance Step: 4

NOTE: The detector current meters on each power range channel drawer are designated as left-upper, right-lower.

Standard:

Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 1

Performance Step: 5

Prior to reading the value of detector current, VERIFY the meter range/rate switch is in the 400 μA/SLOW position.

Standard:

Prior to reading the value of detector current, VERIFIES the Meter Range/Rate switch is in the 400 μA/SLOW position.

Evaluator Note:	This information is on the JPM Cue Sheet

Comment:

OST-1039 Section 7.2, Step 2

Performance Step: 6 RECORD on Attachment 2, in column A, the upper and lower detector currents from all operable power range channels as read on the Nuclear Instrumentation Cabinet.

Standard: Transposes readings from PRNIS Readings Table onto Attachment 2.

Comment:

OST-1039 Section 7.2, Step 3

√ **Performance Step: 7** RECORD on Attachment 2, in column B, the 100% power normalized current for each channel from Curve F-x-8.

Standard: Transposes TOP and BOTTOM 100% current values from the Curve Book provided.

Comment:

OST-1039 Section 7.2, Note prior to Step 4

Performance Step: 8 NOTE: When recording all fractions and ratios, record to four decimal places, dropping the fifth and subsequent decimal places.

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 4

√ **Performance Step: 9** Divide values in Column A by the respective normalized current in Column B and record the result in Column C as the Normalized Fraction.

Standard: Divides each Upper and Lower reading by the respective 100% normalized current value and records in Column C.

Comment:

OST-1039 Section 7.2, Step 5

√ **Performance Step: 10** CALCULATE the average value for the upper and the lower Normalized Fractions as follows:

- ADD the Normalized Fraction in each section of column C, recording the sum in the space provided.
- DIVIDE the sum obtained in Step 7.2.5.a by the number of operable NI channels, recording the result in column D of Attachment 2.

Standard: Adds all Normalized Fractions for the same plane and records the sum in the space provided.

Divides by the sum by four and records result in Column D.

Comment:

OST-1039 Section 7.2, Step 6

√ **Performance Step: 11** Using the formula and values from Attachment 2, CALCULATE the Upper and Lower Ratios.

Standard:

- Divides the Maximum Normalized Fraction by the Average Normalized Fraction on each plane.
- Determines the UPPER ratio is ≥ 1.02

Evaluator Note:	**The applicant may inform the CRS as soon as any calculation is > 1.02. If so, acknowledge and direct applicant to complete Attachment 2.**

Comment:

OST-1039 Section 7.2, Step 7

Performance Step: 12 PERFORM independent verification of all calculations made on Attachment 2.

Standard: Requests Independent Verifier.

Evaluator Cue: **If necessary, repeat Initiating Cue: For the purpose of this examination, there will be no independent verification of your work.**

Comment: **Candidate may choose to check calculations.**

OST-1039 Section 7.2, Note prior to Step 8

Performance Step: 13 NOTE: The upper ratio or the lower ratio, whichever is greater, is the quadrant power tilt ratio (QPTR).

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 8

√ **Performance Step: 14** RECORD QPTR:

Standard: Records QPTR value as 1.0902 to 1.0912 (N43 UPPER)
Identifies Upper as outside the band

BVC

0.05%

Comment: **Acceptable band is +/- 5% (rounded to .0005).**
UPPER calculated band is 1.0902 to 1.0912
LOWER calculated band is 1.0665 to 1.0675

OST-1039 Section 7.2, Step 9

√ **Performance Step: 15** CHECK QPTR is less than or equal to 1.02.

Standard: **Identifies Upper QPTR as greater than 1.02 and QPTR is unacceptable**

Comment:

OST-1039 Section 7.2, Note prior to Step 10

Performance Step: 16 NOTE: ERFIS turn on codes used to obtain ERFIS QPTR values include "QPTR" and "GD QPTR".

Standard: Reads and circle slashes note

Comment:

OST-1039 Section 7.2, Step 10

Performance Step: 17 IF the ERFIS calculated QPTR value is available, THEN COMPARE OST-1039 results to the ERFIS QPTR calculated output as a quality check.

Standard: Request status of ERFIS calculated QPTR value, and N/A's step 7.2.10 when notified ERFIS QPTR is not available.

Evaluator Note:	This information is on the JPM Cue Sheet

Evaluator Cue:

Comment:

OST-1039 Section 7.2, Step 11

Performance Step: 18 IF any ERFIS QPTR quality codes do not have a good quality code or the higher of ANM9112U or ANM9113L do not approximate the value for QPTR determined above, THEN CONTACT HNP IT to investigate.

Standard: Request if notification of the status of the ERFIS calculated QPTR value to HNP IT has been completed.

Evaluator Note:	This information is on the JPM Cue Sheet

Evaluator Cue:

Comment:

OST-1039 Section 7.3, Test Completion Step 1

Performance Step: 19

- IF this test was performed due to an inoperable QPTR alarm, THEN DOCUMENT completion of PMID 22125 RQ 01.
- COMPLETE applicable sections of Attachment 3, Certifications and Reviews.
- INFORM the CRS this test is completed.

Standard:

- Check marks Periodic Surveillance or notes AOP-001 in Comments section
- Plant Condition: 90% Power (may note dropped rod)
- Mode 1
- Today's Date
- Current Time
- OST Completed By: Applicant's name
- Initials/Name

√	• Indicate in General Comments Section and/or informs CRS that the limit is exceeded

Evaluator Cue: **Acknowledge any report.**

Comment:

√ **Performance Step: 20** Identify the Technical Specification LCOs that would be in effect.

Standard: Identifies that Technical Specification 3.2.4, Quadrant Power Tilt Ratio has been exceeded

- Identifies the following ACTION statements to be implemented and the required time limitation (see page 12)
  - 3.2.4.b.1 1 hour

b. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

  - 3.2.4.b.2 30 minutes, reduce thermal power to ≤ 73%
    - (9% x 3% = 27% 100% - 27% = 73%)

2. Reduce THERMAL POWER at least 1% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1.00, within 30 minutes;

  - 3.2.4.b.3 2 hours

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

Evaluator Note:	Technical Specification 3.2.4.b.4 is not required to be identified since no direction is provided in the cue for raising thermal power.

Comment:

Terminating Cue:	**After the CRS has been notified:** **Evaluation on this JPM is complete.**

STOP Time: _____.

KEY

Record QPTR = **1.0907** Acceptable band is +/- 5% (rounded to .0005) 1.0902 to 1.0912

CHECK QPTR is less than or equal to 1.02 (circle) YES / (NO)

UPPER DETECTOR	A UPPER DETECTOR CURRENT	B UPPER 100% POWER NORMALIZED CURRENT	C UPPER NORMALIZED FRACTION (NOTE 1)	D AVERAGE UPPER NORMALIZED FRACTION
N-41	145.6	164.1	0.8872	0.8840
N-42	162.5	187.6	0.8662	
N-43	199.8	207.2	0.9642	
N-44	138.4	169.1	0.8184	
		SUM	3.5360	

$$\text{Upper Ratio} = \frac{\text{Maximum Upper Normalized Fraction}}{\text{Average Upper Normalized Fraction}} = \frac{0.9642}{0.8840} = 1.0907^*$$

* Standard for this calculation is 1.0902 to 1.0912

LOWER DETECTOR	A LOWER DETECTOR CURRENT	B LOWER 100% POWER NORMALIZED CURRENT	C LOWER NORMALIZED FRACTION (NOTE 1)	D AVERAGE LOWER NORMALIZED FRACTION
N-41	159.6	183.0	0.8721	0.8632
N-42	172.1	209.9	0.8199	
N-43	209.3	224.7	0.9314	
N-44	165.2	199.1	0.8297	
		SUM	3.4531	

$$\text{Lower Ratio} = \frac{\text{Maximum Lower Normalized Fraction}}{\text{Average Lower Normalized Fraction}} = \frac{0.9314}{0.8632} = 1.0790^{**}$$

** Standard for this calculation is 1.0785 to 1.0795

✓ - Denotes Critical Steps

KEY

POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

ACTION (Continued):

b. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

2. Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1.00, within 30 minutes;

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

4. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

c. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to causes other than the misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC Exam Admin JPM RO A2
Perform a Quadrant Power Tilt Ratio Surveillance

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Caballero, Bruno

From: Simon Schwindt <[redacted]>
Sent: Tuesday, October 01, 2013 10:23 AM
To: Caballero, Bruno
Subject: Re:

Bruno

I have discussed with JR and the standard in the JPM should have been + or - 0.5% (i.e. 0.0005).

The value band given in the JPM for the QPTR (as we discussed) should be used as the standard.

Thanks
Simon

From: "Caballero, Bruno" <Bruno.Caballero@nrc.gov>
To: "[redacted]" <[redacted]>
Sent: Tuesday, October 1, 2013 10:02 AM
Subject: FW:

From: Caballero, Bruno
Sent: Tuesday, October 01, 2013 8:38 AM
To: Laska, Gerard
Subject:

Bruno Caballero
USNRC Region II, Sr Operations Engineer
245 Peachtree Center Avenue, NE
Suite 1200
Atlanta, GA 30303-1257
404-997-4608

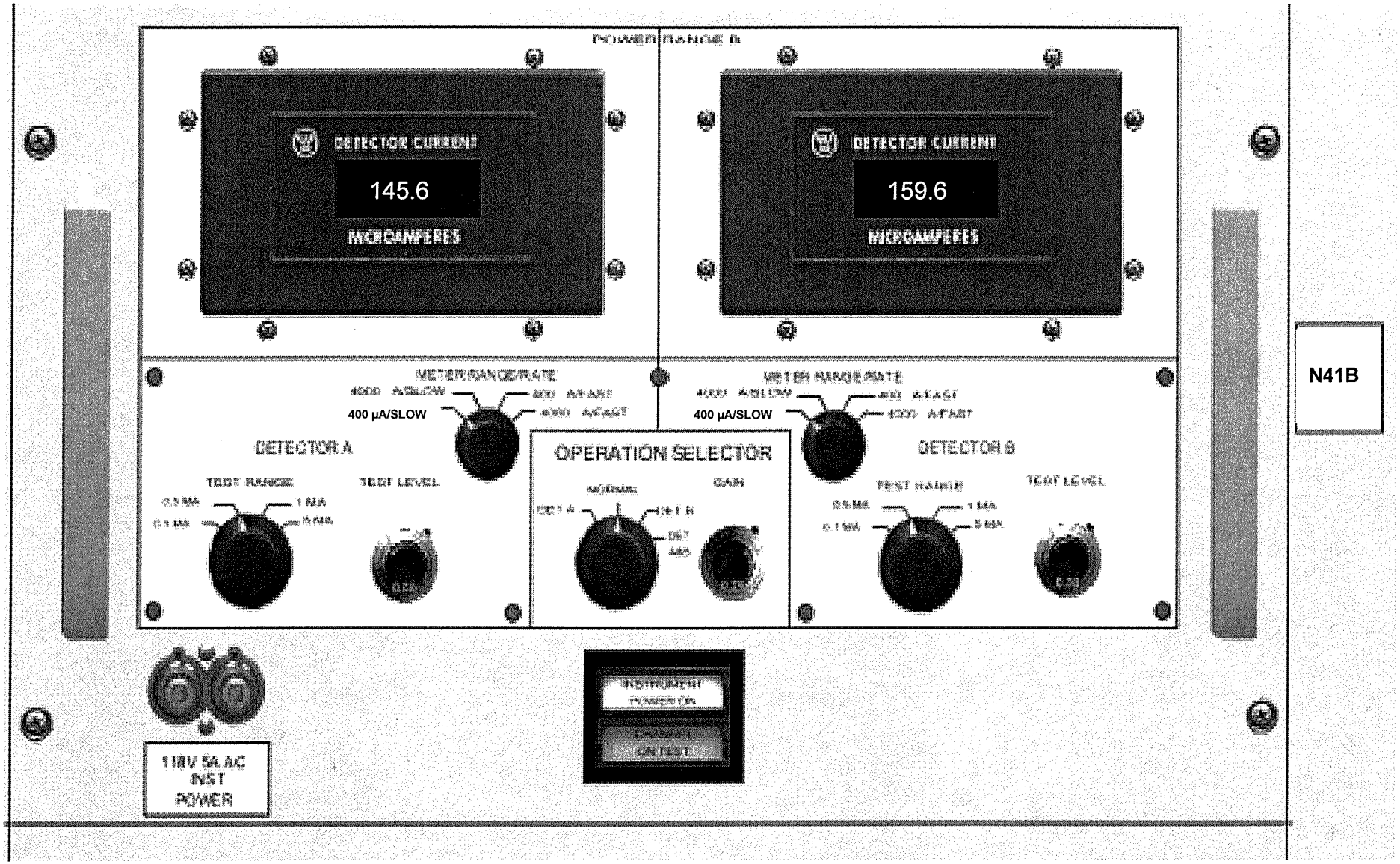
JPM CUE SHEET

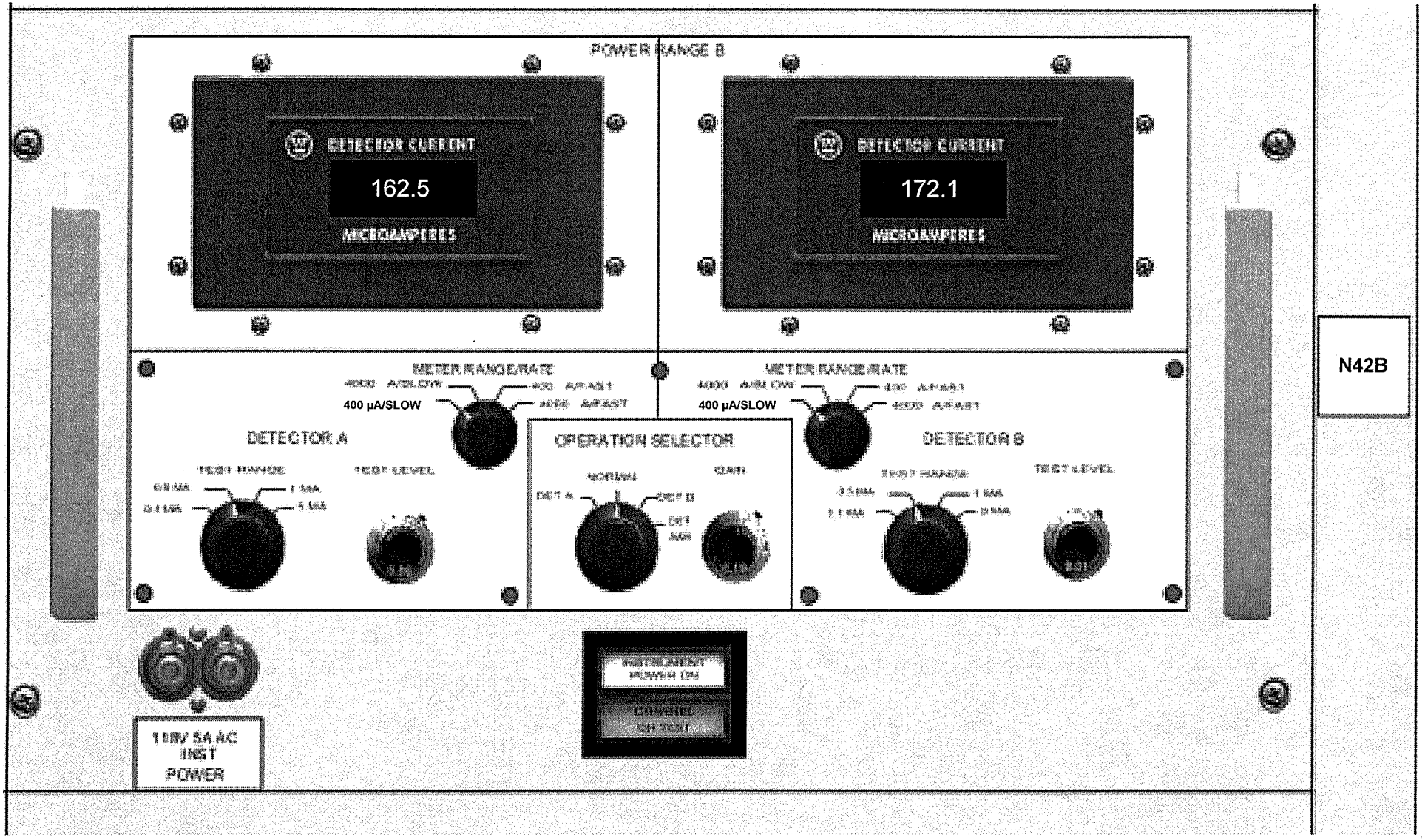
Name: _____

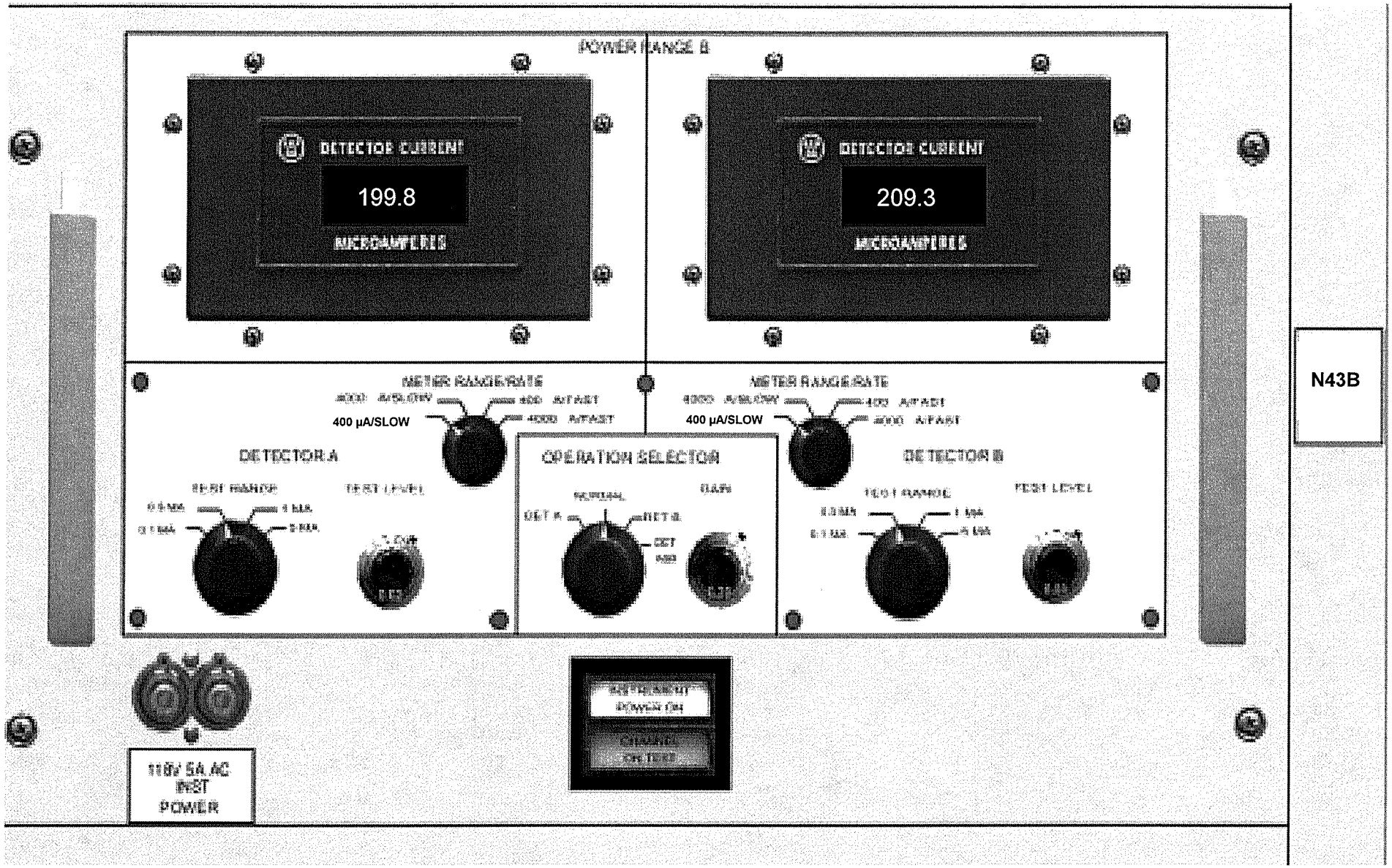
Date: _____

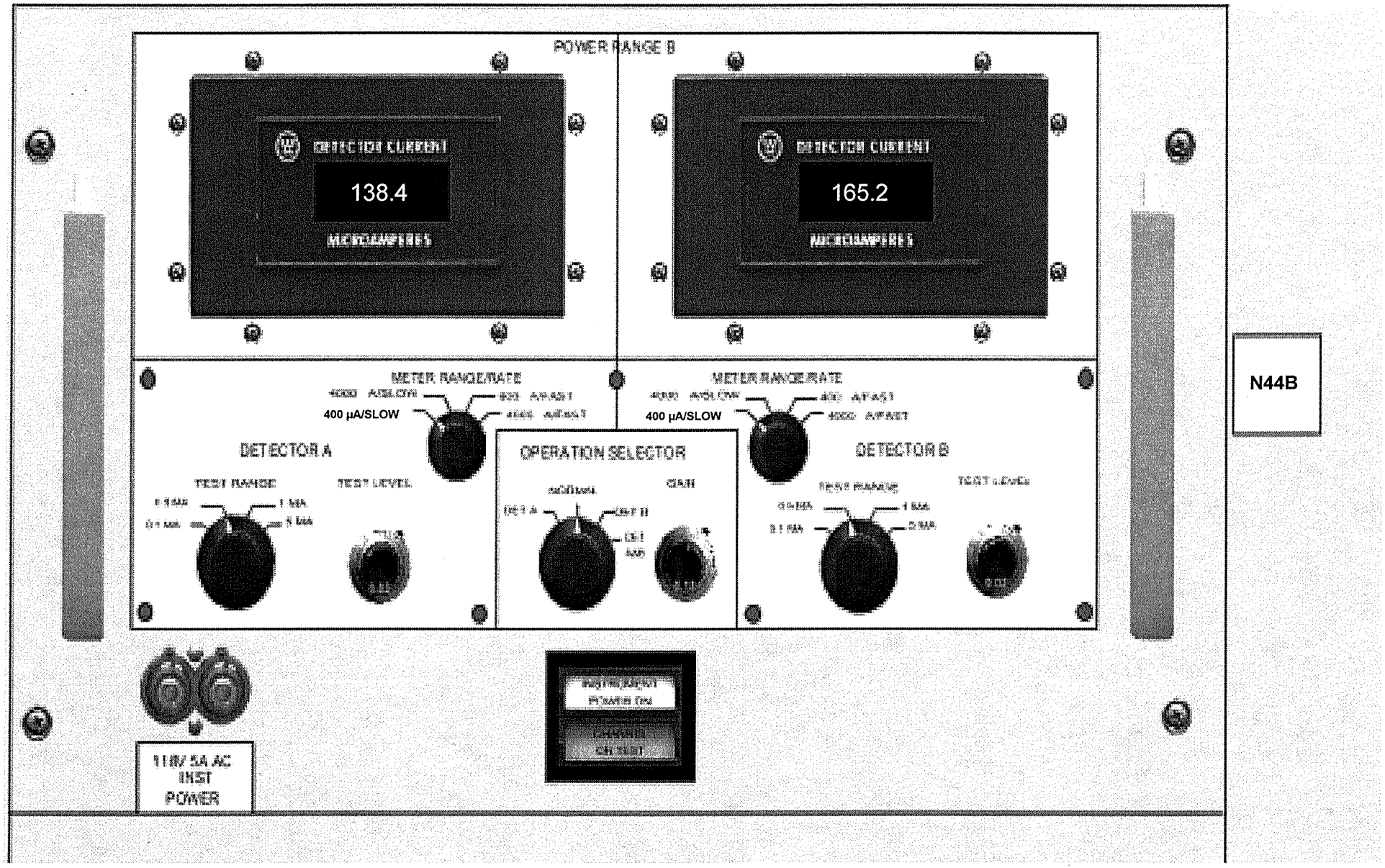
Initial Conditions:	• The plant is operating at 90% power when a rod in Control Bank 'A' (P-10) dropped. • The crew is performing AOP-001, MALFUNCTION OF ROD CONTROL AND INDICATION SYSTEM. • There are NO deficiency tags on PR NIs. • ERFIS points ANM9112U and ANM9113L have a BAD quality code. HNP IT has been notified and they are evaluating the ERFIS points.

Initiating Cue:	The CRS has directed you to perform a manual QPTR IAW OST-1039, CALCULATION OF QPTR, AND evaluate the actions, if any, of the applicable Technical Specification. The Power Range NIS indications are provided. **For the purposes of the examination, there will be no independent verification. Show values of your work.**


DETECTOR CURRENT
145.6
MICROAMPERES
DETECTOR CURRENT
159.6
MICROAMPERES
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
DETECTOR B
N41B
118V 5A AC
INST
POWER


POWER RANGE B
DETECTOR CURRENT
162.5
MICROAMPERES
DETECTOR CURRENT
172.1
MICROAMPERES
METER RANGE/RATE
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
METER RANGE/RATE
400 µA/SLOW
DETECTOR B
N42B
118V 5A AC
INST
POWER


POWER RANGE B
DETECTOR CURRENT
199.8
MICROAMPERES
DETECTOR CURRENT
209.3
MICROAMPERES
METER RANGE/RATE
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
METER RANGE/RATE
400 µA/SLOW
DETECTOR B
N43B
118V 5A AC
INST
POWER


POWER RANGE B
138.4
165.2
METER RANGE/RATE
400 µA/SLOW
METER RANGE/RATE
400 µA/SLOW
DETECTOR A
OPERATION SELECTOR
DETECTOR B
N44B

Facility: Shearon Harris Task No.:

Task Title: Using survey maps determine stay times JPM No.: 2013 NRC Exam Admin JPM RO SRO A-3

K/A Reference: G.2.3.4 RO 3.2 SRO 3.7 **Alternate Path: No**

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:	Two individuals are tasked to hang a clearance on 1CS-38, Letdown PCV Isol Vlv. The clearance includes the following valves: • 1CS-35, Inlet Isol Vlv to LTDN PCV • 1CS-36, Inlet Isol Vlv to LTDN PCV Drain Vlv • 1CS-37, Inlet Isol to LTDN PCV Drain Vlv • 1CS-38, Letdown PCV Isol Vlv. • 1CS-39, Outlet Isol Vlv to LTDN PCV Drain Vlv • 1CS-40, Outlet Isol to LTDN PCV Drain Isol Vlv • 1CS-43, Outlet Isol Vlv to LTDN PCV

Initiating Cue:	Two Operators are being assigned to hang a clearance and perform work in a radiological area. Operator 1 has an accumulated annual Whole Body dose of 1750 mrem (Duke Energy Progress). Operator 2 has an accumulated annual Whole Body dose of 700 mrem (Duke Energy Progress) and worked at Nine Mile Point earlier this year where he received an additional accumulated dose of 2550 mrem. The clearance and work activity is for 1CS-38, Letdown PCV Isol Vlv. The ALARA group has determined that additional shielding is not warranted for this work. Using the supplied survey map, determine the maximum allowable individual stay times for each Operator that would prevent exceeding the Duke Energy Progress Annual Administrative dose limit while performing these activities. Do not consider dose received during transit. The calculated dose should be ONLY what they would receive while working at the valves for the clearance. Complete the information below and return to the evaluator when complete.

a/3/1

Task Standard: Calculation of stay times based on survey maps, two hours for Operator 1, six hours for Operator 2.

Required Materials: Survey map A45
RAB 236' LETDOWN & LETDOWN REHEAT HX &VG Map 21
SFD-5-S-1304

General References: DOS-NGGC-0004, Administrative Dose Limits" Section 9.3, Duke Energy Progress Annual Administrative Dose Limits (Rev.12)
LIMIT = 2 REM Duke Energy Progress dose not to exceed 4 REM total dose if Non-Duke Energy Progress dose for the current year has been determined.

Time Critical Task: No

Validation Time: 14 minutes

Critical Step Justification	
Step 1	Must determine dose rates in order to calculate stay time
Step 2	Must determine available dose to determine stay time.
Step 3	IF incorrect calculation of stay time is made the individuals could exceed their dose limits.

START TIME: _____

Evaluator Note:	**The order of performance does not matter** **IF THE APPLICANT ASKS FOR IT: DOS-NGGC-0004, Rev. 12 is one of the documents in the 2013 NRC Exam Frozen Procedures folder.**

✓ **Performance Step: 1** Using Radiological Survey Record Map A45 and RAB 236' LETDOWN & LETDOWN REHEAT HX &VG Map 21, determines dose rates in the area where the clearance will be applied

Standard: Identifies that General Area Dose Rates are 125 mrem/hr

Comment:

✓ **Performance Step: 2** Determine the remaining dose for the year for each individual

Standard: Operator 1: **250 mrem**
2000 mrem - 1750 mrem = 250 mrem

Operator 2: **750 mrem**
4000 mrem - 700 mrem (PE) - 2550 mrem (NMP) = 750 mrem

Comment:

✓ **Performance Step: 3** Determine stay time for each operator (based on 1st Operator reaching 2 Rem and the 2nd Operator reaching 4 Rem - for the year)

Standard: Operator 1: **2 hours**
250 mrem ÷ 125 mrem/hr = 2 hrs

Operator 2: **6 hours**
750 mrem ÷ 125 mrem/hr = 6 hours

Comment:

Terminating Cue:	**After the stay time has been calculated, this JPM is complete.** **END OF JPM**

STOP TIME: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC Exam Admin JPM RO SRO A-3 - Using survey maps determine stay times. (DOS-NGGC-0004 Rev. 12)
DOS-NGGC-0004, Administrative Dose Limits, Section 9.3, Duke Energy Progress Annual Administrative Dose Limits.
LIMIT = 2 REM Progress Energy dose not to exceed 4 REM total dose if Non-Duke Energy Progress dose for the current year has been determined.

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Name: _____

Date: _____

Initial Conditions:	Two individuals are tasked to hang a clearance on 1CS-38, Letdown PCV Isol Vlv. The clearance includes the following valves: • 1CS-35, Inlet Isol Vlv to LTDN PCV • 1CS-36, Inlet Isol Vlv to LTDN PCV Drain Vlv • 1CS-37, Inlet Isol to LTDN PCV Drain Vlv • 1CS-38, Letdown PCV Isol Vlv. • 1CS-39, Outlet Isol Vlv to LTDN PCV Drain Vlv • 1CS-40, Outlet Isol to LTDN PCV Drain Isol Vlv • 1CS-43, Outlet Isol Vlv to LTDN PCV

Initiating Cue:	Two Operators are being assigned to hang a clearance and perform work in a radiological area. Operator 1 has an accumulated annual Whole Body dose of 1750 mrem (Duke Energy Progress). Operator 2 has an accumulated annual Whole Body dose of 700 mrem (Duke Energy Progress) and worked at Nine Mile Point earlier this year where he received an additional accumulated dose of 2550 mrem. The clearance and work activity is for 1CS-38, Letdown PCV Isol Vlv. The ALARA group has determined that additional shielding is not warranted for this work. Using the supplied survey map, determine the maximum allowable individual stay times for each Operator that would prevent exceeding the Duke Energy Progress Annual Administrative dose limit while performing these activities. Do not consider dose received during transit. The calculated dose should be ONLY what they would receive while working at the valves for the clearance. Complete the information below and return to the evaluator when complete.

Record the maximum allowable stay time calculations below to the nearest hour and minute.

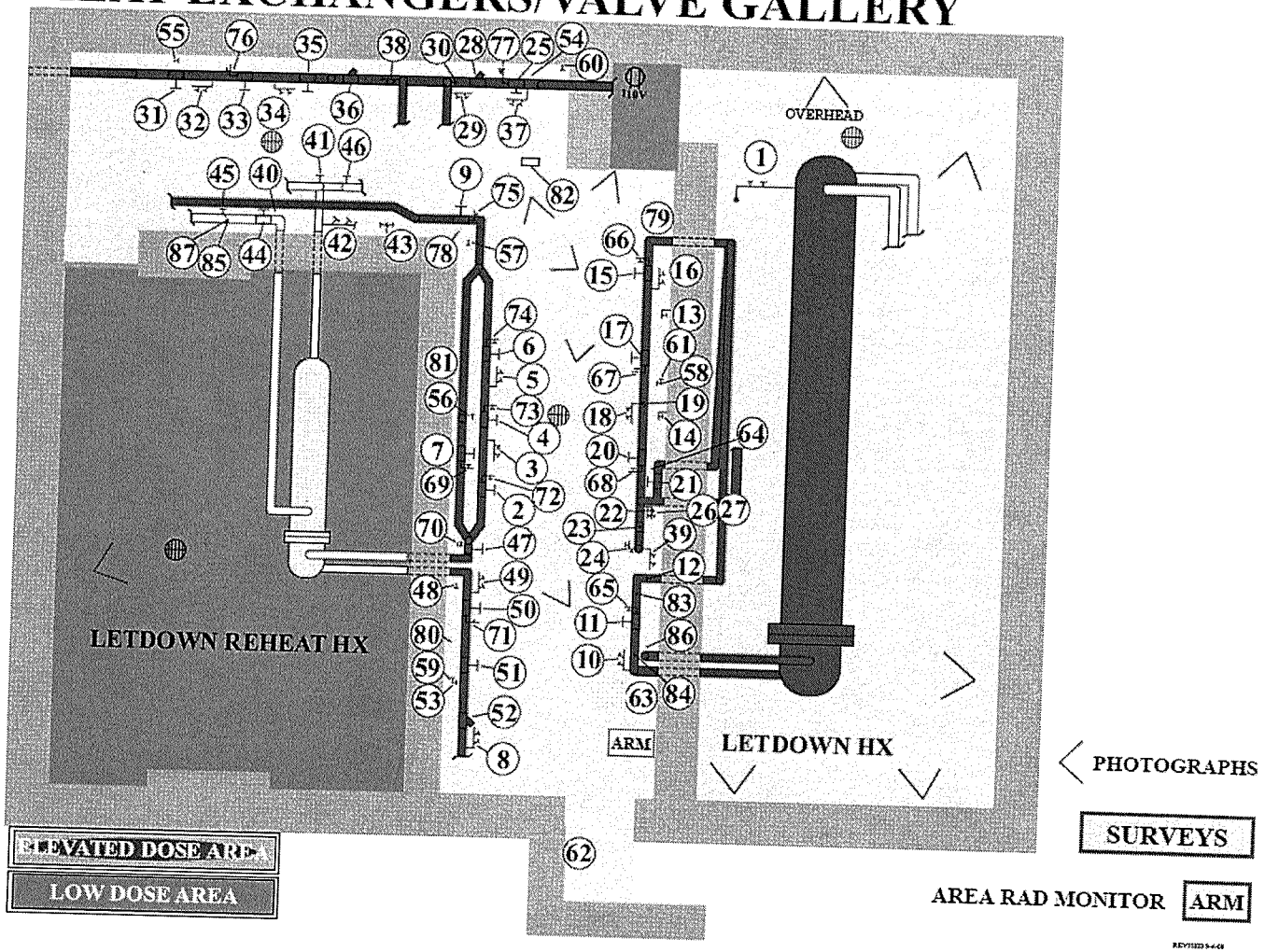
Operator 1: _____ Operator 2: _____

RAB 236' LETDOWN & LETDOWN REHEAT HEAT EXCHANGERS AND V/G

ITEM	DESCRIPTION	ELEV.(ft)	ITEM	DESCRIPTION	ELEV.(ft.)	ITEM	DESCRIPTION	ELEV.(ft.)	ITEM	DESCRIPTION	ELEV.(ft.)
1	1CC-329/330	1'	38	1CS-105/106	5'	75	1VL-60	1'			
2	1CS-016	2'	39	1CS-313/314	7'	76	1VL-61	2'			
3	1CS-017/18	1'	40	1CS-315/316	4'	77	1VL-62	2'			
4	1CS-019	2'	41	1CS-596	5'	78	I/P-01CS-0142W	4'			
5	1CS-020/21	1'	42	1CS-597/598	1'	79	I/P-01CS-0145W	4'			
6	1CS-022	2'	43	1CS-599/600	4'	80	I/P-01CS-0381AW	4'			
7	1CS-023	8'	44	1CS-601	6'	81	I/P-01CS-0381BW	4'			
8	1CS-026/27	1'	45	1CS-602	6'	82	PI-01CS-0146SW	4'			
9	1CS-028	3'	46	1CS-670	6'	83	TE-01CS-143W	4'			
10	1CS-029/30	1'	47	1CS-671	4'	84	TE-01CS-144W	4'			
11	1CS-031	4'	48	1CS-672/673	8'	85	TE-01CS-381W	5'			
12	1CS-032	4'	49	1CS-674/675	1'	86	TI-01CS-7242S	9'			
13	1CS-033	10'	50	1CS-676	2'	87	TI-01CS-7248S	5'			
14	1CS-034	10'	51	1CS-677	2'						
15	1CS-035	2'	52	1CS-678	2'						
16	1CS-036/37	1'	53	1IA-0158-I2	6'						
17	1CS-038	2'	54	1IA-0158-I5	6'						
18	1CS-039/40	1'	55	1IA-0158-I6	6'						
19	1CS-041/42	3'	56	1IA-0158-I7	6'						
20	1CS-043	2'	57	1IA-0158-I8	6'						
21	1CS-044	6'	58	1IA-0158-I9	6'						
22	1CS-045/46	6'	59	1IA-1226	6'						
23	1CS-047	6'	60	1IA-1229	6'						
24	1CS-048/49	6'	61	1IA-1428	6'						
25	1CS-050	4'	62	1PM-72	10'						
26	1CS-051	2'	63	1SP-1185	6'						
27	1CS-052	6'	64	1SP-1188	1'						
28	1CS-053	4'	65	1VL-50	3'						
29	1CS-054/55	5'	66	1VL-51	2'						
30	1CS-056	5'	67	1VL-52	2'						
31	1CS-095	3'	68	1VL-53	2'						
32	1CS-096/97	1'	69	1VL-54	4'						
33	1CS-098	3'	70	1VL-55	4'						
34	1CS-099/100	1'	71	1VL-56	1'						
35	1CS-101	3'	72	1VL-57	2'						
36	1CS-102	3'	73	1VL-58	2'						
37	1CS-103/104	1'	74	1VL-59	2'					REVISED 9-4-08	

RAB 236' LETDOWN & LETDOWN REHEAT HEAT EXCHANGERS/VALVE GALLERY

MAP 21



JPM CUE SHEET

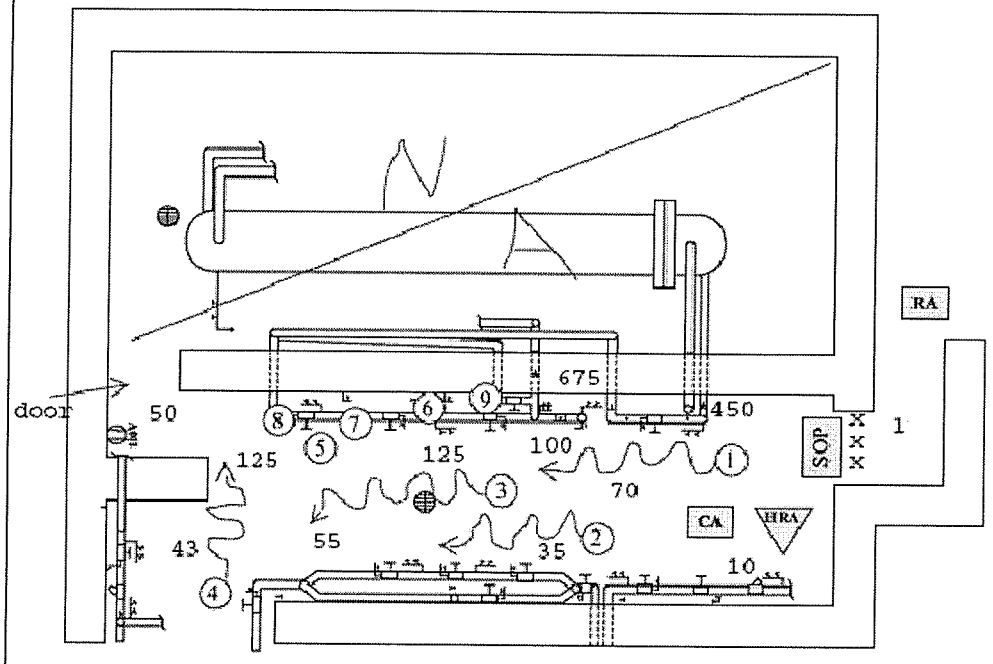
Map A45

RADIOLOGICAL SURVEY RECORD

Page 1 of 1

Unit 1	Bldg/Elev: RAB 236'	Area: Letdown HX & VG	Date: 09/13/13	Time: 0735	RWP # 5648	Survey # 0992-013
Component: N/A		Work Description: Clearance and work on 1CS-38				
Surveyor: A. Tech		Signature:		Reviewed by: B. Bossmann		

Comments: No entry required into letdown H/X room, no shielding added for job



#	dpm/100cm²	Location
1	<1K	floor
2	<1K	floor
3	6K	floor (by drain)
4	100K	floor
5	<1K	floor (under valves)
6	<1K	piping
7	30K	1CS-38
8	<1K	1CS-35
9	<1K	1CS-43

% Power 100

Instrument	Serial No./UTC
R034	341188
K070	777441

RA	Radiation Area	β	Beta Dose Rate
HRA	High Radiation Area	η	Neutron Dose Rate
LHRA	Locked HighRadiation Area	R	Rem/hour
VHRA	Very High Radiation Area	XXXX	Boundary
ARA	Airborne Radiation Area	○	Smear Location
CA	Contamination Area	△	Air Sample Location
RMA	Radioactive Materials Area	K	1000

Dose Rates in mrem/hr unless otherwise noted

Air Activity

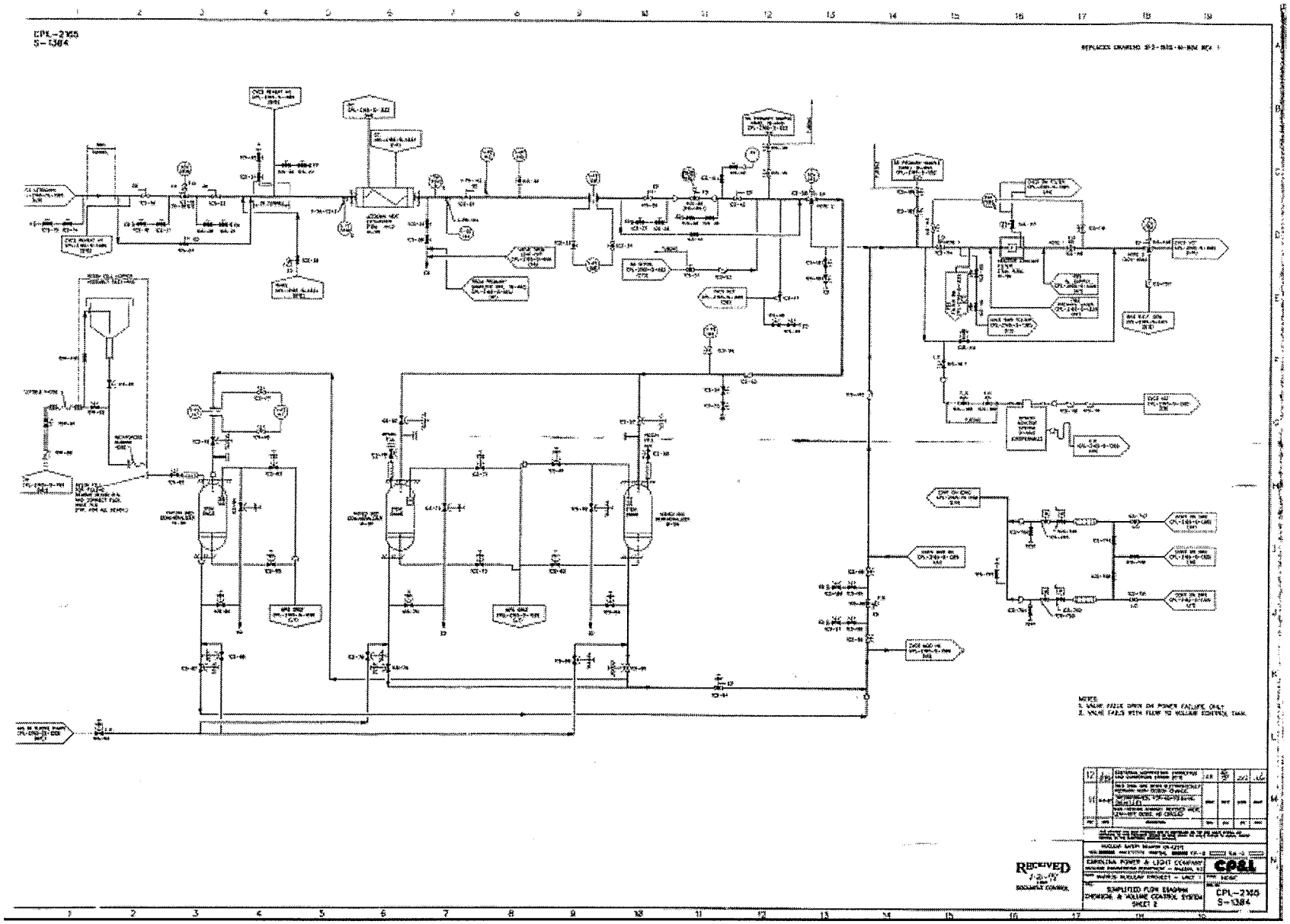
No.____ DAC____ % Activity_____ uCi/cc

No.____ DAC____ % Activity_____ uCi/cc

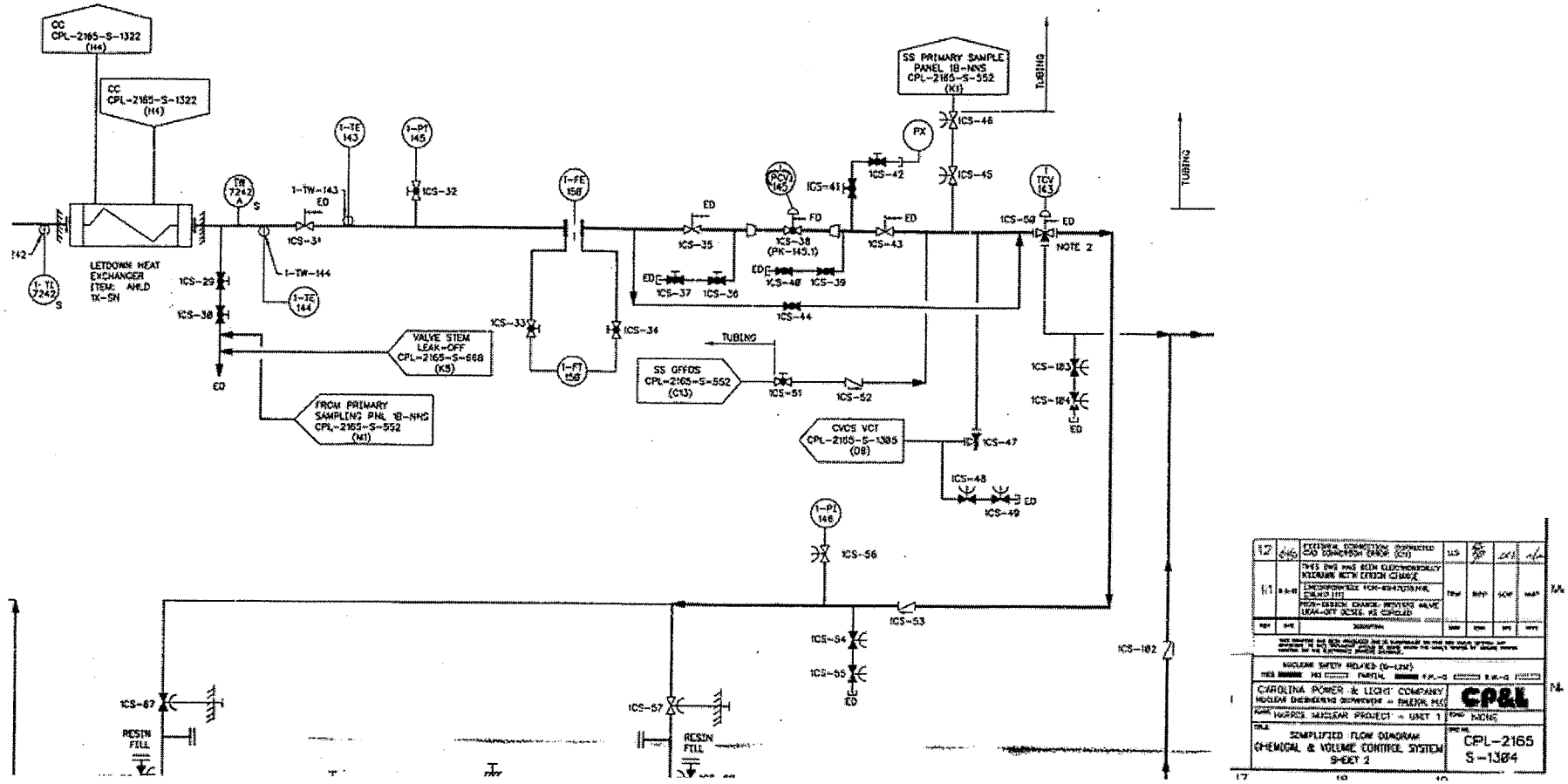
No.____ DAC____ % Activity_____ uCi/cc

QA Record

JPM CUE SHEET



JPM CUE SHEET



Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility:	Shearon-Harris	Task No.:	345001H602
Task Title:	Classify an EAL	JPM No.:	2013 NRC Exam Admin JPM SRO A4
K/A Reference:	G2.4.41 RO 2.9 SRO 4.6	**Alternate Path: No**	

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing: **This JPM can be performed in any setting with the required references available.**

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:	**This is a two (2) part TIME CRITICAL JPM where each part will be timed separately.** Given the following plant conditions: • The plant is in Mode 1 • Wind speed is 10 mph and wind direction is 265 degrees • A-SA Safety train is in service • AOP-016 is being performed due to a 12 gpm leak in C SG The following occurs at 1115: • Offsite Power is lost • Reactor trips on undervoltage for all 3 RCPs • SG A Pressure – 598 psig • SG B Pressure – 595 psig • SG C Pressure – 603 psig • Containment pressure stabilizes at 3.6 psig At 1120: • BOP reports 1BD-39, Stm Gen C Inside Bldn Isol. and 1BD-49, Stm Gen C Outside Bldn Isol failed to close automatically or manually • Sanford Substation Maintenance reports that their truck brakes failed and it has crashed into Breaker 52-13 damaging the breaker and the connecting transmission lines The time is now 1125

Initiating Cue:	Part 1: Evaluate the EAL Matrix and determine the highest classification required for these plant conditions. **NOTE: Do not use SEC judgment. NOTE: Write out EAL classification in blank provided then raise your hand and return your page to the Evaluator.** Part 2: Based on your EAL classification complete the "Nuclear Power Plant Emergency Notification" form. WEB EOC is NOT available.

6/2/13

Task Standard: Classify the highest EAL as an Alert HA1.6 and ENF correctly filled out.

Required Materials: None

General References: PEP-110 EAL Matrix
PEP-110
EP-EAL (allowed reference)
PEP-310 Attachment 9 ENF Form

Handouts:
- Attached Initial Conditions
- PEP-110
- PEP-110 EAL Matrix
- EP-EAL

Time Critical Task: YES – 15 minutes for classification.
YES – 15 minutes to complete ENF

Validation Time: 15 minutes for classification
15 minutes to complete ENF

CRITICAL STEP JUSTIFICATION	
Step 2	Classification of the event is critical for determining State and County notifications, public information notices, site information notices, and event reportability to the Nuclear Regulatory Commission.
Step 4	Attachment 9 has been completed correctly.
ENF	Form must be filled out correctly. The critical lines are identified on Page 7 of this JPM. Each line must be filled out correctly and are critical based on HNP EP and NEI 99-02 Rev. 6 Standards.

Evaluator Cue:	**Start Time for this portion of JPM begins when the individual has been briefed.**

START TIME: _____

Performance Step: 1 OBTAINS EP-EAL and EAL Matrix.

Standard : Obtains EP-EAL and EAL Matrix

Comments:

✓ **Performance Step: 2** Identify EAL Classification for events in progress.

Standard : The correct EAL is: **Alert HA1.6**

Vehicle crash resulting in **EITHER**:
Visible damage (Note 4) to **any** Table H-1 structure containing systems or components required for safe shutdown of the plant
OR
Control Room indication of degraded performance of systems required for the safe shutdown of the plant (Table H-1)

Comments:

Terminating Cue:	**Event classification sheet provided to evaluator.**

STOP TIME: _____

Examiners Cue:	**After the candidate returns this JPM classification page state:** **Now based on your EAL classification complete the "Nuclear Power Plant Emergency Notification" form.** **WEB EOC is not available.**

Emergency Action Levels

Attachment 1 – Emergency Action Level Technical Bases

Category: H – Hazards

Subcategory: 1 – Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting Vital Areas

EAL:

HA1.6 Alert

Vehicle crash resulting in EITHER:

Visible damage (Note 4) to any Table H-1 structure containing systems or components required for safe shutdown of the plant

OR

Control Room indication of degraded performance of systems required for the safe shutdown of the plant (Table H-1)

Note 4: Visible Damage is:

- Damage to equipment or structure that is readily observable without measurements, testing, or analysis
- Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component
- Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering

Visible Damage does not include surface blemishes (e.g., paint chipping, scratches)

Table H-1 Structures Containing Safe Shutdown Equipment

- Containment
- Reactor Auxiliary Building
- Fuel Handling Building
- Waste Processing Building
- Turbine Building (including Transformer Area)
- Emergency Diesel Generator Building
- Diesel Fuel Oil Storage Building (DFOST)
- ESW Intake Structure
- Auxiliary Reservoir Intake Structure
- NSW Structure
- Switchyard
- Yard 261 Duct Banks (underground raceways containing Safe Shutdown power, control and instrument cables) serving any of the above areas

Emergency Action Levels

Attachment 1 – Emergency Action Level Technical Bases

Mode Applicability:

All

Basis:

Generic

The occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

This EAL addresses vehicle crashes within the PROTECTED AREA that results in VISIBLE DAMAGE to VITAL AREAS or indication of damage to safety structures, systems, or components containing functions and systems required for safe shutdown of the plant.

Plant-Specific

The Table H-1 structures were obtained from the HNP safe shutdown analysis. Equipment within the Turbine Building that is important for safe shutdown of the plant includes the components required to bring offsite power into the plant 6.9 KV buses, and the ability of the 250 VDC system to supply the 60 KVA inverter. Equipment in the Yard 261 Duct Banks includes components needed to bring offsite power into the plant 6.9 KV buses and underground cables and piping for the ESW, EDG and NSW systems. (ref. 1, 2, 3)

This EAL is intended to address crashes of vehicle types large enough to cause significant damage to plant structures containing functions and systems required for safe shutdown of the plant. Vehicle types include automobiles, aircraft, trucks, cranes, forklifts, waterborne craft, etc.

HNP Basis Reference(s):

1. FSAR 3.3.1.1
2. AP-300 Severe Weather Response
3. DBD-318 Meteorological and Environmental Monitoring System
4. AOP-036, Safe Shutdown Following A Fire
5. FSAR 7.4

Evaluator Cue:	**Start Time for this portion of JPM begins when the individual has been provided the ENF form.** **After the candidate returns the EAL classification page then provide them with a blank copy of PEP-310 Attachment 9, Nuclear Power Plant ENF to fill out manually. The clock starts when the candidate has the form.**

START TIME: _____

Performance Step: 3 Determines that PEP-310 attachment 9, Nuclear Power Plant ENF is required.

Standard: Locates PEP-310 attachment 9 on computer. Then when provided a blank ENF form by Evaluator completes the form manually.

Comments:

✓ **Performance Step: 4** Completes PEP-310 Attachment 9 **(see key for critical steps)**

Standard: PEP-310 Attachment 9 filled out correctly. Returns form to Evaluator.

Comments:

Terminating Cue:	**ENF form completed and provided to evaluator.**

STOP TIME: _____

Examiners Cue:	**After the candidate returns the ENF form record the stop time and then announce END of JPM.**

Justification for critical steps of the ENF notification form can be found in the LOCT Performance Evaluation grading guidance. This guidance has been approved by EP and the latest revision is dated 7/4/10.

The standards for timely and accurate Emergency Action level (EAL) Classification development, Protective Action Recommendations (PARs) development and EAL and PARs Notifications are set forth in NEI 99-02 (Revision 6), Regulatory Assessment Performance Indicator Guideline.

NOTE: The following (line numbers) are applicable to the Emergency Notification Form (ENF)

(For the 2013 NRC Exam Admin JPM SRO A4 the following ENF lines must be correctly filled out and are therefore critical)

Initial Emergency Notification Form (ENF) completed apropriate to the event to include:

- (Line 1) – Whether the event is a drill or actual event
- (Line 4) – Class of emerency
- (Line 4) – EAL number
- (Line 4) – Description of emergency (EAL description)
- (Line 5) – Whether offsite protective measures (PARs) are necessary
- (Line 5) – Potentially affected population and areaas (Correct EPZ subzone information)
- (Line 6) – Whether a release is taking place
- (Line 9) – Wind direction and speed
- (Line 10) – Date and time of declartion of emergency
- (Line 11 or Line 3) – Plant and/or unit as applicable

Examiners NOTE:	Line 10 - Maximum classification declaration time is 1140 Line 17 - Maximum Event notification time is 1155

Attachment 9 - Nuclear Power Plant Emergency Notification Form

1. [A] DRILL [B] ACTUAL EVENT MESSAGE # 1
2. [A] INITIAL [B] FOLLOW-UP NOTIFICATION: TIME _____ DATE ___/___/___ AUTHENTICATION # _____
3. SITE: HNP Confirmation Phone # (919) 362-2157

4. EMERGENCY CLASSIFICATION: [A] UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY
BASED ON EAL # HA1.6 EAL DESCRIPTION: ALERT due to a vehicle crash resulting in Control Room indication of degraded performance of systems required for safe shutdown of the plant (Table H-1)

5. PROTECTIVE ACTION RECOMMENDATIONS: [A] NONE
[B] EVACUATE _____
[C] SHELTER _____
[D] CONSIDER THE USE OF KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.
[E] OTHER _____

6. EMERGENCY RELEASE: [A] None [B] Is Occurring [C] Has Occurred

7. RELEASE SIGNIFICANCE: [A] Not applicable [B] Within normal operating limits [C] Above normal operating limits [D] Under evaluation
8. EVENT PROGNOSIS: [A] Improving [B] Stable [C] Degrading
9. METEOROLOGICAL DATA: Wind Direction* from 265 degrees Wind Speed* 10 mph
(*Not Required for Initial Notifications) Precipitation* _____ Stability Class* [A] [B] [C] [D] [E] [F] [G]
10. [A] DECLARATION [B] TERMINATION Time XXXX Date Today's Date
11. AFFECTED UNIT(S): [A] 1 [B] 2 [C] 3 [D] All
12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)
[A] U1 ____% Power Shutdown at Time XXXX Date Today's Date
[B] U2 ____% Power Shutdown at Time _____ Date ___/___/___
[C] U3 % Power Shutdown at Time Date / /

13. REMARKS: _____

FOLLOW-UP INFORMATION (Lines 14 through 16 Not Required for Initial Notifications)

EMERGENCY RELEASE DATA. NOT REQUIRED IF LINE 6 A 13 SELECTED.

14. RELEASE CHARACTERIZATION: TYPE: [A] Elevated [B] Mixed [C] Ground UNITS: [A] Ci [B] Ci/sec [C] µCi/sec
MAGNITUDE: Noble Gases: _____ Iodines: _____ Particulates: _____ Other: _____
FORM: [A] Airborne Start Time _____ Date ___/___/___ Stop Time _____ Date ___/___/___
[B] Liquid Start Time _____ Date ___/___/___ Stop Time _____ Date ___/___/___

15. PROJECTION PARAMETERS: Projection period _____ Hours Estimated Release Duration _____ Hours
Projection performed: Time _____ Date ___/___/___

16. PROJECTED DOSE

DISTANCE	TEDE (mrem)	Adult Thyroid CDE (mrem)
Site boundary		
2 Miles		
5 Miles		
10 Miles		

17. APPROVED BY: Name Title MCR-SEC Time XXXX Date Today's Date
NOTIFIED BY: _____ RECEIVED BY: _____ Time _____ Date ___/___/___

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2013 NRC Exam Admin JPM SRO A4
Classify an Event and Complete the ENF.

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Name: _____

Date: _____

Initial Conditions:	**This is a two (2) part TIME CRITICAL JPM where each part will be timed separately.** Given the following plant conditions: • The plant is in Mode 1 • Wind speed is 10 mph and wind direction is 265 degrees • A-SA Safety train is in service • AOP-016 is being performed due to a 12 gpm leak in C SG The following occurs at 1115: • Offsite Power is lost • Reactor trips on undervoltage for all 3 RCPs • SG A Pressure – 598 psig • SG B Pressure – 595 psig • SG C Pressure – 603 psig • Containment pressure stabilizes at 3.6 psig At 1120: • BOP reports 1BD-39, Stm Gen C Inside Bldn Isol. and 1BD-49, Stm Gen C Outside Bldn Isol failed to close automatically or manually • Sanford Substation Maintenance reports that their truck brakes failed and it has crashed into Breaker 52-13 damaging the breaker and the connecting transmission lines The time is now 1125

Initiating Cue:	Part 1: Evaluate the EAL Matrix and determine the highest classification required for these plant conditions. **NOTE: Do not use SEC judgment.** **NOTE: Write out EAL classification in blank provided then raise your hand and return your page to the Evaluator.** Part 2: Based on your EAL classification complete the "Nuclear Power Plant Emergency Notification" form. WEB EOC is NOT available.

EAL Classification:

EAL: _____