JPM TITLE: Perform RCS Leak Rate Determination

JPM NUMBER: PBN JPM P002.005a.COT **REV.** 6

TASK NUMBER(S) / TASK TITLE(S): P002.005.COT / Perform RCS Leak Rate Determinations

K/A NUMBERS: 009 EA 2.33 **K/A VALUE:** 3.3 / 3.8

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY:
☒ **RO** ☒ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** ☐ **OTHER:** _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: ☐ Perform: ☒

EVALUATION LOCATION: In-Plant: ☐ Control Room: ☐
Simulator: ☒ Other: ☒
Lab: ☐

Time for Completion: 20 Minutes Time Critical: ☐ Yes ☐ No

Alternate Path [NRC]: ☐ Yes ☒ No

Alternate Path [INPO]: ☐ Yes ☒ No

Developed by:	Instructor/Developer	Date
Reviewed by:	Instructor (Instructional Review)	Date
Validated by:	SME (Technical Review)	Date
Approved by:	Training Supervision	Date
Approved by:	Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☒	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☒	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☒
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☒	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☒	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☒	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☒
8.	Is the job level appropriate for the task being evaluated if required?	☒	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☒	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☒
11.	Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	☒	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☒	☐	☐
13.	Are all references identified, current, accurate, and available to the trainee?	☒	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☒	☐	☐
15.	Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	☒	☐	☐
16.	If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	☒	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

{C001}

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER REVIEWER	DATE DATE
Rev. 6	Updated for the 2017 NRC ILT Exam.				

SIMULATOR SET-UP: *(Only required for simulator JPMs)*

Simulator Setup Instructions:

1.
2.

SIMULATOR MALFUNCTIONS:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials:
1. OI-55, Primary Leak Rate Calculation
2. Calculator

General References:
1. OI-55, Primary Leak Rate Calculation
2. Technical Specifications

Task Standards: Accurately calculate RCS leakage and determine TSAC impact per OI-55.

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Unit 1 is operating at stable full reactor power with indications of a primary leak.
- The Letdown Gas Stripper (LDGS) is bypassed per OI-17, Letdown Gas Stripper Operation.
- AOP-1A Unit 1 Reactor Coolant Leak was entered and is currently in progress.
- The PAB AO has reported the following Charging Pumps seal leak rates:
  - 1P-2A = 15 cc/min
  - 1P-2B = 5 cc/min
  - 1P-2C = 25 cc/min
- Steam Generator Tube Leakage (SGTL) LR_{SGTL} = 0
- Reactor Component Leak Rate LR_{RC} = 0
- Non RCPB Leakage LR_{P3} = 0
  - The following plant parameters were observed at time 0400:
    - RCS Tavg 575.6 °F
    - RCS T(Terr) 0 °F
    - PZR Level 46.0 %
    - VCT Level 45.0 %
    - U1 PRT level 74.7%
    - U1 RCDT Level 52 %
  - The following plant parameters were observed at time 0420:
    - RCS Tavg 575.6 °F
    - RCS T(Terr) 0 °F
    - PZR Level 45.5%
    - VCT Level 43.5 %
    - U1 PRT level 74.7%
    - U1 RCDT Level 52.5 %
- No borations, dilutions or diverts to HUT took place.
- There is no Chemistry sampling in progress.

INITIATING CUES (IF APPLICABLE):

OS1 directs you to perform OI-55, Primary Leak Rate Calculation

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a "Y" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 **Critical N**	5.5 **IF** the Unit is in Mode 1, 2, 3, or 4, **THEN** determine RCS Leak Rate as follows: 5.5.1 **RECORD** initial set of parameter readings on Attachment A, Primary Leak Rate Worksheet
Standard:	The examinee determines the Unit is in Mode 1 per initial conditions. Records data in Attachment A, Section 2.0
Evaluator Note:	• See JPM Step 10. • No action is required for procedure step 5.5.2 because the parameter readings are given.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 2 **Critical N**	5.5.3 Using the same instrumentation channels as for the first set of readings, **RECORD** second set of parameter readings when T (error) meter is the same as in initial data set.
Standard:	None, the second set of data is given to the examinee per initial conditions.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Evaluator Note:	See JPM Step 10.
Comments:	_____

Performance Step: 3 **Critical N**	5.5.4	**IF** dilution or boration took place, **THEN CORRECT** the leak rate by using the different totalizer readings.
Standard:	The examinee determines no dilution or boration took place.	
Evaluator Cue:	**IF** asked, **THEN** remind the examinee that no boration or dilution occurred as delineated per the initial conditions.	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____	
Comments:	_____	

Performance Step: 4 **Critical N**	5.5.5	**IF** operator timed manual full divert was used, **THEN CALCULATE** the number of gallons diverted by multiplying the letdown flow in gpm times minutes diverted.
Standard:	The examinee determines no divert took place.	
Evaluator Cue:	**IF** asked, **THEN** remind the examinee that no diverts took place as delineated per the initial conditions.	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____	
Comments:	_____	

Performance Step: 5 **Critical N**	5.5.6	**QUANTIFY** known contributors to RCS Identified leakage during performance of RCS leak rate calculation.
Standard:	The examinee calculates Identified RCS Leak Rate	
Evaluator Cue:	**IF** asked, **THEN** refer the examinee to INITIAL CONDITIONS.	
Evaluator Note:	Recorded in Attachment A, Section 4.1, See JPM Step 14	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____	
Comments:	_____	

Performance Step: 6 **Critical N**	5.5.7	**QUANTIFY** known non-RCPB leakage during performance of RCS leak rate calculation.
Standard:	The examinee calculates Non Reactor Coolant Pressure Boundary leakage.	
Evaluator Cue:	**IF** asked, **THEN** refer the examinee to INITIAL CONDITIONS.	
Evaluator Note:	Recorded in Attachment A, Section 4.2, See JPM Step 15	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____	
Comments:	_____	

Performance Step: 7 **Critical N**	5.5.8	**CALCULATE** and **RECORD** leak rate.
Standard:	The examinee calculates RCS Unidentified leakage.	
Evaluator Note:	Recorded in Attachment A, Section 4.3, See JPM Step 16	
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____	
Comments:	_____	

Performance Step: 8 **Critical N**	Attachment A 1.0 MONITOR AND MAINTAIN the following during the performance of this test: 1.1 Reactor Power Stable.
Standard:	The examinee verifies reactor power stable.
Evaluator Note:	Per initial conditions, reactor power has not changed.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 9 **Critical N**	Attachment A 1.2 The Letdown Gas Stripper (LDGS) meets ONE of the following: 1.2.1 The LDGS is operating normally with controls in AUTO **AND** with no level adjustments being made 1.2.2 The LDGS is bypassed per OI-17, Letdown Gas Stripper Operation
Standard:	Determine LDGS is bypassed from given initial conditions.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step:10 **Critical N**	Attachment A 2.0 **RECORD** the following data: **RCS LEAK RATE DATA**
Standard:	The examinee records data accurately from the initial conditions and calculates the results. • Time change 20 minutes • RC T_{error} (Terr) change is 0°F • PZR Level change is 0.5 % = 32.45 gal. • VCT Level change is 1.5 % = 18.96 gal.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 11 **Critical N**	Attachment A 2.0 **RECORD** the following data: **RMW AND BA ADDITIONS**
Standard:	The examinee N/As this step as it does not apply
Evaluator Note:	Per the initial conditions, no RMW or acid additions occurred.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 12 **Critical N**	Attachment A 2.0 **RECORD** the following data: **DIVERT**
Standard:	The examinee N/As this step as it does not apply
Evaluator Note:	Per the initial conditions, no diverts occurred.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 13 **Critical Y**	Attachment A 3.0 Calculate RCS leak rate: **CALCULATED RCS LEAK RATE**
Standard:	The examinee calculates RCS leak rate of 2.571 gpm (2.50 to 2.70 gpm).
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 14 **Critical Y**	Attachment A 4.0 **CALCULATE** RCS Unidentified Leak Rate as follows: 4.1 **CALCULATE** Identified RCS Leak Rate: **IDENTIFIED RCS LEAK RATE DATA**
Standard:	• Time change 20 minutes • PRT Level change 0 gpm • RCDT Level change 0.088 gpm • SG Tube Leakage (LR_{SGTL}) 0 gpm • Reactor Component Leak Rate (LR_{RC}) 0 gpm • RCS Identified Leak Rate (LR_{ID}) of 0.088 gpm (0.08 to 0.10 gpm).
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 15 **Critical Y**	Attachment A 4.0 **CALCULATE** RCS Unidentified Leak Rate as follows: 4.2 **CALCULATE** Non Reactor Coolant Pressure Boundary : **Non Reactor Coolant Pressure Boundary**
Standard:	• Charging Pump Seals (LR_{P2}) 0.012 gpm (0.010 to 0.014 gpm) • Non RCPB Leakage (LR_{P3}) 0 gpm
Evaluator Note:	1P-1A, 1P-2B and 1P-2C Charging Pumps have pre-identified leakage of 15 cc/min, 5 cc/min and 25 cc/min respectively.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 16 **Critical Y**	Attachment A 4.0 **CALCULATE** RCS Unidentified Leak Rate as follows: 4.3 **CALCULATE** RCS Unidentified leakage: **UNIDENTIFIED RCS LEAK RATE**
Standard:	The examinee calculates Unidentified Leak Rate (LR_{UID}) 2.471 gpm (2.450 to 2.500 gpm)
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 17 **Critical N**	Attachment A 5.0 Primary Leak Rate calculation COMPLETE. 6.0 Primary Leak Rate calculation review COMPLETE.
Standard:	The examinee indicates that the leak rate calculation is complete and provided Attachment A to SRO for review.
Evaluator Cue:	Inform the examinee that the SRO review of the leak rate calculation is complete and to continue with OI 55.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 18 **Critical N**	5.6 **IF** the Unit is in Mode 5, **THEN** perform Attachment B, Cold Shutdown Primary Leak Rate Worksheet as follows:
Standard:	The examinee should determine this step is not applicable.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 19 **Critical N**	5.7 **IF** the plant is in Mode 1 through 4, **AND** Pressure Boundary leakage is detected, **THEN ENTER** Technical Specification LCO 3.4.13 Action Condition B.
Standard:	The examinee should determine that action condition entry is not required at this time.
Evaluator Cue:	Relief crew is preparing for a containment entry to inspect for pressure boundary leakage.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 20
Critical N

5.8 **IF** RCS Unidentified Leakage shows a significantly increasing trend, **OR** reaches 0.15 gpm, **THEN** PERFORM the following actions:

5.8.1 **INFORM** the Shift Manager and Duty Station Manager.

5.8.2 **CHECK** the following at least once per hour:

a. Containment particulate monitor (RE 211) high and low values.

b. Containment radiogas monitor (RE 212) high and low values.

c. Containment humidity.

5.8.3 **PERFORM** the RCS leakrate calculation of Section 5.5 or 5.6 as applicable at least once per shift.

5.8.4 **OBTAIN** a sump A sample and have Chemistry analyze to aid in determining the source of leakage.

5.8.5 **DIRECT** Chemistry to sample and analyze Containment atmosphere for hydrogen content and **REPORT** the results to the SM.

5.8.6 **NOTIFY** Engineering to review Containment Air Cooler performance and cleaning frequencies to determine if an adverse long term trend exists.

5.8.7 **IF** a containment inspection is warranted to localize the source of leakage, **THEN** the inspection should consist of the following:

a. Evidence of steam in containment.

b. Wetness on the floor.

c. Boric Acid deposits.

d. Abnormal packing or gasket leakage.

Note: A thorough examination should be performed of the reactor vessel head using binoculars or other methods allowed by RP.

e. Reactor vessel head locations as permitted by Health Physics.

Evaluator Cue: Shift Manager will have OS2 address actions contained in step 5.8

Standard: The examinee identifies actions required as listed by procedure

Performance: **SATISFACTORY** _____ **UNSATISFACTORY** _____

Comments: _____

Performance Step: 21 **Critical N**	5.9 **IF** the RCS leak rate approaches 0.20 gpm and the cause is known, **THEN** the priority of the work order associated with the contributor SHALL be increased.
Standard:	The examinee should determine that this step is not applicable because the cause of the leakage is unknown.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 22 **Critical Y**	5.10 **IF** the plant is in Mode 1 through 4, **AND** Unidentified Leakage exceeds one gpm, **THEN ENTER** Technical Specification LCO 3.4.13 Action Condition.
Standard:	The examinee identifies RCS unidentified leakage >1 gpm is in excess of limit for Technical Specifications LCO 3.4.13.
Evaluator Cue:	**If not discussed by the examinee, prompt the examinee to identify Technical Specification applicability.**
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 23 **Critical N**	5.11 **IF** Unidentified Leakage is greater than 1.0 gpm **OR** Identified Leakage is greater than 10 gpm, **THEN INITIATE** AOP 1A, Reactor Coolant Leak.
Standard:	The examinee identifies that AOP 1A is already in effect, per initial conditions.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Performance Step: 24 **Critical N**	5.12 **IF** the plant is in Mode 1 through 4, **AND** Identified Leakage exceeds 10 gpm, **THEN ENTER** Technical Specification LCO 3.4.13 Action Condition.
Standard:	The examinee identifies RCS identified leakage is less than 10 gpm.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	_____

Terminating Cues: **JPM is complete.**

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** **Date:** _____

☐ **LOIT RO** ☐ **LOIT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 1 is operating at stable full reactor power with indications of a primary leak.
- The Letdown Gas Stripper (LDGS) is bypassed per OI-17, Letdown Gas Stripper Operation.
- AOP-1A Unit 1 Reactor Coolant Leak was entered and is currently in progress.
- The PAB AO has reported the following Charging Pumps seal leak rates:
  - 1P-2A = 15 cc/min
  - 1P-2B = 5 cc/min
  - 1P-2C = 25 cc/min
- Steam Generator Tube Leakage (SGTL) $LR_{SGTL} = 0$
- Reactor Component Leak Rate $LR_{RC} = 0$
- Non RCPB Leakage $LR_{P3} = 0$
  - The following plant parameters were observed at time 0400:
    - RCS Tavg 575.6 °F
    - RCS T(Terr) 0 °F
    - PZR Level 46.0 %
    - VCT Level 45.0 %
    - U1 PRT level 74.7%
    - U1 RCDT Level 52 %
  - The following plant parameters were observed at time 0420:
    - RCS Tavg 575.6 °F
    - RCS T(Terr) 0 °F
    - PZR Level 45.5%
    - VCT Level 43.5 %
    - U1 PRT level 74.7%
    - U1 RCDT Level 52.5 %
- No borations, dilutions or diverts to HUT took place.
- There is no Chemistry sampling in progress.

INITIATING CUES (IF APPLICABLE):

OS1 directs you to perform OI-55, Primary Leak Rate Calculation

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM TITLE: Perform TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1

JPM NUMBER: PBN JPM P083.019b.COT **REV.** 1

TASK NUMBER(S) / TASK TITLE(S): PBN P083.019.COT / Operate the PPCS Keyboard

K/A NUMBERS: 2.1.19 **K/A VALUE:** 3.9 / 3.8

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY:
☒ **RO** ☒ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** ☐ **OTHER:** _____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]
Simulator: [X] Other: [ ]
Lab: [ ]

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No
Alternate Path [INPO]: No

Developed by:	Instructor/Developer	Date
Reviewed by:	Instructor (Instructional Review)	Date
Validated by:	SME (Technical Review)	Date
Approved by:	Training Supervision	Date
Approved by:	Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☒	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☒	☐	☐
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4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☒	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☒	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☒	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☒
8.	Is the job level appropriate for the task being evaluated if required?	☒	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☒	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☒
11.	Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	☒	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☒
13.	Are all references identified, current, accurate, and available to the trainee?	☒	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☒	☐	☐
15.	Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	☒	☐	☐
16.	If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	☒	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER SUPERVISOR	DATE DATE
Rev. 1	Updated for the 2017 NRC ILT Exam.				

SIMULATOR SET-UP: *(Only required for simulator JPMs)*

SIMULATOR SETUP INSTRUCTIONS:

- Any at power IC where you can access the 1C20 panel and PPCS to perform applicable portions of TS-32.

SIMULATOR MALFUNCTIONS:
None

SIMULATOR OVERRIDES:
None

SIMULATOR REMOTE FUNCTIONS:
None

Required Materials:	Partial TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1 to perform section 5.2 manually entering data from PPCS. Steam Tables and Calculator
General References:	TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1
Task Standards:	Record data and perform calculations to determine that the subcooling margin monitoring system for the Yellow channel CET's is operating within acceptance criteria.

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- Both Units are at rated power.
- PPCS Yellow Core Exit Thermocouple indications were acting erratically and have since been repaired.
- You are the 3rd License.
- Spreadsheet is unavailable due to programming issues.
- PPCS is available.

INITIATING CUES:

- OS1 has directed you to perform a partial TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1 for Post Maintenance Testing of Yellow CET's starting with Step 5.2.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a "Y" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 **Critical N**	5.2.3 **IF** PPCS is available, **THEN RECORD** data on Attachment A, Subcooling Margin Monitoring System Data Sheet, Table 1.
Standard:	The examinee accurately records required data from PPCS in Table 1.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 2 **Critical N**	5.2.4 **ENSURE** the following ASIP Panel switches are **SET** to the TC position. • 1TSS-971, RC Loop B Subcooling Monitor Selector
Standard:	The examinee verifies the switch is in the TC position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 3 **Critical N**	5.2.5 **RECORD** Core Exit Thermocouples based Subcooling margin on Attachment A, Subcooling margin Monitoring System Data Sheet, Table 2. • 1TI-971
Standard:	The examinee accurately records data in Table 2.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 4 **Critical Y**	5.2.6 **PLACE** the following ASIP Panel switches to RTD position. • 1TSS-971, RC Loop B Subcooling Monitor Selector
Standard:	The examinee places the subcooling monitor switch to the RTD position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 5 **Critical N**	5.2.7 **RECORD** RTD based Subcooling margin on Attachment A, Subcooling margin Monitoring System Data Sheet, Table 2. • 1TI-971
Standard:	The examinee accurately records data in Table 2.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 6 **Critical Y**	5.2.8 **PLACE** the following ASIP Panel switches to TC position. • 1TSS-971, RC Loop B Subcooling Monitor Selector
Standard:	The examinee places the subcooling monitor switch to the TC position.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 7 **Critical Y**	5.2.9 **IF** PPCS is available, **THEN PERFORM the following.** a. **RECORD** data on Attachment A, Subcooling Margin Monitoring System Data Sheet, Table 2 • PPCS calculated Core Exit Thermocouples based Subcooling margin using points TC-970 and T-971C • PPCS calculated RTD based Subcooling margin using points T-970R and T-971R b. **COMPLETE** Attachment B, Calculations, using the data recorded in Attachment A, Subcooling Margin Monitoring System Data Sheet
Standard:	The examinee accurately records data in Table 2 and performs calculations in Attachment B.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 8 **Critical Y**	Attachment B 5.0 **PERFORM** a channel check for Core Exit Thermocouple based on subcooling margin: h. The difference between all three Yellow Channel values is less than or equal to 7.9°F
Standard:	The examinee determines that the difference between all three Yellow Channel values is less than or equal to 7.9°F.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 9 **Critical Y**	Attachment B 6.0 **PERFORM** a channel check for RTD based on subcooling margin: h. The difference between all three Yellow Channel values is less than or equal to 7.9°F
Standard:	The examinee determines that the difference between all three Yellow Channel values is less than or equal to 7.9°F.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 10 **Critical N**	5.2.10 **IF** the PPCS is **NOT** available, **THEN** PERFORM Attachment D, Subcooling Margin Monitor Checks With PPCS Unavailable.
Standard:	The examinee identifies that PPCS is available, then N/A's step.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 11 **Critical N**	5.2.11 **IF** any subcooling margin indication differs from its associated channel calculated subcooling margin by an amount greater than the tolerance listed for that channel, **THEN SUBMIT** an Action Request per PI-AA-204, Condition Identification and Screening Process, **AND NOTE** the discrepancy in the Remarks Section.
Standard:	The examinee identifies that the Yellow channel is within tolerance, no CAP is required and then N/A's step.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 12 Critical N	Complete TS-32, Miscellaneous Equipment Checks Monthly Unit 1 and informs OS of status.
Standard:	The examinee completes TS-32, Miscellaneous Equipment Checks Monthly Unit 1 and informs OS of status.
Evaluator Cue:	The OS acknowledges your report.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Terminating Cues: The JPM is complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** **Date:** _____

☐ **LOIT RO** ☐ **LOIT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- Both Units are at rated power.
- PPCS Yellow Core Exit Thermocouple indications were acting erratically and have since been repaired.
- You are the 3rd License.
- Spreadsheet is unavailable due to programming issues.
- PPCS is available.

INITIATING CUES:

- OS1 has directed you to perform a partial TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1 for Post Maintenance Testing of Yellow CET's starting with Step 5.2.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM TITLE: Perform Atmospheric Steam Dump Valve Train B Unit 1

JPM NUMBER: PBN JPM P039.005.COT **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN P039.005.COT / Dump steam through the atmospheric steam dump valves

K/A NUMBERS: 2.2.12
035 A3.02 **K/A VALUE:** 3.7 / 4.1
3.7 / 3.5

Justification (FOR K/A VALUES <3.0):

TASK APPLICABILITY:
☒ **RO** ☐ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** ☐ **OTHER:** ____

APPLICABLE METHOD OF TESTING: Simulate/Walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]
Simulator: [X] Other: [ ]
Lab: [ ]

Time for Completion: 20 Minutes Time Critical: No

Alternate Path [NRC]: No
Alternate Path [INPO]: No

Developed by:	Instructor/Developer	Date
Reviewed by:	Instructor (Instructional Review)	Date
Validated by:	SME (Technical Review)	Date
Approved by:	Training Supervision	Date
Approved by:	Training Program Owner	Date

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED PRIOR TO USE.

REVIEW STATEMENTS		YES	NO	N/A
1.	Are all items on the signature page filled in correctly?	☒	☐	☐
2.	Has the JPM been reviewed and validated by SMEs?	☒	☐	☐
3.	Can the required conditions for the JPM be appropriately established in the simulator if required?	☒	☐	☐
4.	Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☒	☐	☐
5.	Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☒	☐	☐
6.	Has the completion time been established based on validation data or incumbent experience?	☒	☐	☐
7.	If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☒
8.	Is the job level appropriate for the task being evaluated if required?	☒	☐	☐
9.	Is the K/A appropriate to the task and to the licensee level if required?	☒	☐	☐
10.	Is justification provided for tasks with K/A values less than 3.0?	☐	☐	☒
11.	Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	☒	☐	☐
12.	Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	☐	☐	☒
13.	Are all references identified, current, accurate, and available to the trainee?	☒	☐	☐
14.	Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☒	☐	☐
15.	Are all critical steps supported by procedural guidance? (e.g., if licensing, EP or other groups were needed to determine correct actions, then the answer should be NO.)	☒	☐	☐
16.	If the JPM is to be administered to an LOIT student, has the required knowledge been taught to the individual prior to administering the JPM? TPE does not have to be completed, but the JPM evaluation may not be valid if they have not been taught the required knowledge.	☒	☐	☐

All questions/statements must be answered "YES" or "N/A" or the JPM is not valid for use. If all questions/statements are answered "YES" or "N/A," then the JPM is considered valid and can be performed as written. The individual(s) performing the initial validation shall sign and date the cover sheet.

Protected Content: (CAPRs, corrective actions, licensing commitments, etc. associated with this material)

{C001}

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER SUPERVISOR	DATE DATE
Rev. 0	Developed for the 2017 NRC ILT Exam.				

SIMULATOR SET-UP: *(Only required for simulator JPMs)*

SIMULATOR SETUP INSTRUCTIONS:
- Load any IC with both units at 100%, steady state
- Use LOA1SGN026 [final value = 0 - close] to shut 1MS-244, HX-1B SG MS-2015 Dump to Atmosphere Inlet.
- Walk down control boards to verify plant conditions match initial conditions described by the JPM.
- Save to an IC for multiple use.

Multiple Uses:
- Load the saved IC for this JPM.
- Walk down the control boards to ensure plant conditions accurately reflect the JPM's initial conditions.
- Make any necessary adjustments or corrections.
- Update documentation if required.
- Resave if required.

SIMULATOR MALFUNCTIONS:
None

SIMULATOR OVERRIDES:
None

SIMULATOR REMOTE FUNCTIONS:
None

Required Materials: IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1
Stop watch

General References: IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1

Task Standards: Complete control room valve stroke timing in accordance with IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1.

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- You are the third license.
- IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 is in progress and completed through Step 5.1.2.
- There is an AO stationed locally at 1MS-244, HX-1B SG MS-2015 Dump To Atmospheric Inlet to support the test.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to continue with IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 beginning with Step 5.1.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

JPM PERFORMANCE INFORMATION

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

NOTE: Critical steps are marked with a "Y" below the performance step number. Failure to meet the standard for any critical step shall result in failure of this JPM.

Performance Step: 1 **Critical N**	5.1.3 **RECORD** 1PI-478, HX-1B SG Steam Pressure: _____ psig.
Standard:	The examinee records 1PI-478, HX-1B SG Steam Pressure.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 2 **Critical N**	5.1.4 **ENSURE** 1HC-478, SG "B" Atmospheric Steam Dump Controller, in AUTOMATIC.
Standard:	The examinee ensures 1HC-478, SG "B" Atmospheric Steam Dump Controller is in AUTOMATIC.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 3 **Critical N**	5.1.4 **ENSURE** 1HC-478, SG "B" Atmospheric Steam Dump Controller, in AUTOMATIC a. **ENSURE** 1HC-478, SG "B" Atmospheric Steam Dump Controller, set at 250 psig greater than "B Steam Generator pressure.
Standard:	The examinee ensures 1HC-478, SG "B" Atmospheric Steam Dump Controller is set 250 psig greater than "B Steam Generator pressure.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 4 **Critical N**	5.1.4 **ENSURE** 1HC-478, SG "B" Atmospheric Steam Dump Controller, in AUTOMATIC b. **RECORD** 1HX-478 Controller setting: _____ psig.
Standard:	The examinee records 1HX-478 Controller setting.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 5 **Critical Y**	5.1.4 **ENSURE** 1HC-478, SG "B" Atmospheric Steam Dump Controller, in AUTOMATIC c. **POSITION** 1HC-478 SG "B" Atmospheric Steam Dump manual control potentiometer to FULL OPEN.
Standard:	The examinee rotates the 1HC-478 SG "B" Atmospheric Steam Dump manual control potentiometer to full open. (Fully clockwise)
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 6 **Critical Y**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: a. **PLACE** 1HC-478, SG "B" Atmospheric Steam Dump Controller to MANUAL and **TIME** OPEN.
Standard:	The examinee: • Places 1HC-478, SG "B" Atmospheric Steam Dump Controller to MANUAL **AND** • Times the valve stroke to full open
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 7 **Critical N**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: b. **RECORD** required data on Attachment A.
Standard:	The examinee records the required data on Attachment A.
Evaluator Cue:	IF asked, report 1MS-2015 indicates OPEN locally.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 8 **Critical N**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: c. **NOTE** any indication (loud noise, etc) 1MS-244, HX-1B SG MS-2015 Dump To Atmospheric Inlet, is leaking by. 1. **RECORD** results in Attachment A.
Standard:	The examinee: • Checks with the AO stationed locally at 1MS-244, HX-1B SG MS-2015 Dump To Atmospheric Inlet for abnormal indications **AND** • Records results in Attachment A
Evaluator Cue:	**IF** asked, **THEN** report that 1MS-244, HX-1B SG MS-2015 Dump To Atmospheric Inlet is NOT leaking by.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 9 **Critical Y**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: d. **PLACE** 1HC-478, SG "B" Atmospheric Steam Dump Controller in AUTO and **TIME** SHUT.
Standard:	The examinee: • Places 1HC-478, SG "B" Atmospheric Steam Dump Controller in AUTO **AND** • Times the valve stroke to full shut
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 10 **Critical N**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: e. **RECORD** results in Attachment A.
Standard:	The examinee records the results in Attachment A.
Evaluator Cue:	IF asked, report 1MS-2015 indicates SHUT locally.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 11 Critical N	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: f. **POSITION** 1HC-478, SG "B" Atmospheric Steam Dump Controller manual control potentiometer to FULL SHUT.
Standard:	The examinee rotates the 1HC-478, SG "B" Atmospheric Steam Dump Controller manual control potentiometer to FULL SHUT.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 12 Critical N	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: g. **SET** 1HC-478, SG "B" Atmospheric Steam Dump Controller at 1050 psig and in AUTO
Standard:	The examinee sets 1HC-478, SG "B" Atmospheric Steam Dump Controller to 1050 psig.
Evaluator Note:	Evaluator to initial for Independent Verfication.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 13 **Critical Y**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: h. **EVALUATE** valve operability with acceptance criteria shown on Attachment A.
Standard:	The examinee evaluates valve operability with acceptance criteria shown on Attachment A.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Performance Step: 14 **Critical N**	5.1.5 Stroke time test of 1MS-2015, HX-1B SG Hdr Atmospheric Steam Dump Control, as follows: i. **IF** both the open and shut stroke times are within the listed IST band, **THEN N/A** remainder of steps 5.1.5 through 5.1.6, **AND PROCEED** to step 5.1.7.
Standard:	The examinee: • Determines that the open and stroke times are within the listed IST band, • N/A's the remaining steps 5.1.5 and 5.1.6 **AND** • Proceeds to Step 5.1.7.
Performance:	**SATISFACTORY** _____ **UNSATISFACTORY** _____
Comments:	

Terminating Cues: The JPM is complete.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

Stop Time: _____

Examinee: _____ **Evaluator:** _____

☐ **RO** ☐ **SRO** ☐ **STA** ☐ **Non-Lic** ☐ **SRO CERT** **Date:** _____

☐ **LOIT RO** ☐ **LOIT SRO**

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

Remediation required: **YES** ☐ **NO** ☐

COMMENTS/FEEDBACK: (Comments shall be made for any steps graded unsatisfactory).

EXAMINER NOTE: ENSURE ALL EXAM MATERIAL IS COLLECTED AND PROCEDURES CLEANED, AS APPROPRIATE.

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the third license.
- IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 is in progress and completed through Step 5.1.2.
- There is an AO stationed locally at 1MS-244, HX-1B SG MS-2015 Dump To Atmospheric Inlet to support the test.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to continue with IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 beginning with Step 5.1.3.

NOTE: Ensure the turnover sheet that was given to the examinee is returned to the evaluator.

RO Admin JPM 4 (Emergency Plan)

ACTIVATE ERDS

(Facility JPM Number: PBN JPM P083.019a.COT)

Exam material withheld from public disclosure due to proprietary content.