



JOB PERFORMANCE MEASURE

JPM TITLE: Review a RCS Leak Rate Determination

JPM NUMBER: PBN JPM P119.223e.SRO **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN P119.223.SRO / Review completed procedures

K/A NUMBERS: 2.1.7 **K/A VALUE:** 4.4 / 4.7

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: 15 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}



PBN JPM P119.223e.SRO, Review a RCS Leak Rate Determination, Rev. 0

JPM
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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	DATE
				REVIEWER	DATE
Rev. 0	Developed 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 (Procedure marked up as completed through step 5.5.8 and Attachment A completed through step 5.0)

2. Calculator

General References:

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

Task Standards: Review and identify errors associated with OI 55 Primary Leak Rate Calculation 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:

- You are OS2.
- 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 = 20 cc/min
 - 1P-2B = 15 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 45.7%
 - VCT Level 43.8 %
 - 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.
- C04 has completed OI 55 through Attachment A, Primary Leak Rate Worksheet, up to Step 6.0 and has presented it to you for your review.

INITIATING CUES (IF APPLICABLE):

- Review the Primary Leak Rate Worksheet
- Complete remaining steps of OI 55, Primary Leak Rate Calculation, starting at Step 5.6.

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	Attachment A
Critical N	2.0 RECORD the following data: RCS LEAK RATE DATA
Standard:	The examinee checks data accurately entered from the initial conditions and calculates the results. <ul style="list-style-type: none"> • Time change 20 minutes • RC T_{error} (Terr) change is 0°F • PZR Level change is 0.3 % = 19.47 gal. • VCT Level change is 1.2 % = 15.168 gal.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 2	Attachment A
Critical N	2.0 RECORD the following data: RMW AND BA ADDITIONS
Standard:	The examinee verifies that this step does not apply
Evaluator Note:	Per the initial conditions, no RMW or acid additions occurred.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 3	Attachment A
Critical N	2.0 RECORD the following data: DIVERT
Standard:	The examinee verifies that this step does not apply
Evaluator Note:	Per the initial conditions, no diverts occurred.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 4	Attachment A
Critical Y	3.0 Calculate RCS leak rate: CALCUALTED RCS LEAK RATE
Standard:	The examinee calculates RCS leak rate of 1.732 gpm (1.725 to 1.735 gpm) and determines that recorded RCS leak rate is in error.
Evaluator Note:	First error Time change of 30 min vice 20 min was used to calculate LR_{RCS} .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 5	Attachment A
Critical N	4.0 CALCULATE RCS Unidentified Leak Rate as follows: 4.1 CALCULATE Identified RCS Leak Rate: IDENTIFIED RCS LEAK RATE DATA
Standard:	The examinee checks data accurately entered from the initial conditions and calculates the results. <ul style="list-style-type: none"> • Time change 20 minutes • PRT Level change 0 gpm • The examinee calculates RCDT Level change of 0.088 gpm. • SG Tube Leakage (LR_{SGTL}) 0 gpm • Reactor Component Leak Rate (LR_{RC}) 0 gpm
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 6	Attachment A
Critical Y	4.0 CALCULATE RCS Unidentified Leak Rate as follows: 4.2 CALCULATE Non Reactor Coolant Pressure Boundary : Non Reactor Coolant Pressure Boundary
Standard:	<ul style="list-style-type: none"> • The examinee calculates Charging Pump Seals (LR_{P2}) of 0.016 gpm and determines the recorded value is in error. • Non RCPB Leakage (LR_{P3}) 0 gpm
Evaluator Note:	Second error Charging pump seal leakage was miscalculated by a factor of 10.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 7	Attachment A
Critical Y	4.0 CALCULATE RCS Unidentified Leak Rate as follows: 4.3 CALCULATE RCS Unidentified leakage: UNIDENTIFIED RCS LEAK RATE
Standard:	Based on corrected values, the examinee recalculates Unidentified Leak Rate (LR _{UID}) to be 1.628 gpm (1.625 to 1.635 gpm) rather than the original value of 0.909 gpm. (errors carried forward)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 8	5.6 IF the Unit is in Mode 5, THEN perform Attachment B, Cold Shutdown Primary Leak Rate Worksheet as follows:
Critical N	
Standard:	The examinee verifies that this step is not applicable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 9	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.
Critical N	
Standard:	The examinee verifies that the 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: 10 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: 11 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.
Critical N

Standard: The examinee verifies that this step is not applicable because the cause of the leakage is unknown.

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

Comments: _____

Performance Step: 12 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.
Critical Y

Standard: The examinee identifies RCS unidentified leakage >1 gpm is in excess of limit for Technical Specifications LCO 3.4.13.

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

Comments: _____

Performance Step: 13 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.
Critical N

Standard: The examinee identifies that AOP 1A is already in effect, per initial conditions.

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

Comments: _____

Performance Step: 14 5.12 **IF** the plant is in Mode 1 through 4, **AND** Identified Leakage **Critical N** 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: _____

TURNOVER SHEET**INITIAL CONDITIONS:**

- You are OS2.
- 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 = 20 cc/min
 - 1P-2B = 15 cc/min
 - 1P-2C = 25 cc/min
- Steam Generator Tube Leakage (SGTL) $LR_{SGTL} = 0$
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 - PZR Level 45.7%
 - VCT Level 43.8 %
 - 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.
- C04 has completed OI 55 through Attachment A, Primary Leak Rate Worksheet up to Step 6.0 and has presented it to you for your review.

INITIATING CUES (IF APPLICABLE):

- Review the Primary Leak Rate Worksheet
- Complete remaining steps of OI 55, Primary Leak Rate Calculation, starting at Step 5.6.

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



JOB PERFORMANCE MEASURE

JPM

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JPM TITLE: Complete a Calculation Review of TS 32

JPM NUMBER: PBN P119.203d.SRO **REV.** 1

TASK NUMBER(S) / TASK TITLE(S): P119.203.SRO
Maintain Required Logs and Records

K/A NUMBERS: 2.2.23 **K/A VALUE:** 4.6

Justification (FOR K/A VALUES <3.0): N/A

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: 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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.

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{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	DATE
				SUPERVISOR	DATE
Rev. 0	New JPM				
Rev. 1	Updated for the 2017 NRC ILT Exam.				

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

SIMULATOR SETUP INSTRUCTIONS:

SIMULATOR MALFUNCTIONS:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: TS 32, Miscellaneous Equipment Checks (Monthly) Unit 1
Calculator
Steam Tables

General References: TS 32, Miscellaneous Equipment Checks (Monthly) Unit 1

Task Standards: Identify discrepancies (two) not properly noted by the Control Operator, and determine that test results for CET based subcooling margin are NOT 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.
- UNIT 1 PPCS Yellow Core Exit Thermocouple indications were acting erratically and have since been repaired.
- PPCS is available.
- CO3 just completed a partial TS 32, Miscellaneous Equipment Checks (Monthly) Unit 1, Attachment B, Calculations.
- CO3 has just requested that you conduct the SRO review for the completed TS 32, Attachment B.

INITIATING CUES:

- You are directed you to perform the SRO review of TS 32, Attachment B.

Evaluator Note: This JPM requires supplying a copy of TS 32 filled out up to the applicable steps of the procedure and Attachment A and B. Provide a calculator and steam tables if the JPM is not conducted in the simulator or control room.

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.

NOTE: Will need to provide the student with a copy of TS 32 completed through steps to conduct attachment A and B for the Yellow Subcooling channel on tan paper; and a calculator if one is not readily available.

Performance Step: 1 Critical <u>N</u>	Reviews Procedure and Attachments
Standard:	The examinee reviews TS 32 prior to beginning calculation verification
Evaluator Note:	Provide a copy of TS 32 with required steps and Attachments A and B for Yellow Subcooling monitor being completed
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 2 Critical <u>N</u>	Reviews Attachment B calculations prior to signing that review is complete.
Standard:	Reviews Attachment B calculations and determines that errors exist
Evaluator Note:	The next three JPM steps list the errors that are in the attachment, it is not critical that the errors be discovered in the order listed in the JPM, but all three must be identified.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 3 Critical <u>Y</u>	Reviews procedure step: 2.0 DETERMINE average Core Exit Thermocouple temperature for each channel: b. T/C Yellow Channel.
Standard:	The examinee determines that "T/C Avg" was calculated incorrectly. The examinee calculates a correct value for "T/C Avg" of 604.4°F, and corrects the error carried forward to Steps 3.b. and 5.e. based on this result.
Evaluator Cue:	If notified of error in calculation then acknowledge report and ask student to continue with performance of the procedure. The error may not be reported until review is completed.
Evaluator Note:	For Step 2.b the acceptable range =603.7 to 604.8°F For Step 3.b and 5.e: °F _{SUBCOOLED} = 49.7°F (Acceptable range = 49.3 to 50.4°F)
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 4 Critical <u>Y</u>	Review procedure step: 5.0 PERFORM a channel check for Core Exit Thermocouple based subcooling margin:
Standard:	The examinee determines that at Step 5.g. the wrong value was entered, and enters the correct value of 40.9°F from Table 2.
Evaluator Cue:	If notified of error, then acknowledge report and ask student to continue with performance of the procedure. The error may not be reported until review is completed.
Evaluator Note:	The incorrect value of 47.8 was taken from “Subcooling Monitor (RTD)” vice “Subcooling Monitor(T/C)” on Table 2.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Performance Step: 5 Critical <u>Y</u>	Review procedure step: 5.0 PERFORM a channel check for Core Exit Thermocouple based subcooling margin: h. The difference between all three Yellow Channel values is less than or equal to 7.9°F (CIRCLE one) SAT / UNSAT
Standard:	The examinee determines that the difference between Yellow Channel values is greater than 7.9°F , and that the step is “UNSAT.”
Evaluator Cue:	If notified of error in calculation then acknowledge report and ask student to continue with performance of the procedure. The error may not be reported until review is completed.
Evaluator Note:	Once errors have been corrected for values at steps 5.e and 5.g, the examinee should identify a difference of 8.8°F.
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____



Performance Step: 6 Critical <u>N</u>	Reports errors in calculations and asks for CO to review data and does not sign for calculation verification
Standard:	The examinee does not sign calculation verification until deficiencies are resolved
Evaluator Cue:	Acknowledge report
Performance:	SATISFACTORY <input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/>
Comments:	_____

Terminating Cues: That completes this JPM.

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

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Both Units are at rated power.
- UNIT 1 PPCS Yellow Core Exit Thermocouple indications were acting erratically and have since been repaired.
- PPCS is available.
- CO3 just completed a partial TS 32, Miscellaneous Equipment Checks (Monthly) Unit 1, Attachment B, Calculations.
- CO3 has just requested that you conduct the SRO review for the completed TS 32, Attachment B.

INITIATING CUES:

- You are directed you to perform the SRO review of TS 32, Attachment B.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Review IT 90 TRAIN B, Atmospheric Steam Dump Valve Train B Unit 1

JPM NUMBER: PBN JPM P119.231.SRO **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN P119.231.SRO / Perform surveillances per the Plant Inspection Program

K/A NUMBERS: 2.2.12 **K/A VALUE:** 3.7 / 4.1

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: 15 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

None

SIMULATOR SETUP INSTRUCTIONS:

None

SIMULATOR MALFUNCTIONS:

None

SIMULATOR OVERRIDES:

None

SIMULATOR REMOTE FUNCTIONS:

None

Required Materials: Marked up copy (with errors) of IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1

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

Task Standards: Identify the two inserted deficiencies during supervisory review of IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1.
Assess test results to identify that the ADV is OPERABLE, but does not meet IST acceptance criteria, and initiate required actions.

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 OS1.
- The third license just completed IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 and has requested that you perform the supervisory review prior to exiting TSAC 3.7.4.A.1.

INITIATING CUES (IF APPLICABLE):

- Complete the supervisory review for IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1.

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	Review the cover page for accuracy and completeness: <ul style="list-style-type: none"> • Verified Current Copy • List pages used for Partial Performance • Controlling Work Document Numbers
Standard:	The examinee reviews the cover page and determines it is accurate and complete: <ul style="list-style-type: none"> • Verified Current Copy • List pages used for Partial Performance • Controlling Work Document Numbers
Evaluator Note:	<ul style="list-style-type: none"> • Verified Current Copy (Signature / Date / Time correctly filled in) • List pages used for Partial Performance (None) • Controlling Work Document Numbers (as noted)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 2 Critical N	Review <u>Step 2.1</u> stopwatch data for accuracy and completeness: <ul style="list-style-type: none"> • ID No. • Calibration Due Date
Standard:	The examinee checks stopwatch data and notes that ID No. is filled in, and Calibration Due Date is NOT past due.
Evaluator Note:	<ul style="list-style-type: none"> • No errors with this step.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical N	Review <u>Step 4.0</u> , Initial Conditions for accuracy and completeness: <ul style="list-style-type: none"> • 4.1 This test is being done to satisfy: • IST Coordinator availability • Permission to Perform Test
Standard:	The examinee reviews <u>Step 4.0</u> , Initial Conditions and notes that it is complete and accurate. <ul style="list-style-type: none"> • 4.1 This test is being done to satisfy: • 4.2 IST Coordinator availability • 4.3 Permission to Perform Test
Evaluator Note:	<ul style="list-style-type: none"> • No errors in this section. • 4.1 This test is being done to satisfy: (Checked and includes Task Sheet No.) • 4.2 IST Coordinator: N/A (not PMT) • 4.3 Permission to Perform Test (Signature / Date / Time)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 4 Critical N	Review Steps 5.1.1 through 5.1.6 for accuracy and completeness: <ul style="list-style-type: none"> • Date / time • Pressures • Initials • IV initial
Standard:	The examinee reviews Steps 5.1.1 through 5.1.6 and notes they are accurate and complete.
Evaluator Note:	<ul style="list-style-type: none"> • No errors this section. • 5.1.1 Date / Time • 5.1.3 Value should be 800 psig • 5.1.4 b Value should be 1050 psig • 5.1.5 i Should be marked N/A • 5.1.5 j Should be marked N/A • 5.1.6 b Value should be 800 psig • 5.1.6 d Value should be 1050 psig • 5.1.6 m Should be marked N/A
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical N	Review Step 5.1.7 through 5.1.9 for accuracy and completeness: <ul style="list-style-type: none"> • Date / Time • Initials • IV initials
Standard:	The examinee reviews Step 5.1.7 through 5.1.9 and notes they are accurate and complete.
Evaluator Note:	5.1.9 Date / Time
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

<p>Performance Step: 6 Critical N</p>	<p>Review Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.5 b</p> <ul style="list-style-type: none"> • Control Room Time to OPEN • Local Positon Indication • Control Room Position Indication
<p>Standard:</p>	<p>The examinee reviews Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.5 b and determines it is accurate and complete.</p> <ul style="list-style-type: none"> • Control Room Time to OPEN • Local Positon Indication • Control Room Position Indication
<p>Evaluator Note:</p>	<ul style="list-style-type: none"> • Control Room Time to OPEN (11.77) • Local Positon Indication (OPEN) • Control Room Position Indication (ON / OFF)
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	



**PBN JPM P119.231.SRO, Review Atmospheric Steam Dump Valve
Train B Unit 1, Rev. 0**

Performance Step: 7 Critical N	Review Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.5 e. <ul style="list-style-type: none"> • Control Room Time to SHUT • Local Positon Indication • Control Room Position Indication
Standard:	The examinee reviews Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.5 e and determines it is accurate and complete. <ul style="list-style-type: none"> • Control Room Time to SHUT • Local Positon Indication • Control Room Position Indication
Evaluator Note:	<ul style="list-style-type: none"> • Control Room Time to SHUT (34.56) • Local Positon Indication (SHUT) • Control Room Position Indication (OFF / ON) • The examinee may identify that "Time to SHUT" does not meet IST acceptance criteria. This will be critical for JPM Step 11.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical Y	Review Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.6 g <ul style="list-style-type: none"> Control Room Time to OPEN Local Positon Indication Control Room Position Indication
Standard:	The examinee identifies the Step 5.1.6 g transposition error (entered value of OFF / ON rather than the required value of ON / OFF).
Evaluator Note:	<ul style="list-style-type: none"> Control Room Time to OPEN (11.78) Local Positon Indication (OPEN) Control Room Position Indication (OFF / ON), (First of two inserted errors.)
Evaluator Cue:	If the examinee questions the CO about the incorrect valve position indication, report that the actual indication was "Red Light ON and Green Light OFF."
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical N	Review Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.6 i <ul style="list-style-type: none"> Control Room Time to SHUT Local Positon Indication Control Room Position Indication
Standard:	The examinee reviews Attachment A, 1MS-2015 Valve Stroke Verification data recorded in the table for Steps 5.1.6 i and determines it is accurate and complete. <ul style="list-style-type: none"> Control Room Time to SHUT Local Positon Indication Control Room Position Indication
Evaluator Note:	<ul style="list-style-type: none"> No errors this section. Control Room Time to SHUT (34.48) Local Positon Indication (SHUT) Control Room Position Indication (OFF / ON)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P119.231.SRO, Review Atmospheric Steam Dump Valve
Train B Unit 1, Rev. 0**

Performance Step: 10 Critical Y	Review Attachment A, 1MS-2015 Valve Stroke Verification data recorded after the table for: <ul style="list-style-type: none"> • LVFST Satisfied for all tested valves in Attachment A: (SAT / UNSAT) • IST Data Satisfied for all tested valves in Attachment A: (SAT / UNSAT) • Performer, Date / Time • Remarks
Standard:	The examinee identifies that SAT was circled in error for the <i>'IST Data Satisfied for all tested valves in Attachment A.'</i>
Evaluator Note:	<ul style="list-style-type: none"> • LVFST Satisfied for all tested valves in Attachment A: (SAT circled) • IST Data Satisfied for all tested valves in Attachment A: (SAT circled) (Second of two inserted errors.) • Performer, Date / Time (Signature / Date / Time) • Remarks (Comment addressing IST out-of-spec for step 5.1.5 e)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 11 Critical Y	Completes Step 6.1: Operations Analysis
Standard:	<p>The examinee:</p> <ul style="list-style-type: none"> • Completes Step 6.1.1 – signature / date / time • Step 6.1.2 – marks step as N/A • Step 6.1.3 – marks step as N/A • Completes Step 6.1.4 – actions request submittal and IST Engineer notification
Evaluator Cue:	<p>When the step is addressed, notify the SRO that the CO has written an AR. AR # 1234567</p> <p>When the step is addressed, notify the SRO that the IST Engineer has been informed of his required review.</p>
Evaluator Note:	The critical attribute of this step is that direction be given to generate the AR and to notify the IST Engineer.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are OS1.
- The third license just completed IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1 and has requested that you perform the supervisory review prior to exiting TSAC 3.7.4.A.1.

INITIATING CUES (IF APPLICABLE):

- Complete the supervisory review for IT 90 Train B, Atmospheric Steam Dump Valve Train B Unit 1.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Review a Discharge Calculation (OI 140B)

JPM NUMBER: PBN JPM P119.223d.SRO **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN P119.223.SRO / Review completed procedures

K/A NUMBERS: 2.3.6 **K/A VALUE:** 3.9 / 4.2

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: 15 Minutes Time Critical: No

Alternate Path [NRC]: No

Alternate Path [INPO]: N0

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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)

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

SIMULATOR SETUP INSTRUCTIONS:

None

SIMULATOR MALFUNCTIONS:

None

SIMULATOR OVERRIDES:

None

SIMULATOR REMOTE FUNCTIONS:

None

Required Materials: OI 140B, Standard Radioactive Batch Liquid Release – Waste Distillate Tanks
PBNP Liquid Waste Discharge Permit for the “A” Waste Distillate Tank
CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid
Radioactive Water
*OI-38, Circulating Water System Operation
*TLB 23, Waste Distillate Tank T-104 A/B

*Make these references available to the examinee only when requested.

General References: OI 140B, Standard Radioactive Batch Liquid Release – Waste Distillate Tanks
PBNP Liquid Waste Discharge Permit for the “A” Waste Distillate Tank
CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid
Radioactive Water

Task Standards: Review and identify the three errors on CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water associated with the discharge of the “A” Waste Distillate Tank.

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 Shift Manager on mids
- A "A" Waste Distillate Tank discharge was recently completed on your shift and the paperwork was routed to you for review and approval.

INITIATING CUES (IF APPLICABLE):

Complete the "Permit review by Shift Manager" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the "A" Waste Distillate Tank prior to routing to the Chemistry Manager.

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	Review “Completed Prior to Discharge” section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • Initials for actual dilution flow • Initials for number of Circulating Water pumps operating (2) • Initials and Date/Time for Shift Manager Review/Approval to Start Discharge
Standard:	The examinee reviews the “Completed Prior to Discharge” section for accuracy and completeness: <ul style="list-style-type: none"> • Initials for actual dilution flow • Initials for number of Circulating Water pumps operating (2) • Initials and Date/Time for Shift Manager Review/Approval to Start Discharge
Evaluator Cue:	Provide a copy of OI-38, Circulating Water System Operation, if requested.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P119.223d.SRO, Review a Discharge Calculation
(OI 140C), Rev. 0**

Performance Step: 2 Critical N	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • The two Notes • Ensure flow response option circled • The initial flow calculation / data recorded in the box • The final flow calculation / data recorded in the box.
Standard:	The examinee reviews the "Completed During Discharge" section for accuracy and completeness for the following: <ul style="list-style-type: none"> • The two Notes (circle / slashed) • Ensure flow response option (circled) – LW-15
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical N	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • Discharge START Date/Time and initials
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> • Discharge START Date/Time and initials
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical N	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • Discharge START Level and initials
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> • Discharge START Levels and initials – 78%
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P119.223d.SRO, Review a Discharge Calculation
(OI 140C), Rev. 0**

Performance Step: 5 Critical N	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • Discharge STOP Date/Time and initials
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> • Discharge STOP Date/Time and initials
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical N	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> • Discharge STOP Level and initials
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> • Discharge STOP Level and initials
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P119.223d.SRO, Review a Discharge Calculation
(OI 140C), Rev. 0**

Performance Step: 7 Critical Y	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> Actual Discharge Volume (gal)
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> Actual Discharge Volume (gal) Determines that the recorded volume of 7410 gal is incorrect. The correct volume is 8610 gal.
Evaluator Note:	<ul style="list-style-type: none"> The recorded volume of 7410 gal does not account for 1200 gal in the tank below the 0% level indication. See TLB 23 and OI-140B P&L 3.15. The actual volume discharged is 8610 gal.
Evaluator Cue:	Provide a copy of TLB 23 if requested.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical Y	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> Actual Discharge Rate (gpm)
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> Actual Discharge Rate (gpm) <u>AND</u> Determines that the discharge rate calculation is NOT accurate.
Evaluator Note:	The values used for both discharged volume and time are incorrect. Using the corrected value for volume discharged (JPM Step 7) and the correct time of 2 hr, 32 min (152 min) the Actual Discharge Rate is 56.6 gpm. [8610 gal / 152 min = 56.6 gpm]
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P119.223d.SRO, Review a Discharge Calculation
(OI 140C), Rev. 0**

Performance Step: 9 Critical Y	Review "Completed During Discharge" section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the following: <ul style="list-style-type: none"> Actual Discharge Rate (gpm)
Standard:	The examinee reviews the "Completed During Discharge" section for the following: <ul style="list-style-type: none"> Actual Discharge Rate (gpm) <p align="center"><u>AND</u></p> <p>Determines that the corrected Actual Discharge Rate exceeds the Maximum Release Rate as specified on the Discharge Permit.</p>
Evaluator Note:	The corrected value for "Actual Discharge Rate" is 56.6 gpm is greater than the Maximum Release Rate of 50 gpm as specified on the Discharge Permit.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the Shift Manager on mids
- A “A” Waste Distillate Tank discharge was recently completed on your shift and the paperwork was routed to you for review and approval.

INITIATING CUES (IF APPLICABLE):

Complete the “Permit review by Shift Manager” section of CAMP 031, Data Sheet 1 – Permits for Batch Discharge of Liquid Radioactive Water for the “A” Waste Distillate Tank prior to routing to the Chemistry Manager.

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

SRO Admin JPM 5 (Emergency Plan)

PERFORM REQUIRED NOTIFICATIONS

(Facility JPM Number: PBN JPM P119.214c.SRO)

Exam material withheld from public disclosure due to proprietary content.



JOB PERFORMANCE MEASURE

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}



PBN JPM P002.005a.COT, Perform RCS Leak Rate Determination, Rev. 6

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	DATE
				REVIEWER	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:	<ul style="list-style-type: none"> • 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: 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 Attachment A
Critical N 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 Attachment A
Critical N 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 Attachment A
Critical N 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 Attachment A
Critical N 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	Attachment A
Critical N	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	Attachment A
Critical Y	3.0 Calculate RCS leak rate: CALCUALTED 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	Attachment A
Critical Y	4.0 CALCULATE RCS Unidentified Leak Rate as follows: 4.1 CALCULATE Identified RCS Leak Rate: IDENTIFIED RCS LEAK RATE DATA
Standard:	<ul style="list-style-type: none">• 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 Attachment A
Critical N 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 5.6 **IF** the Unit is in Mode 5, **THEN** perform Attachment B, Cold
Critical N Shutdown Primary Leak Rate Worksheet as follows:

Standard: The examinee should determine this step is not applicable.

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

Comments: _____

Performance Step: 20 5.8 **IF** RCS Unidentified Leakage shows a significantly increasing trend, **OR** reaches 0.15 gpm, **THEN** PERFORM the following actions:

Critical N

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 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.
Critical N

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 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.
Critical Y

Standard: The examinee identifies RCS unidentified leakage >1 gpm is in excess of limit for Technical Specifications LCO 3.4.13.

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

Comments: _____

Performance Step: 23 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.
Critical N

Standard: The examinee identifies that AOP 1A is already in effect, per initial conditions.

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

Comments: _____



Performance Step: 24 5.12 **IF** the plant is in Mode 1 through 4, **AND** Identified Leakage **Critical N** 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: _____

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.



JOB PERFORMANCE MEASURE

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:

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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)

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.
- 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. <ul style="list-style-type: none"> • 1TSS-971, RC Loop B Subcooling Monitor Selector
Standard:	The examinee verifies the switch is in the TC position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P083.019b.COT, Perform TS-32 Miscellaneous
Equipment Checks (Monthly) Unit 1, Rev. 1**

JPM
Page 7 of 13

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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 1TSS-971, RC Loop B Subcooling Monitor Selector
Standard:	The examinee places the subcooling monitor switch to the RTD position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P083.019b.COT, Perform TS-32 Miscellaneous
Equipment Checks (Monthly) Unit 1, Rev. 1**

JPM
Page 8 of 13

Performance Step: 5 Critical N	5.2.7 RECORD RTD based Subcooling margin on Attachment A, Subcooling margin Monitoring System Data Sheet, Table 2. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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:	



**PBN JPM P083.019b.COT, Perform TS-32 Miscellaneous
Equipment Checks (Monthly) Unit 1, Rev. 1**

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:	



PBN JPM P083.019b.COT, Perform TS-32 Miscellaneous Equipment Checks (Monthly) Unit 1, Rev. 1

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: _____

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.
- 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.



JOB PERFORMANCE MEASURE

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

EVALUATION LOCATION: In-Plant: Control Room:

Simulator: 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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:	



**PBN JPM P039.005.COT, Perform Atmospheric Steam Dump
Valve Train B Unit 1, Rev. 0**

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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: <ul style="list-style-type: none"> • Places 1HC-478, SG "B" Atmospheric Steam Dump Controller to MANUAL AND • Times the valve stroke to full open
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P039.005.COT, Perform Atmospheric Steam Dump
Valve Train B Unit 1, Rev. 0**

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: <ul style="list-style-type: none"> 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:	



**PBN JPM P039.005.COT, Perform Atmospheric Steam Dump
Valve Train B Unit 1, Rev. 0**

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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: <ul style="list-style-type: none"> 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:	



**PBN JPM P039.005.COT, Perform Atmospheric Steam Dump
Valve Train B Unit 1, Rev. 0**

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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 Verification.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P039.005.COT, Perform Atmospheric Steam Dump
Valve Train B Unit 1, Rev. 0**

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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: <ul style="list-style-type: none"> • 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: _____

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.



JOB PERFORMANCE MEASURE

JPM TITLE: PERFORM ROD EXERCISE TEST

JPM NUMBER: PBN JPM P001.020.COT **REV.** 6

TASK NUMBER(S) / TASK TITLE(S): PBN P001.020.COT / Perform Control Rod Exercises

K/A NUMBERS:	001.K4.02	K/A VALUE:	3.8 / 3.8
	001.A3.05		3.5 / 3.5
	001.A4.03		4.0 / 3.7

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: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}



**PBN JPM P001.020.COT, PERFORM ROD EXERCISE TEST,
REV. 6**

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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	DATE
				SUPERVISOR	DATE
Rev. 0-4	See historical records.				
Rev. 5	Updated for the 2014 operational exam.				
Rev. 6	Updated for the 2017 NRC ILT Exam.				

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

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize into IC-2.
2. Load the following codes and insert trigger 1.
3. Verify Rod Counter readings are at 228 (225)* for all banks except CB D which should be set at 220.
4. Walk down the control boards to ensure plant conditions accurately reflect the JPM's initial conditions.
5. Make any necessary adjustments or corrections.
6. Display PPCS page 2121 (Rod Positions) on 1C20 PPCS monitor.
7. Save to an IC for multiple uses (if necessary).

*Consult STPT 5.1 for current Unit 1 Cycle for ARO position.

SIMULATOR MALFUNCTIONS:

- None

SIMULATOR OVERRIDES:

- None

SIMULATOR REMOTE FUNCTIONS:

Setup:								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
LOA1CRF003	1-CR-RESET BANK OVERLAP COUNTER RESET	00:00:00	00:00:00	1	00:00:00	595	594	PRELOAD

- Required Materials:**
1. TS-5, Rod Exercise Test Unit 1
 2. REI 7.0, Control Rod Position Determination

- General References:**
1. TS-5, Rod Exercise Test Unit 1
 2. REI 7.0, Control Rod Position Determination

Task Standards: Bank D rods have been exercised, bank overlap counter discrepancy corrected and bank D rods returned to their original position.

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 CO3.
- Unit 1 is at 100% power, steady state Xenon.

INITIATING CUES (IF APPLICABLE):

- The SRO has directed you to perform TS-5, Rod Exercise Test Unit 1.
- The pre-job brief has been completed.
- An AO is standing by in the Unit 1 Rod Drive MG Set Room to assist in the performance of the test.

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 RECORD the following indications: 5.1.1 RDC-LOGIC Cabinet (Key #21): <ul style="list-style-type: none"> Bank Overlap Counter reading
Standard:	The examinee contacts Unit 1 Turbine Hall Operator and obtains the Bank Overlap Counter reading.
Evaluator Note:	<ul style="list-style-type: none"> Counter reading is in the rod control cabinet in the Rod Drive MG Set Room.
Evaluator Cue:	AO reports that the Bank Overlap Counter is reading 594.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 2 Critical N	5.1.2 Status of the Group Select Lights for the following power cabinets: <ul style="list-style-type: none"> • 1AC – Group Select Light “C” • 2AC – Group Select Light “C” • 1BD – Group Select Light “B”
Standard:	The examinee contacts the U1 TH Operator and obtains the status of the lights.
Evaluator Note:	Light status is found on the power cabinets in the RD MG Set Room.
Evaluator Cue:	AO Reports “C” lights lit for 1AC and 2AC and “B” light lit for 1BD.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 3 Critical N	5.1.3 1C04, Rod Bank Group (Demand) counters: <ul style="list-style-type: none"> • Control Bank A Group 1 • Etc.
Standard:	The examinee correctly records Control and Shutdown Bank Group Demand counter readings.
Evaluator Note:	All Bank Demand counters should indicate 228 (225) steps except Bank D which should indicate 220 steps.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 4 Critical N	5.1.4 1C-120A, RPI #1, Bank Position Display <ul style="list-style-type: none"> • Bank A • Bank B • Bank C • Bank D
Standard:	The examinee correctly records bank positions on 1C-120A.
Evaluator Note:	<ul style="list-style-type: none"> • Bank Positions are indicated behind the Main Control Boards on 1C-120A.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 5 Critical N	5.2 COMPARE the Bank Overlap Counter reading to Control Bank position (Step Counters) in REI 7.0, Control Rod Position Determination.
Standard:	The examinee obtains a copy of REI 7.0 and compares the Control Bank position with the Bank Overlap Counter and determines that there is disagreement between the two.
Evaluator Note:	<ul style="list-style-type: none"> • The examinee should determine that the Control Bank position and Bank Overlap Counter do NOT agree. • With Control Bank D at 220 steps, the Bank Overlap Counter should read 595.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 6 Critical Y	5.3 IF the Control Bank Position AND Bank Overlap Counter reading do NOT agree, THEN PERFORM Attachment A.
Standard:	The examinee determines the readings do not agree and goes to Attachment A.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 7 Critical Y	ATTACHMENT A 1.0 PLACE Rod control selector to Manual.
Standard:	The examinee places Rod control selector switch to the Manual position.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 8 Critical Y	2.0 STEP Control Bank D OUT 1 step from its current position.
Standard:	The examinee steps Control Bank D out 1 step.
Evaluator Cue:	
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 9 Critical Y	3.0 BUMP STEP Control Bank D IN one step.
Standard:	The examinee bumps Control Bank D in one step.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 10 Critical N	4.0 CHECK card A105 has BOTTOM LIGHT ILLUMINATED (top row, 3 rd card from the left in the Rod Control Logic Cabinet directly above the Bank Overlap Counter).
Standard:	The examinee contacts the Auxiliary Operator in the Rod Drive Room and obtains status of card A105 bottom light.
Evaluator Note:	Based on the report from the AO, steps 5.0 and 6.0 of Attachment A will be N/A
Evaluator Cue:	The AO reports card A105 has the bottom light illuminated.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 11 Critical N	7.0 Compare the Bank D Demand Position (Step Counters) to the Bank Overlap Counter.
Standard:	The examinee contacts the AO for the Bank Overlap Counter reading and compares the Step Counter for Bank D to the obtained Bank Overlap Counter reading.
Evaluator Cue:	AO reports the Bank Overlap Counter reads 595.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 12 Critical N	8.0 IF the Control Bank D Position (Step Counters) and the Bank Overlap Counter do not agree, THEN adjust the Bank Overlap Counter at RDC Logic Cabinet by depressing the +1 or –1 button as necessary until the proper value correlating to the Control Rod Bank D Position (Step Counters).
Standard:	The examinee determines step is not required to be performed and N/A's the step.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 13 Critical N	9.0 Return the Control Rod selector switch to AUTO.
Standard:	The examinee places Control Rod selector switch to AUTO.
Evaluator Note:	When examinee asks for an Independent Verification of this step, initial the step for IV.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 14 Critical N	5.4 IF printed PPCS data is required, THEN OBTAIN a screen print of PPCS display page 2121 prior to and following movement of each rod group.
Standard:	The examinee requests whether PPCS printed data is required.
Evaluator Note:	The examinee may wish to print the data, inform him/her that it is not required.
Evaluator Cue:	Printed PPCS data is not required.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 15 Critical Y	5.5 IF Control Bank D is NOT fully inserted, THEN PERFORM the following exercise test: 5.5.1 PLACE the Control Rod Bank Selector switch to the CBD position.
Standard:	The examinee places the Control Rod Bank Selector switch to the CBD position.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 16 Critical N	5.5.2 PERFORM the following rod step sequence twice: a. STEP Control Bank D OUT 1 step from its current position.
Standard:	The examinee steps Control Bank D out 1 step.
Evaluator Note:	This step and the next will be repeated.
Evaluator Cue:	
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 17 Critical N	b. BUMP STEP Control Bank D IN one step.
Standard:	The examinee bumps Control Bank D in one step.
Evaluator Note:	This step and the previous will be repeated.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 18 Critical Y	5.5.3 INSERT <u>OR</u> WITHDRAW Control Bank D at least 10 steps but NO more than 20 steps while OBSERVING movement on individual Control Bank D rods.
Standard:	The examinee inserts Control Bank D at least 10 but not more than 20 steps.
Evaluator Note:	The examinee must recognize that there is not enough “room” to withdraw the rods 10 steps and must therefore insert the rods the required distance.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 19 Critical Y	5.5.4 WITHDRAW <u>OR</u> INSERT Control Bank D to the position recorded in Step 5.1.3
Standard:	The examinee withdraws Control Bank D to its original position recorded in Step 5.1.3.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 20 Critical Y	5.5.5 WITHDRAW Control Bank D one step.
Standard:	The examinee withdraws Control Bank D one step.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 21 Critical Y	5.5.6 INSERT Control Bank D one step.
Standard:	The examinee inserts Control Bank D one step.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 22 Critical N	5.5.7 Ensure Control Bank D is in the position recorded in Step 5.1.3.
Standard:	The examinee ensures the Control Bank D Group Demand Counter reading matches the number obtained in step 5.1.3.
Evaluator Note:	CB D Demand Counter should read 220.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are CO3.
- Unit 1 is at 100% power, steady state Xenon.

INITIATING CUES (IF APPLICABLE):

- The SRO has directed you to perform TS-5, Rod Exercise Test Unit 1.
- The pre-job brief has been completed.
- An AO is standing by in the Unit 1 Rod Drive MG Set Room to assist in the performance of the test.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Manually Makeup to the VCT

JPM NUMBER: PBN JPM P004.027b.COT **REV.** 8

TASK NUMBER(S) / TASK TITLE(S): PBN P004.027.COT / Manually Blend to the VCT / RWST

K/A NUMBERS: 004 A4.12 **K/A VALUE:** 3.8 / 3.3

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: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	DATE
				SUPERVISOR	DATE
Rev. 0-2	See historical records				
Rev. 3	Updated to current revision of QF-1075-01. Updated RCS boron concentration to match current IC-2 concentration.				
Rev. 4	Updated RCS boron concentration to match current IC-2 concentration. Revised JPM for use during the 2012 ILT NRC Exam to match changes in OP-5B. Added additional malfunction to set RMUW controller to 50 gpm.				
Rev. 5	Changed to Rev. 5 to account for simultaneous development of JPM (Rev. 4) used for 2012 Annual NRC Exam.				
Rev. 6	New Fleet Template. Added SIM setup instructions for 1HC-111 to 50 gpm. Modified the initial conditions and turnover page for the gas stripper to be off-line.				
Rev.	Updated for the 2014 operational exam.				
Pen and	Added an evaluator note in step 1 to identify which reference the student would	Requested by the NRC for the 2015 ILT NRC		J. Hinze	1/30/15
				T Larson	
Rev. 8	Updated for the 2017 NRC ILT Exam.				

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

Simulator Setup Instructions:

- Load IC 2.
- Walk down the control boards to ensure plant conditions accurately reflect the JPM's initial conditions. Make any necessary adjustments.
- Ensure the RMUW Flow controller is set at 0 gpm.
- Ensure the Boric Acid Flow controller is set at 0 ppm
- Place 1CV-112A to DIVERT to establish VCT level at ~30%, THEN return 1CV-112A to AUTO.
- Save IC for multiple uses.
- Provide a copy of OP 5B Attachment G with Initial Conditions signed off.

AFTER the blend is started and STABLE, insert TRIGGER 1 to cause the RMUW controller to fail. DO NOT insert the malfunction until the blend is started and stable.

SIMULATOR MALFUNCTIONS:

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
CNH1CVC009B	1-FIC111 DILUTION FLOW INDICATOR CTRLR FIXED OUTPUT	00:00:20	00:00:10	1	00:00:00	-	50	Insert on event X141161T==1. (Reactor Makeup SW to START)

SIMULATOR OVERRIDES:

- None

SIMULATOR REMOTE FUNCTIONS:

- None

Required Materials: OP 5B, Blender Operation / Dilution / Boration

General References: Blender Data Manual
ARB 1C04 1C 3-8, Reactor Makeup Water Flow Deviation

Task Standards: The examinee starts to raise VCT level, determines improper operation of the Reactor Makeup Water flow controller and secures the blend to the VCT or takes manual control of 1HC-111 adjusting RMW flow prior to VCT level rise of >15%.

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 Unit 1 Operator at the Controls.
- Leakage at the charging pump seals has resulted in the need to manually blend to the VCT to maintain normal VCT level.
- The CVCS system is in operation with a single letdown orifice in service.
- Unit 1 RCS boron concentration is 866 ppm.
- The on-service boric acid storage tank, T-6A, concentration is 3.75%.
- Unit 1 Letdown Gas Stripper is on-line.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to raise VCT level approximately 15% at the current RCS boron concentration per OP 5B, Blender Operation / Dilution / Boration, Attachment G, Manual Blend to the RCS.

NOTE: The blend may be left in the CVCS piping since frequent blends are currently required.

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	4.1 DETERMINE the desired blender output concentration.
Standard:	The examinee determines the existing acid and water flow setpoints for the present boron concentration by referencing: <ul style="list-style-type: none"> ○ Operating experience, or ○ Using the Blender Data Manual
Evaluator Note:	The examinee should reference Table 4 of the Blender Data Manual to determine if the boron concentration is set correctly.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 2 Critical Y	4.2 SET HC-111, RMUW Flow Controller, to desired FLOWRATE.
Standard:	The examinee determines that controller HC-111 is set at 0 gpm and resets to desired flowrate.
Evaluator Note:	HC-111 should normally be set to 40 gpm, but may be set to a different value as long as the correct ratio of water-acid for current RCS boron concentration is used.
Evaluator Cue:	If the incorrect controller setting for 1HC-111, RMUW Flow controller, is reported to OS1, then acknowledge the report and direct the examinee to set the controller to the correct setting and continue making up to the VCT.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 3 Critical: Y	4.3 SET HC-110, Boric Acid Flow Hand Controller, to desired FLOWRATE.
Standard:	The examinee determines that controller 1HC-110 is set to 0 gpm and resets to desired flowrate.
Evaluator Note:	The boric acid controller should be set at approximately 6.0 gpm (for a 40 gpm RMUW setting).
Evaluator Cue:	If the incorrect controller setting for 1HC-110, BA Flow controller, is reported to OS1, then acknowledge the report and direct the examinee to set the controller to the correct setting and continue making up to the VCT.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 4 Critical N	<p>4.4 ENSURE the following valve control switch positions:</p> <ul style="list-style-type: none"> • CV-111, RMW to Z-1 BA Blender Flow Control, in AUTO • CV-110A, BA TO Z-1 BA Blender Inlet FCV, in AUTO • CV-110B, Z-1 BA Blender Outlet FCV in AUTO <u>OR IF</u> VCT BYPASSED, <u>THEN</u> OPEN (circle one). • CV-110C, T-4 VCT Boric Acid Inlet Flow Control in AUTO <u>OR IF</u> VCT BYPASSED, <u>THEN</u> OPEN (circle one).
Standard:	<p>The examinee determines:</p> <ul style="list-style-type: none"> • 1CV-111, RMW to Z-1 BA Blender Flow Control is in AUTO • 1CV-110A, BA TO Z-1 BA Blender Inlet FCV is in AUTO • 1CV-110B, Z-1 BA Blender Outlet FCV is in AUTO • 1CV-110C, T-4 VCT Boric Acid Inlet Flow Control is in AUTO
Performance:	<p>SATISFACTORY ____ UNSATISFACTORY ____</p>
Comments:	<p>_____</p>

Performance Step: 5 Critical Y	<p>4.5 PLACE the Reactor Makeup Mode Selector Switch to BLEND.</p>
Standard:	<p>The examinee places the Reactor Makeup Mode Selector Switch to the BLEND position.</p>
Performance:	<p>SATISFACTORY ____ UNSATISFACTORY ____</p>
Comments:	<p>_____</p>

Performance Step: 6 Critical Y	4.6 PLACE the Reactor Makeup Control Switch to START.
Standard:	The examinee places the Reactor Makeup Control Switch to the START position and ensures the RED light is LIT.
Evaluator Note:	Verification of the RED light is NOT critical.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 7 Critical N	4.7 WHEN required to maintain VCT pressure and level, THEN PLACE CV-112A, VCT Level Control Divert, to DIVERT.
Standard:	The examinee acknowledges the guidance of this step and returns to it as it is needed to control VCT pressure and level, and moves on with the procedure.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 8 Critical N	4.8 While CONTINUING with this procedure, CHECK system for proper response AND MONITOR the following parameters: <ul style="list-style-type: none"> • VCT level / pressure • RCP seal leakoff flow • Rx Power / Count Rate • RCS temperature
Standard:	The examinee monitors the listed parameters.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

NOTE: AFTER THE BLEND IS STARTED AND IS STABLE, TRIGGER 1 WILL INSERT TO CAUSE THE RMUW CONTROLLER TO FAIL.

Performance Step: 9 Critical Y	The examinee responds to the RMUW deviation alarm or increased dilution rate and takes action to secure makeup to the VCT or takes manual control of 1HC-111 and adjusts RMW flow to ~40 gpm.
Standard:	The examinee secures makeup to the VCT or takes manual control of 1HC-111 and adjusts RMW flow to ~40 gpm prior to VCT level rise of $\geq 15\%$.
Evaluator Note:	ARB 1C04 1C 3-8, Reactor Makeup Water Flow Deviation, allows either option to respond. The RMW deviation alarm may NOT actuate if makeup is promptly secured.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Terminating Cues: This completes the JPM.

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

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the Unit 1 Operator at the Controls.
- Leakage at the charging pump seals has resulted in the need to manually blend to the VCT to maintain normal VCT level.
- The CVCS system is in operation with a single letdown orifice in service.
- Unit 1 RCS boron concentration is 866 ppm.
- The on-service boric acid storage tank, T-6A, concentration is 3.75%.
- Unit 1 Letdown Gas Stripper is on-line.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to raise VCT level approximately 15% at the current RCS boron concentration per OP-5B, Blender Operation / Dilution / Boration, Attachment G, Manual Blend to the RCS.

NOTE: The blend may be left in the CVCS piping since frequent blends are currently required.

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



JOB PERFORMANCE MEASURE

JPM
Page 1 of 19

JPM TITLE: Fill the Accumulators

JPM NUMBER: PBN JPM P006.002.COT

REV. 10

TASK NUMBER(S) / TASK TITLE(S): PBN P006.002.COT / Fill the Accumulators

K/A NUMBERS: 006.A1.13

K/A VALUE: 3.5 / 3.7

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: 30 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

{C001}

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

SIMULATOR SETUP INSTRUCTIONS:

- Load any IC with both units at 100%, steady state
- Drain 1T-34B, Unit 1 'B' SI Accumulator until annunciator C01B 3-8, 1T-34B ACCUMULATOR LEVEL HIGH OR LOW alarms per OI-100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1. (LOW alarm setpoint = 9%) Ensure accumulator pressure remains within band after level is lowered.
- 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:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: OI 100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1
Stopwatch
Calculator

General References: OI 100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1

Task Standards: The examinee raises the 1T-34B, Unit 1 "B" SI accumulator level to 20% (\pm 3%) in accordance with OI 100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1, Section 5.2.

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 100% steady-state conditions.
- Annunciator C01B 3-8, 1T-34B ACCUMULATOR LEVEL HIGH OR LOW is lit.
- Emergency Diesel Generators G-01, G-02, G-03 and G-04 are OPERABLE and in a normal at-power alignment.
- 1-TS-ECCS-002 Train A and 1-TS-ECCS-002 Train B, Safeguards System Venting (Monthly) Unit 1 were performed last shift for 1P-15A and 1P-15B, Unit 1 safety injection pumps.
- Combined Control Room Log accumulator level drop rate (daily accumulator leakage) is currently 0.3 % per day over the past 30 days.
- Unit 1 RWST Boron concentration is 2950 ppm.

INITIATING CUES (IF APPLICABLE):

- You are the 3rd Control Operator.
- The SRO directs you to raise 1T-34B, Unit 1 "B" SI accumulator level to approximately 20% in accordance with OI 100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1, Section 5.2.
- Unit 1 Control Operator has been assigned the duties of monitoring accumulator parameters per your request.

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	5.2.1 Perform the following as applicable: a. IF filling 1T-34A, Safety Injection Accumulator, THEN PERFORM Attachment A, Step 1.0.
Standard:	The examinee notes this step is N/A.
Evaluator Cue:	
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical N	5.2.1 Perform the following as applicable: b. IF filling 1T-34B, Safety Injection Accumulator, THEN PERFORM Attachment B, Step 1.0.
Standard:	The examinee completes Attachment B, 1T-34B Accumulator Level/Pressure Change Data Sheet, Section 1.0.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical N	<p>5.2.1 Perform the following as applicable:</p> <p>c. Use Control Room Log data to determine accumulator leak rate over past 30 days, <u>OR</u> since accumulator was last filled (whichever time period is shorter):</p> <p>Accumulator leak rate (% per day): _____</p>
Standard:	<p>The examinee fills in the given leak rate.</p>
Evaluator Cue:	<p>1T-34B, Safety Injection Accumulator leak rate is 0.3 % per day over last 30 days. If asked, the last accumulator fill was greater than 30 days ago.</p>
Performance:	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
Comments:	

Performance Step: 4 Critical N	<p>5.2.1 <u>Engineering Verification</u></p> <p>d. IF accumulator leakage is greater than 0.7% / day, THEN NOTIFY Engineering to perform additional evaluation.</p>
Standard:	<p>The examinee N/As Step 5.2.1.d and proceeds to Step 5.2.2.</p>
Evaluator Cue:	
Performance:	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
Comments:	

Performance Step: 5 Critical N	5.2.2 Align 1P-15A, Safety Injection Pump, recirc flow path as follows: a. Ensure LOCKED OPEN 1SI-876A, P-15A SI Pump Discharge Recirc to SI Test Line.
Standard:	The examinee ensures that the 1SI-876A, P-15A SI pump discharge recirc to SI test line valve is locked open by dispatching the Primary Auxiliary Building Auxiliary Operator to verify 1SI-876A's status.
Evaluator Cue:	The Primary Auxiliary Building Auxiliary Operator reports that the 1SI-876A, P-15A SI pump discharge recirc to SI test line valve is locked open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical N	5.2.2 Align 1P-15A, Safety Injection Pump, recirc flow path as follows: b. At C01R, ensure OPEN 1SI-897A, SI Test Line Return.
Standard:	The examinee ensures that the 1SI-897A, SI test line return isolation AOV is open. (The green light is off, the red light is on and the control switch for 1SI-897A is in the open position.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical N	5.2.2 Align 1P-15A, Safety Injection Pump, recirc flow path as follows: c. At C01R, ensure OPEN 1SI-897B, SI Test Line Return Second Off Isolation.
Standard:	The examinee ensures that the 1SI-897B, SI test line return isolation AOV is open. (The green light is off, the red light is on and the control switch for 1SI-897B is in the open position.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical N	5.2.3 ENSURE the following valves are OPEN : <ul style="list-style-type: none"> • 1SI-825A, 1T-13 RWST Outlet to P-15A/B SI Pump • 1SI-825B, 1T-13 RWST Outlet to P-15A/B SI Pump • 1SI-896A, 1P-15A SI Pump Suction • 1SI-866A, Cold Leg Injection Line Isolation
Standard:	The examinee ensures all of the following valves are open: <ul style="list-style-type: none"> • 1SI-825A, P-15A/B SI pump suction from RWST MOV. (The green light is off, the red light is on and the control switch is in the auto position.) • 1SI-825B, P-15A&B SI pump suction from RWST MOV. (The green light is off, the red light is on and the control switch is in the auto position.) • 1SI-896A, 1P-15A pump suction isolation valve is open. (The green light is off, the red light is on and the control switch is in the spring return to center position.) • 1SI-866A, 1P-15A pump discharge header MOV is open. (The green light is off, the red light is on and the control switch is in the spring return to center position.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical N	5.2.4 Declare 1P-15A, Safety Injection Pump INOPERABLE, and ENTER the Action Condition of TS 3.5.2.
Standard:	The examinee notifies the SRO to declare 1P-15A, Safety Injection Pump INOPERABLE, and enter TS 3.5.2 Action Condition A.
Evaluator Cue:	<ul style="list-style-type: none"> • The SRO informs you that 1P-15A, Safety Injection Pump is INOPERABLE, TS 3.5.2 Action Condition A has been entered and that the Narrative Log has been updated. • IF asked, THEN report that the opposite train standby emergency power supply has been verified operable (per initial conditions). • IF asked, THEN report that Unit 1 'B' Train of ECCS has been walked down and verified to be Operable.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical N	5.2.5 Vent 1P-15A SI pump in accordance with Attachment C.
Standard:	Step 5.2.5 is marked N/A. The examinee proceeds to Step 5.2.6.
Evaluator Note:	Step 5.2.5 is marked N/A because 1-TS-ECCS-002 Train A, Safeguards System Venting (Monthly) Unit 1 has been completed within the last 24 hours. This is one of the Initial Conditions.
Evaluator Cue:	IF examinee begins to implement action to vent 1P-15A, THEN inform him that venting is not required. (See initial conditions.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical N	5.2.6 Ensure proper oil level in 1P-15A as follows: <ol style="list-style-type: none"> Check for visible level in 1P-15A oil sightglass located next to the oiler bulb. IF oil is NOT visible in sight glass, THEN go to Attachment E. Check 1P-15A oiler bulb at or above one-half full. IF oiler bulb less than one-half full, THEN GO TO Attachment E.
Standard:	The examinee directs the Primary Auxiliary Building Auxiliary Operator to: <ul style="list-style-type: none"> Check for visible level in the 1P-15A, safety injection pump oil sight glass located next to the oiler bulb. When told there is oil visible in the sight glass he N/As step b. Ensure that the 1P-15A, safety injection pump oil bulb is at or above one-half full. When told the oiler bulb is two-thirds full, he N/As step d.
Evaluator Cue:	The Primary Auxiliary Building Auxiliary Operator reports that: <ul style="list-style-type: none"> There is oil visible in the 1P-15A, safety injection pump oil sight glass located next to the oiler bulb. The 1P-15A, safety injection pump oil bulb is two-thirds full.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical N	5.2.7 IF one EDG is aligned to supply both Units A05 standby emergency power, THEN perform the following:
Standard:	Step 5.2.7 is marked N/A. The examinee proceeds to Step 5.2.8.
Evaluator Note:	Step 5.2.7 is marked N/A because G-01, G-02, G-03 and G-04 are in a normal at-power alignment. This is one of the Initial Conditions.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical N	5.2.8 RECORD the position of 1P-15A-CS, Safety Injection Pump Control Switch. Control Switch position: _____
Standard:	The examinee records the position of 1P-15A-CS, Safety Injection Control Switch.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical Y	5.2.9 START 1P-15A, Safety Injection Pump.
Standard:	The examinee places the control switch for 1P-15A, Safety Injection Pump to the Start position. (The green light is off, the red light is on, 1FI-925, 1P-15A High Head SI Flow, 1P-923, 1P-15A SI Pump Disch Pressure and AC AMPS, 1P-15A SI Pump Current are as read.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 15 Critical N	5.2.10 MONITOR all available channels for accumulator pressure and level during accumulator fill.
Standard:	The examinee notes which indicators he will be monitoring during accumulator fill.
Evaluator Note:	Initial conditions stated that the Unit 1 Control Operator is available to monitor accumulator parameters per direction of the examinee. The Booth operator may be used for this function.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 16 Critical N	5.2.11 IF filling 1T-34A, Safety Injection Accumulator, THEN PERFORM the following:
Standard:	Step 5.2.11 is marked N/A. The examinee proceeds to Step 5.2.12.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 17 Critical Y	5.2.12 IF filling 1T-34B,Safety Injection Accumulator, THEN PERFORM the following: a. OPEN 1SI-835B, T-34B SI Accumulator Fill AOV, AND START stopwatch.
Standard:	<ul style="list-style-type: none"> The examinee places the control switch for the 1SI-835B, T-34B SI Accumulator Fill From Cold Leg SI to the Open position (The green light is off and the red light is on.) And starts the stopwatch.
Evaluator Note:	<ul style="list-style-type: none"> The critical portion of this step is opening 1SI-835B. If examinee directs another operator to use the stopwatch, the evaluator will assign the booth operator to this task.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 18 Critical Y	5.2.12 IF filling 1T-34B,Safety Injection Accumulator, THEN PERFORM the following: b. FILL SI accumulator to desired level as indicated on the following level indicators: <ul style="list-style-type: none"> 1LI-934, 1T-34B Accumulator Level Indicator 1LI-935, 1T-34B Accumulator Level Indicator
Standard:	The examinee monitors level indication for 1T-34B and raises the level to 20% (\pm 3%).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 19 Critical Y	5.2.12 IF filling 1T-34B, Safety Injection Accumulator, THEN PERFORM the following: c. SHUT 1SI-835B, T-34B SI Accumulator Fill AOV AND STOP timing. RECORD time below:
Standard:	The examinee: <ul style="list-style-type: none"> Places the control switch for the 1SI-835B, 1T-34B accumulator fill AOV to the Close position (The green light is on and the red light is off) And records the fill time.
Evaluator Note:	<ul style="list-style-type: none"> The critical portion of this step is closing 1SI-835B. If examinee directs another operator to use the stopwatch, the evaluator will assign the booth operator to this task.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 20 Critical N	5.2.12 IF filling 1T-34B, Safety Injection Accumulator, THEN PERFORM the following: d. RECORD AFT in Step 2.1 of Attachment B, 1T34B Accumulator Level/Pressure Change Data Sheet.
Standard:	The examinee records Accumulator Fill Time on Attachment B.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 21 Critical N	5.2.12 IF filling 1T-34B, Safety Injection Accumulator, THEN PERFORM the following: e. IF fill of 1T-34A, Safety Injection Accumulator, is NOT required, THEN STOP 1P-15A, Safety Injection Pump.
Standard:	The examinee places the control switch for 1P-15A, Safety Injection Pump to the Stop position. (The green light is on, the red light is off, 1FI-925, 1P-15A High Head SI Flow, 1PI-923, 1P-15A SI Pump Disch Pressure and AC AMPS, 1P-15A SI Pump Current are as read.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 22 Critical Y	5.2.12 IF filling 1T-34B, Safety Injection Accumulator, THEN PERFORM the following: f. IF fill of 1T-34A, SI Accumulator is NOT required, THEN ENSURE 1P-15A-CS is returned to position recorded at step 5.2.8.
Standard:	The examinee ensures that the control switch for 1P-15A, Safety Injection Pump is in the Auto (after trip) position.
Evaluator Cue:	Another licensee has performed an independent verification of 1P-15A-CS, Safety Injection Pump Control Switch position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 23 Critical N	5.2.12 IF filling 1T-34B,Safety Injection Accumulator, THEN PERFORM the following: g. DECLARE 1P-15A OPERABLE
Standard:	The examinee informs the SRO to declare 1P-15A, Safety Injection Pump OPERABLE.
Evaluator Cue:	<ul style="list-style-type: none"> The SRO acknowledges your report. The SRO reports that 1P-15A, safety injection pump is OPERABLE and the Narrative Log has been updated.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 24 Critical N	5.2.12 IF filling 1T-34B,Safety Injection Accumulator, THEN PERFORM the following: h. Exit Action Condition for TS 3.5.2 for Unit 1.
Standard:	The examinee informs the SRO to exit TS 3.5.2 Action Condition for 1P-15A, Safety Injection pump.
Evaluator Cue:	The SRO informs you that the Technical Specification Action Condition associated with 1P-15A, Safety Injection Pump has been exited and the Narrative Log has been updated.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 1 is operating at 100% steady-state conditions.
- Annunciator C01B 3-8, 1T-34B ACCUMULATOR LEVEL HIGH OR LOW is lit.
- Emergency Diesel Generators G-01, G-02, G-03 and G-04 are OPERABLE and in a normal at-power alignment.
- 1-TS-ECCS-002 Train A and 1-TS-ECCS-002 Train B, Safeguards System Venting (Monthly) Unit 1 were performed last shift for 1P-15A and 1P-15B, Unit 1 safety injection pumps.
- Combined Control Room Log accumulator level drop rate (daily accumulator leakage) is currently 0.3 % per day over the past 30 days.
- Unit 1 RWST Boron concentration is 2950 ppm.

INITIATING CUES (IF APPLICABLE):

- You are the 3rd Control Operator.
- The SRO directs you to raise 1T-34B, Unit 1 “B” SI accumulator level to approximately 20% in accordance with OI 100 Unit 1, Adjusting SI Accumulator Level and Pressure Unit 1, Section 5.2.
- Unit 1 Control Operator has been assigned the duties of monitoring accumulator parameters per your request.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Establish Feed Flow From Condensate System

JPM NUMBER: PBN JPM P041.003a.COT **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN P041.003.COT / Operate the condenser steam dump control system in various modes

K/A NUMBERS: 041 A4.08 **K/A VALUE:** 3.0 / 3.1

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: 25 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

Simulator Setup Instructions:

- Load a 100% IC
- Load all commands listed in table below
- Start the simulation
- Insert Trigger 1
- Perform EOP set actions through CSP-H.1 Unit 1, Step 13.c.
- Make any necessary adjustments or corrections
- Update documentation if required
- Save to an IC for multiple use

Multiple Use:

- Load the saved IC and schedule file for this JPM
- Walk down the control boards to ensure plant conditions accurately reflect the JPM initial conditions
- Make any necessary adjustments or corrections
- Update documentation if required
- Resave if required

SIMULATOR MALFUNCTIONS:

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1AFW001	AUX FWP TURBINE OVERSPEED	00 :00 :00	-	-	00 :00 :00	-	-	PRELOAD
PMP1AFW004	1-P53 AUXILIARY FEEDWATER PUMP	00 :00 :00	-	-	00 :00 :00	-	Shaft Seizure	PRELOAD
BKR1AFW001	1-B5212C P-38A AUX SG FEED PUMP CKTBKR	00 :00 :00	-	-	00 :00 :00	-	Failasis	PRELOAD
BKR1AFW002	2-B5231C P-38B AUX SG FEED PUMP CKTBKR	00 :00 :00	-	-	00 :00 :00	-	Failasis	PRELOAD
LOA2EPS101	2-EP-5268 2P53 SUPPLY BREAKER RACKOUT	00 :00 :00	-	-	00 :00 :00	-	Rackout	PRELOAD
MAL1RCS003A	RTD BYPASS LOOP A HOT LEG LINE LEAK	00 :00 :00	-	1	00 :00 :00	-	75	PLE
CNH1PCS011	1-HC468 LOOP A ATM SD HAND CONTROLLER	00 :00 :00	-	-	00 :00 :00	-	As Is Auto/Man	PRELOAD
CNH1PCS013	1-HC478 LOOP B ATM SD HAND CONTROLLER	00 :00 :00	-	-	00 :00 :00	-	As Is Auto/Man	PRELOAD
MAL1CFW005A	Condenser A Loss of Vacuum	00 :00 :00	-	-	00 :00 :00	-	1000	
MAL1CFW005B	Condenser B Loss of Vacuum	00 :00 :00	-	-	00 :00 :00	-	1000	
LOA1SGN022	1MS-234 SG A Main Steam Bypass	00 :00 :00	-	3	00 :00 :00	-	1-open	

LOA1SGN024	1MS-236 SG B Main Steam Bypass	00 :00 :00	-	5	00 :00 :00	-	1-open	
VLV1CFW015	1CS-2190 FWP 1P-28A Disch Stop Vlv	00 :00 :00	-	7	00 :00 :00	-	Cntrl_Pwr Fuse	MFP discharge MOV
VLV1CFW013	1CS-2189 FWP 1P-28B Disch Stop Vlv	00 :00 :00	-	9	00 :00 :00	-	Cntrl_Pwr Fuse	MFP discharge MOV

SIMULATOR OVERRIDES:

See above

SIMULATOR REMOTE FUNCTIONS:

See above

Required Materials: CSP-H.1 Unit 1, Response To Loss Of Secondary Heat Sink

General References: CSP-H.1 Unit 1, Response To Loss Of Secondary Heat Sink

Task Standards: Establish feed flow from condensate system /depressurize at least one steam generator to less than 280 psig by dumping steam to the condenser at maximum rate from selected steam generator using the condenser dump valve test switches in accordance with CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink.

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 fourth license.
- A RCS leak in excess of charging pump capacity necessitated a manual reactor trip, Safety Injection and Containment Isolation.
- 1P-53, Motor-Driven AFW Pump seized on startup, 1P-29, Turbine-Driven AFW Pump tripped on overspeed and both P-38A and P-38B, SSG Feed Pumps failed to start.
- 2P-53, Motor-Driven AFW Pump is OOS for repairs.
- Upon transitioning from EOP-0, the crew entered CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink, and has completed up to Step 13.d
- EOP-0, Attachment A, Automatic Action Verification, is complete.
- The third license is working to recover 1P-29, Turbine-Driven AFW Pump.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to perform CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink, starting at Step 13.d, Depressurize at least one SG to less than 280 psig, using the 'A' steam generator.

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	13.d Depressurize at least one S/G to less than 280 psig: 1) Shut MSIV and MSIV bypass valve for Non-selected S/G
Standard:	The examinee: <ul style="list-style-type: none"> Shuts the MSIV for the non-selected (B) SG by taking its associated control switch to the CLOSE position.
Evaluator Note:	‘A’ SG is the selected SG.
Evaluator Cue:	OS1 confirms that the MSIV bypass valves are administratively closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



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Performance Step: 2 Critical N	13.d Depressurize at least one S/G to less than 280 psig: 2) Dump steam to condenser at maximum rate from selected S/G: a) Place Steam Dump Mode Selector switch in Manual b) Shift Condenser Steam Dump Controller to manual: ▪ 1HFC-484 c) Fully open two condenser steam dump control valves:
Standard:	The examinee determines that the CSDs will not operate due to the condenser not available, and goes to Step 13.d 2) RNO.
Evaluator Note:	The examinee may attempt to perform the steps to open the CSD valves, but the valves will not open. The condenser is not available.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

<p>Performance Step: 3 Critical N</p>	<p>13.d Depressurize at least one S/G to less than 280 psig: 2) RNO Manually or locally dump steam at maximum rate from selected S/G: a. Open atmospheric steam dump ○ 1MS-2016 for S/G A (1HC-468) ○ 1MS-2015 for S/G B (1HC-478)</p>
<p>Standard:</p>	<p>The examinee attempts to manually dump steam at the maximum rate from the selected S/G by:</p> <ul style="list-style-type: none"> • Taking the selected S/G atmospheric hand controller to manual <u>AND</u> • Rotating the potentiometer in the Open direction
<p>Evaluator Note:</p>	<p><u>IF</u> the examinee directs the PAB AO to locally dump steam from the selected steam generator, <u>THEN</u> provide the following cue:</p> <p>The examinee may recommend or attempt to dump steam using the 'B' SG ADV, if asked the OS/SM would concur with this action.</p>
<p>Evaluator Cue:</p>	<p>Both atmospheric steam dump valves will not open locally.</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

<p>Performance Step: 4 Critical N</p>	<p>13.d Depressurize at least one S/G to less than 280 psig: 2) RNO Manually or locally dump steam at maximum rate from selected S/G: b. IF atmospheric steam dump is NOT available, THEN dump steam using alternate means: 1. Open MSIV bypass valve: ○ 1MS-234 for S/G A ○ 1MS-236 for S/G B</p>
<p>Standard:</p>	<p>The examinee: • Directs the PAB AO to open the selected MSIV bypass valve</p>
<p>Evaluator Note:</p>	<p>If the examinee shuts both MSIV's in an earlier step, then opening one bypass valve becomes critical.</p>
<p>Evaluator Cue:</p>	<p>Open MSIV bypass valve as directed: Insert Trigger 3 for 1MS-234 ('A' SG) AND / OR Insert Trigger 5 for 1MS-236 ('B' SG) AO reports that the selected MSIV bypass valve is open.</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

<p>Performance Step: 5 Critical Y</p>	<p>13.d Depressurize at least one S/G to less than 280 psig: 2) RNO Manually or locally dump steam at maximum rate from selected S/G: b. IF atmospheric steam dump is NOT available, THEN dump steam using alternate means: 2. Place dump valve test switches on 1C03R to test • 1MS-2050 through 1MS-2057 3. Direct plant personnel to stay clear of LP turbine rupture disks.</p>
<p>Standard:</p>	<p>The examinee: • Rotates the dump valve test switches for 1MS-2050 through 2057 to the test position on 1C03R. • Directs plant personnel to stay clear of the LP turbine rupture disks</p>
<p>Evaluator Note:</p>	<p>Critical actions are bolded.</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

<p>Performance Step: 6 Critical Y</p>	<p>13.d Depressurize at least one S/G to less than 280 psig: 2) RNO Manually or locally dump steam at maximum rate from selected S/G: b. IF atmospheric steam dump is NOT available, THEN dump steam using alternate means: 4. Operate steam dump pressure controller in manual: a) IF any MSIV is open, THEN fully open two condenser steam dumps. b) IF both MSIVs are shut, THEN open all condenser steam dumps</p>
<p>Standard:</p>	<p>The examinee: <ul style="list-style-type: none"> Shifts 1HFC-484, Condenser Steam Dump Controller to MANUAL and adjusts the potentiometer so that <u>two</u> condenser steam dumps are fully open. (<u>all</u> open if both MSIVs are shut) </p>
<p>Evaluator Note:</p>	<p>1HFC-484 may already be in manual if the examinee attempted to use the condenser steam dumps in procedure step 13.d.</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	

Performance Step: 7 Critical N	13.d Depressurize at least one S/G to less than 280 psig: 2) RNO Manually or locally dump steam at maximum rate from selected S/G: c. IF No S/G can be depressurized, THEN go to <u>Step 15</u> .
Standard:	The examinee marks this sub-step N/A and proceeds to sub-step 13.e.1).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical N	13.e Establish condensate flow to depressurized S/G: 1) Ensure main feed AC lube oil pumps running: • 1P-73B • 1P-73A
Standard:	The examinee ensures the main feed AC lube oil pumps are running.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical N	13.e Establish condensate flow to depressurized S/G: 2) Place MFP control switch to pull-out: <ul style="list-style-type: none"> • 1P-28A • 1P-28B
Standard:	The examinee places 1P-28A and 1P-28B MFP control switches to pull-out.
Evaluator Note:	
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical N	13.e Establish condensate flow to depressurized S/G: 3) Check MFP Mini Recirc Flow Control Valves - CLOSED <ul style="list-style-type: none"> • 1CS-2180 • 1CS-2186
Standard:	The examinee checks that 1CS-2180 and 1CS-2186 MFP Mini Recirc Control Valves are closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical Y	13.e Establish condensate flow to depressurized S/G: 4) Open main feed pump discharge MOVs: a) Open main feed pump discharge MOVs and hold switches in OPEN position: • 1CS-2190 • 1CS-2189
Standard:	The examinee opens 1CS-2190 and 1CS-2180, Main Feed Pump Discharge MOVs and holds the switches in the open position.
Evaluator Note:	The examinee may elect to perform Step 13.e.4)a) and b) one train at a time.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical N	13.e Establish condensate flow to depressurized S/G: 4) Open main feed pump discharge MOVs: b) Open breaker for open MOVs • 1B52-417M for 1CS-2190 • 1B52-417J for 1CS-2189
Standard:	The examinee directs opening for 1B52-417M for 1CS-2190 and 1B52-417J for 1CS-2189.
Evaluator Cue:	When directed: Insert Trigger 7 to open 1B52-417M for 1CS-2190. Insert Trigger 9 to open 1B52-417J for 1CS-2189. Report as AO when actions are complete.
Evaluator Note:	The examinee may elect to perform Step 13.e.4)a) and b) one train at a time.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical N	13.e Establish condensate flow to depressurized S/G: 5) Manually shut low pressure Feedwater heater bypass valve: • 1CS-2273
Standard:	The examinee takes the hand controller for 1CS-2273, Feedwater Heater Bypass Valve to manual and adjusts the potentiometer in the close direction until it stops.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical N	13.e Establish condensate flow to depressurized S/G: 6) Ensure Feedwater isolation valves - OPEN: • 1CS-3124 • 1CS-3125
Standard:	The examinee verifies that 1CS-3124 and 1CS-3125, Feedwater Isolation Valves are open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 15 Critical N	13.e Establish condensate flow to depressurized S/G: 7) Reset Feedwater regulating valve bypasses:
Standard:	The examinee depresses the Feedwater Regulating Valve Bypass Reset pushbutton.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 16 Critical Y	13.e Establish condensate flow to depressurized S/G: 8) Manually or locally open Feedwater regulating valve bypass on depressurized S/G: ○ 1CS-480 for S/G A ○ 1CS-481 for S/G B
Standard:	The examinee: <ul style="list-style-type: none"> Places the selected Feedwater Regulating Valve Bypass Controller to manual <p><u>AND</u></p> <ul style="list-style-type: none"> Adjusts the potentiometer in the open direction
Evaluator Note:	
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 17 Critical N	13.f Verify feed flow to depressurized S/G: <ul style="list-style-type: none"> ○ Core exit thermocouples – LOWERING <u>OR</u> ○ Level in depressurized S/G – RISING <ul style="list-style-type: none"> ○ Wide range ○ Narrow range
Standard:	The examinee verifies feed flow to the depressurized steam generator by observing: <ul style="list-style-type: none"> ○ Core exit thermocouples – LOWERING <u>OR</u> ○ Level in depressurized S/G – RISING <ul style="list-style-type: none"> ○ Wide range ○ Narrow range
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: _____

TURNOVER SHEET**INITIAL CONDITIONS:**

- You are the fourth license.
- A RCS leak in excess of charging pump capacity necessitated a manual reactor trip, Safety Injection and Containment Isolation.
- 1P-53, Motor-Driven AFW Pump seized on startup, 1P-29, Turbine-Driven AFW Pump tripped on overspeed and both P-38A and P-38B, SSG Feed Pumps failed to start.
- 2P-53, Motor-Driven AFW Pump is OOS for repairs.
- Upon transitioning from EOP-0, the crew entered CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink, and has completed up to Step 13.d
- EOP-0 Attachment A, Automatic Action Verification, is complete.
- The third license is working to recover 1P-29, Turbine-Driven AFW Pump.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to perform CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink, starting at Step 13.d, Depressurize at least one SG to less than 280 psig, using the 'A' steam generator.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Secure Containment Spray

JPM NUMBER: PBN JPM P026.005.COT **REV.** 10

TASK NUMBER(S) / TASK TITLE(S): PBN P026.005.COT / Secure containment spray

K/A NUMBERS: 026 A2.08 **K/A VALUE:** 3.2 / 3.7

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: 10 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	DATE
				SUPERVISOR	DATE
Rev. 0-5	See historical records.				
Rev. 6	Reformatted to the current revision of QF-1075-01. Revised to Rev. 35 of EOP 1.1, SI Termination.				
Rev. 7	Reformatted to the current revision of QF-1075-01. Added additional evaluator notes, corrected typos.				
Rev. 8	Updated to new template				
<u>Rev. 9</u>	<u>Updated for the 2015 Operational Exam.</u>				
Rev. 10	Updated for the 2017 NRC ILT Exam.				

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

Simulator Setup Instructions:

Initial Setup:

- Load a 100% IC.
- Load all commands listed in table below.
- Start the simulation.
- Insert Trigger 1
- Perform actions of the EOP set through EOP-1.1, SI Termination, Step 6. Ensure 1P-14A is the pump secured in EOP-0, Attachment A. Ensure containment pressure is < 15 psig prior to snapping the IC.
- Walk down the control boards to ensure plant conditions accurately reflect JPM initial conditions.
- Make any necessary adjustments or corrections.
- Update documentation if required.
- Save to an IC for multiple use.

Multiple Use:

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

SIMULATOR MALFUNCTIONS:

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1SGN003A	SG A MAIN STEAM LINE BREAK INSIDE CNMT	00:00:00	00:00:00	1	00:00:00	0	5E6	PLE

SIMULATOR OVERRIDES:

None

SIMULATOR REMOTE FUNCTIONS:

None

Required Materials: EOP-1.1 Unit 1, SI Termination

General References: EOP-1.1 Unit 1, SI Termination

Task Standards: Containment spray is secured and in the standby mode.

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 in EOP-1.1 Unit 1, SI Termination following a steam line break inside containment on Unit 1 'A' S/G.
 - Containment pressure has lowered to less than 20 psig.
 - EOP-1.1 Unit 1 has been completed through Step 6.
- 1P-14A containment spray pump is in Pullout due to actions taken in EOP-0 Unit 1, Reactor Trip or Safety Injection, Attachment A, Automatic Action Verification, Step A12.

INITIATING CUES (IF APPLICABLE):

- The OS1 directs you to secure containment spray in accordance with EOP-1.1 Unit 1, Step 7.

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	7. Check If Containment Spray Should Be Stopped: a. Check containment spray pumps – ANY RUNNING.
Standard:	The examinee: <ul style="list-style-type: none"> Checks spray pumps running by observing breaker positions on C01. Recognizes 1P-14B, Spray Pump is running and 1P-14A, Spray Pump is secured.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 2 Critical N	7. Check If Containment Spray Should Be Stopped: b. Containment pressure – LESS THAN 20 PSIG
Standard:	The examinee: <ul style="list-style-type: none"> Checks containment pressure indication on C01. Recognizes pressure <20 psig.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 3 Critical Y	7. Check If Containment Spray Should Be Stopped: c. Reset containment spray signal
Standard:	The examinee resets containment spray on the rear of C01 by depressing Train 'A' and Train 'B' Containment Spray pushbuttons (the examinee should check C01 B2-6 annunciator is cleared but this is not critical to task completion).
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 4 Critical N	7. Check If Containment Spray Should Be Stopped: d. Ensure containment spray pump RWST suction MOVs – OPEN <ul style="list-style-type: none"> • 1SI-870A • 1SI-870B
Standard:	The examinee verifies: <ul style="list-style-type: none"> • 1SI-870A, Containment Spray Pump RWST Suction MOV red light on, green light off. • 1SI-870B, Containment Spray Pump RWST Suction MOV red light on, green light off.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 5 Critical Y	7. Check If Containment Spray Should Be Stopped: e. Stop both containment spray pumps and place in auto: <ul style="list-style-type: none"> • 1P-14A • 1P-14B
Standard:	The examinee takes: <ul style="list-style-type: none"> • 1P-14A, Containment Spray Pump Control Switch out of pull-out and places in auto-after-stop position. • 1P-14B, Containment Spray Pump Control Switch to stop and then places in auto-after-stop position.
Evaluator Note:	1P-14A, Containment Spray Pump will be in pull-out due to earlier procedure actions.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 6 Critical Y	7. Check If Containment Spray Should Be Stopped: f. Shut containment spray pump discharge valves and place in auto-after shut position: <ul style="list-style-type: none"> • 1SI-860A • 1SI-860B • 1SI-860C • 1SI-860D
Standard:	The examinee turns 1SI-860A, B, C & D, Containment Spray Pump Discharge Valves to the shut position and observes green indicating lights.
Evaluator Note:	Alarm C01B 1-6, Containment Spray Full Flow Discharge Valves Not in Auto will annunciate.
Evaluator Note:	1SI-860 B&D will spring return to the AUTO position, but A&C are maintained so will need to be manually returned to the AUTO position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 7 Critical N	7. Check If Containment Spray Should Be Stopped: g. Ensure both spray additive eductor suction valves - shut <ul style="list-style-type: none"> • 1SI-836A • 1SI-836B
Standard:	The examinee checks shut 1SI-836A & B, Spray Additive Eductor Suction Valves by noting white lights out on the Unit 1 SI-Spray Active Panel and/or noting close indication on controller.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	_____

Performance Step: 8 Critical N	Inform OS1 that step 7 of EOP-1.1 Unit 1 is complete.
Standard:	The examinee informs OS1 of completion of step 7 of EOP-1.1 Unit 1.
Evaluator Cue:	OS1 acknowledges 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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are in EOP-1.1 Unit 1, SI Termination following a steam line break inside containment on Unit 1 'A' S/G.
 - Containment pressure has lowered to less than 20 psig.
 - EOP-1.1 Unit 1 has been completed through Step 6.
- 1P-14A containment spray pump is in Pullout due to actions taken in EOP-0 Unit 1, Reactor Trip or Safety Injection, Attachment A, Automatic Action Verification, Step A12.

INITIATING CUES (IF APPLICABLE):

- The OS1 directs you to secure containment spray in accordance with EOP-1.1 Unit 1, Step 7.

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



JOB PERFORMANCE MEASURE

JPM TITLE: SECURE THE DIESEL GENERATOR

JPM NUMBER: PBN JPM P064.005aCOT **REV.** 3

TASK NUMBER(S) / TASK TITLE(S): P064.005.COT
SECURE THE EMERGENCY DIESEL GENERATOR

K/A NUMBERS:	064 A1.03	K/A VALUE:	3.2 / 3.3
	064 A3.03		3.4 / 3.3
	064 A3.06		3.3 / 3.4
	064 A4.01		4.0 / 4.3
	064 A4.02		3.3 / 3.4

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: 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

Initial Setup:

- Load an IC where conditions support 100% steady state conditions.
- Start the simulation.
- Using TS-81 as a guide, start emergency diesel generator G-01 in the Exercise mode.
- Parallel emergency diesel generator G-01 to 1A-05 and increase load to 2600-2700 kW and 300-800 KVAR.
- Freeze the simulator.
- 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.
- Save to an IC for multiple use.

Multiple Use:

- 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:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: TS 81, Emergency Diesel Generator G-01 Monthly

General References: TS 81, Emergency Diesel Generator G-01 Monthly

Task Standards: The examinee secures G-01, Emergency Diesel Generator in accordance with TS 81, Emergency Diesel Generator G-01 Monthly.

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:

- G-01, Emergency Diesel Generator is running loaded after an exercise start in accordance with TS 81, Emergency Diesel Generator G-01 Monthly.
- TS 81 has been completed through Step 5.50.
- Attachment B, Fuel Oil Transfer System Surveillance, has been completed.
- An Auxiliary Operator is stationed at G-01, Emergency Diesel Generator.

INITIATING CUES (IF APPLICABLE):

- The full-load run time requirements have been met and the OS orders G-01, Emergency Diesel Generator to be secured in accordance with TS 81, Emergency Diesel Generator G-01 Monthly; beginning at Step 5.51.

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	5.51 WHEN G-01 has run a minimum of 60 min. at full load, (2600-2700 kW and 300-800 KVARs), THEN PERFORM the following: 5.51.1 ENSURE G-01 Emergency Diesel Generator Logsheet LOADED PRIOR TO SHUTDOWN Section is COMPLETE .
Standard:	The examinee checks with the test Auxiliary Operator(s) to ensure the G-01 Emergency Diesel Generator Log sheet LOADED PRIOR TO SHUTDOWN Section is complete.
Evaluator Cue:	The test Auxiliary Operator(s) reports that the G-01 Emergency Diesel Generator Logsheet LOADED PRIOR TO SHUTDOWN Section is completed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical N	5.51 WHEN G-01 has run a minimum of 60 min. at full load, (2600-2700 kW and 300-800 KVARs), THEN PERFORM the following: 5.51.2 IF required, THEN ENSURE Attachment E, G-01EDG Vibration is COMPLETE .
Standard:	The examinee checks to see if test was required.
Evaluator Cue:	Attachment E, G-01 EDG Vibration has been completed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical Y	5.51 WHEN G-01 has run a minimum of 60 min. at full load, (2600-2700 kW and 300-800 KVARs), THEN PERFORM the following: 5.51.3 REDUCE load to about 300 kW with G-01 Diesel Generator Governor control switch.
Standard:	The examinee reduces load to about 300 kW (100 – 500 kW) using the G-01 Diesel Generator Governor control switch.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical Y	5.51 WHEN G-01 has run a minimum of 60 min. at full load, (2600-2700 kW and 300-800 KVARs), THEN PERFORM the following: 5.51.4 DRIVE KVARs to zero with G-01 Generator Voltage Regulator control switch.
Standard:	The examinee drives KVARs to zero using the G-01 Generator Voltage Regulator control switch.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical Y	5.51 WHEN G-01 has run a minimum of 60 min. at full load, (2600-2700 kW and 300-800 KVARs), THEN PERFORM the following: 5.51.5 PLACE 1A52-60-CS, G-01 Diesel Generator to Bus 1A-05 Breaker Control switch to TRIP AND record time.
Standard:	The examinee places the control switch for the G-01 Diesel Generator to Bus 1A-05 breaker, 1A52-60 to the trip position. (critical) Records the time. (not critical)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical N	5.52 Record G-01 total time at full load (step 5.51.5 minus step 5.42).
Standard:	The examinee records the G-01 total time at full load.
Evaluator Cue:	Total time is 68 minutes.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical N	<p>5.53 Perform the following on 1A52-60:</p> <p>5.53.1 CLOSE 1-271X-B03/A05-TS knife switches on 1A52-60:</p> <ul style="list-style-type: none"> • Knife Switch F • Knife Switch H <p>5.53.2 CLOSE 1-272X-B03/A05-TS knife switches on 1A52-60</p> <ul style="list-style-type: none"> • Knife Switch F • Knife Switch H <p>5.53.3 INSTALL and TIGHTEN the plastic switch cover for 1-271X-B-3/A-05-TS.</p> <p>5.53.4 INSTALL and TIGHTEN the plastic switch cover for 1-272X-B03/A05-TS.</p> <p>5.53.5 REMOVE Danger – Energized Electrical Equipment signs.</p>
Standard:	The examinee directs the test Auxiliary Operator(s) to perform Step 5.53 and to report back when completed.
Evaluator Cue:	The test Auxiliary Operator(s) reports that Step 5.53 has been completed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 8 Critical N	5.54 VARY G-01 output voltage approximately +100 and -100 volts from nominal voltage to wipe the voltage regulator potentiometer.
Standard:	The examinee manipulates the G-01 Diesel Generator Voltage Regulator control switch to vary G-01 output voltage approximately +100 and -100 volts from nominal voltage to wipe the voltage regulator potentiometer.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical Y	5.55 ADJUST G-01 frequency to 60 Hz.
Standard:	The examinee positions the G-01 Diesel Generator Governor Control Switch to obtain 60 Hz. (59.7 – 60.3 Hz)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical Y	5.56 ADJUST G-01 voltage to 4160 VAC.
Standard:	The examinee Positions the G-01 Diesel Generator Voltage Regulator control switch to obtain 4050 – 4300 volts.
Evaluator Note:	After the examinee adjusts G-01 voltage, initial for Step 5.57 and provide the following cue:
Evaluator Cue:	Step 5.57; Independent verification of G01 EDG settings has been completed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 11 Critical N	5.58 ENSURE Sump Tank level is greater than 400 gallons.
Standard:	The examinee checks with the test Auxiliary Operator(s) to ensure that the G-01 sump tank level is greater than 400 gallons.
Evaluator Cue:	The test Auxiliary Operator(s) report that the G-01 sump tank level is 450 gallons.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 12 Critical Y	5.59 PLACE G-01 Diesel Generator Control Switch to STOP.
Standard:	The examinee places the G-01 Diesel Generator Control Switch to the Stop position
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 13 Critical Y	5.60 IF required to reset misalignment light, <u>THEN PLACE</u> 1A52-60-CS to TRIP, <u>AND BACK TO AUTO</u> .
Standard:	The examinee places 1A52-60 G-01 Diesel Generator to Bus 1A-05 breaker control switch to the Trip position and then to the Auto position.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical N	5.61 IF required to reset misalignment light, <u>THEN PLACE</u> 2A52-73-CS to TRIP, <u>AND BACK TO AUTO</u> .
Standard:	The examinee N/As the step.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



Performance Step: 15 Critical Y	5.62 PLACE G-01 Diesel Generator Mode selector switch to AUTO to return G-01 to standby status.
Standard:	The examinee places the G-01 Diesel Generator Mode selector switch to the Auto position to return G-01 to a standby status.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- G-01, Emergency Diesel Generator is running loaded after an exercise start in accordance with TS 81, Emergency Diesel Generator G-01 Monthly.
- TS 81 has been completed through Step 5.50.
- Attachment B, Fuel Oil Transfer System Surveillance, has been completed.
- An Auxiliary Operator is stationed at G-01, Emergency Diesel Generator.

INITIATING CUES (IF APPLICABLE):

- The full-load run time requirements have been met and the OS orders G-01, Emergency Diesel Generator to be secured in accordance with TS 81, Emergency Diesel Generator G-01 Monthly; beginning at Step 5.51.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Test High Flux at Shutdown Alarm

JPM NUMBER: PBN JPM P015.004a.COT **REV. 2**

TASK NUMBER(S) / TASK TITLE(S): PBN P015.004.COT
Monitor the Nuclear Instrument System for Proper Operation

K/A NUMBERS: 015.A3.02 **K/A VALUE:** 3.7 / 3.9

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: 10 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

SIMULATOR SETUP INSTRUCTIONS:

Initial Setup:

- Load IC-14 (both units shutdown and draindown) or similar IC.
- Start the simulation.
- 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.
- Save to an IC for multiple use.

Multiple Use:

- Load the saved IC for this JPM.
- Set up Source Range counter as follows:
 - Audio multiplier set to "1K"
 - Display/Preset = Counts/Sec
 - Thunbwheel = 00100
 - Start pushbutton depressed – Gate light is lit
- 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:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: RP-1A, Preparation for Refueling, Attachment D

General References: RP-1A, Preparation for Refueling
RP-1A, Preparation for Refueling, Attachment A, Reactor Vessel Head Lift
Check off Data Sheet

Task Standards: High Flux at Shutdown Alarm tested satisfactorily

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 Unit 1 BOP.
- Unit 1 has just been drained down in preparation for removing the Reactor Vessel Head.
- The crew is performing RP-1A, Preparation for Refueling, Attachment A, Reactor Vessel Head Lift Checkoff Data Sheet.
- Both Source Range Detectors N-31 and N-32 are in service.
- There is an Auxiliary Operator stationed in Containment to support RP-1A, Attachment A evolutions.

INITIATING CUES (IF APPLICABLE):

- The SRO has requested that you perform Attachment D, Test the High Flux at Shutdown Alarm, to support the completion of RP-1A, Attachment A, Reactor Vessel Head Lift Checkoff Data Sheet.

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 Y	1.0 Test N-31 if in service (otherwise N/A) 1.1 On N-31 PLACE the “Level Trip” switch to BYPASS, to enable “Operator Select” switch.
Standard:	The examinee positions the Level Trip switch to BYPASS.
Evaluator Note:	An alarm will come in at 1C04 and N-31 cabinet when this switch is positioned.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 2 Critical Y	1.0 Test N-31 if in service (otherwise N/A) 1.2 On N-31 POSITION the “Operator Select” switch to the “LEVEL ADJUST” position.
Standard:	The examinee positions the Operator Select switch to the “LEVEL ADJUST” position.
Evaluator Note:	An alarm will come in at 1C04 and N-31 cabinet when this switch is positioned.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P015.004a.COT, TEST HIGH FLUX AT SHUTDOWN
ALARM, REV. 2**

Performance Step: 3 Critical Y	1.0 Test N-31 if in service (otherwise N/A) 1.3 UNLOCK and INCREASE level adjust potentiometer to INCREASE counts to bring in alarm. VERIFY alarm in both control and containment.
Standard:	The examinee: <ul style="list-style-type: none"> Adjusts the Level adjust potentiometer up to increase counts AND Verifies alarms in both control and containment.
Evaluator Note:	An alarm will come in at 1C04 and N-31 cabinet when this pot is adjusted.
Evaluator Cue:	When AO is contacted, inform examinee that the audible alarm has been received in containment.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical N	1.0 Test N-31 if in service (otherwise N/A) 1.4 REPOSITION level adjust back to zero and LOCK . VERIFY alarms CLEAR .
Standard:	The examinee: <ul style="list-style-type: none"> Adjusts the Level adjust potentiometer back to zero AND Verifies alarms clear.
Evaluator Note:	An alarm will clear on 1C04 and N-31 cabinet when this pot is re-positioned.
Evaluator Cue:	When the AO is contacted, report alarm is clear.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P015.004a.COT, TEST HIGH FLUX AT SHUTDOWN
ALARM, REV. 2**

Performance Step: 5 Critical Y	1.0 Test N-31 if in service (otherwise N/A) 1.5 POSITION "Operator Selector" switch to NORMAL.
Standard:	The examinee re-positions the Operator Selector switch to NORMAL.
Evaluator Note:	An alarm will clear on 1C04 and N-31 cabinet when this switch is re-positioned.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical Y	1.0 Test N-31 if in service (otherwise N/A) 1.6 POSITION "Level Trip" switch to NORMAL.
Standard:	The examinee re-positions the Level Trip switch to NORMAL.
Evaluator Note:	An alarm will clear on 1C04 and N-31 cabinet when this switch is re-positioned.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the Unit 1 BOP.
- Unit 1 has just been drained down in preparation for removing the Reactor Vessel Head.
- The crew is performing RP-1A, Preparation for Refueling, Attachment A, Reactor Vessel Head Lift Checkoff Data Sheet.
- Both Source Range Detectors N-31 and N-32 are in service.
- There is an Auxiliary Operator stationed in Containment to support RP-1A, Attachment A evolutions.

INITIATING CUES (IF APPLICABLE):

- The SRO has requested that you perform Attachment D, Test the High Flux at Shutdown Alarm, to support the completion of RP-1A, Attachment A, Reactor Vessel Head Lift Checkoff Data Sheet.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Respond to Circulating Water Malfunction

JPM NUMBER: PBN JPM P000.052.COT **REV.** 1

TASK NUMBER(S) / TASK TITLE(S): PBN P000.052.COT Respond to Circulating Water System Malfunctions

K/A NUMBERS: 075.A2.02 **K/A VALUE:** 2.5/2.7

Justification (FOR K/A VALUES <3.0): JPM to be used for ILT Exam

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: NO

Alternate Path [NRC]: YES

Alternate Path [INPO]: YES

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

SIMULATOR SET-UP:

1. Develop an IC with Unit 2 on Ice Melt, (per OI-38)
2. Override lake temperatures and ambient air temperatures to frazzle ice conditions
3. Ensure unit 2 is on full ice melt (CW-1 full open, CW-3 shut)
4. Have PPCS page 2192, Pump House, displayed on PPCS drops 101A and 108A
5. Save IC for multiple uses
6. Prior to starting JPM ensure MET recorder has CW System trends called up

SIMULATOR MALFUNCTIONS:

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1CWS002A	U1 Traveling Screen plugging		90	1		55	75	PLE
MAL1CWS002A	U1 Traveling Screen plugging						55	PRELOAD
XMT1CWS003A	0-TE3599-2 North Outer Ring H-Pile Fixed Output					39.1	33.3	PRELOAD
XMT1CWS005A	0-TE3599-4 Unit 2 Inlet Temp RTD Fixed Output					39	33.2	PRELOAD
XMT1CWS007A	0-TE3599-6 Unit 2 Inlet Temp RTD Fixed Output					39.4	34.6	PRELOAD
XMT1CWS008A	0-TE3599-7 Forebay Temp RTD Fixed Output					39.32	32.9	PRELOAD

SIMULATOR OVERRIDES:

None

SIMULATOR REMOTE FUNCTIONS:

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
ENV1MET003	Primary Tower 45M Temperature					56	19.5	PRELOAD
ENV1MET007	Primary Tower 10 Temp (M1TL)					55	21	PRELOAD
ENV1MET015	Inside Ambient Air Temperature					21	21	PRELOAD
ENV1MET014	Inland Tower Temp (M3TL)					19.5	19.5	PRELOAD

Required Materials: AOP-13A Circulating Water System Malfunction

General References: AOP-13A Circulating Water System Malfunction
EOP-0 Reactor Trip or Safety Injection
OI 38, Circulating Water System Operations

Task Standards: Respond per AOP-13A to a loss of circulating water: tripping Unit 1 reactor, performing immediate actions, and follow on AOP actions to shut MSIVs and stop Circulating Water Pump.

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 2 is on Ice Melt per OI 38, Circulating Water System Operations
- 2CW-1 Ice Melt Valve is 100% Open
- 2CW-3 Seal Well Outlet Valve is Closed
- C01A 4-5, Traveling Screen Differential Level High, alarm is in.
- Due to lowering circulating water temperatures and traveling screen alarm, AOP-13A Circulating Water System Malfunction was entered by OS1.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to start implementing AOP-13A, starting with Step 1, while he starts making notifications.

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.

Evaluator Note: To account for variations in examinee pace, Steps 1 through 12 of AOP-13A are included as non-critical steps (JPM steps 1 through 13). Once forebay level drops to -11.5 ft, the examinee should go to AOP Step 2 per Foldout Page (JPM Step 14).

Performance Step: 1 Critical <u>N</u>	1. Circulating Water System - INTACT
Standard:	The examinee verifies that the Circ Water system is intact by no turbine hall alarms lit in control room.
Evaluator Cue:	There are no reports from the field of pipe ruptures.
Evaluator Note:	Booth Operator: enter Trigger 1 as the examinee starts the JPM.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 2 Critical <u>N</u>	2. Check Circulating Water Pumps – ONLY ONE RUNNING PER UNIT <ul style="list-style-type: none"> • Unit 1 <ul style="list-style-type: none"> ○ 1P-30A ○ 1P-30B • Unit 2 <ul style="list-style-type: none"> ○ 2P-30A ○ 2P-30B
Standard:	The examinee verifies only one circulating pump running per unit.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 3 Critical <u>N</u>	3. Check Forebay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586B • PPCS point 2LT-3586B • YR-5832
Standard:	The examinee verifies Forebay level > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 4 Critical <u>N</u>	4. Check Forebay Level - GREATER THAN -13 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586B • PPCS point 2LT-3586B • YR-5832
Standard:	The examinee verifies Forebay level > -13 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 5 Critical <u>N</u>	5. Check South Pumpbay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586A • YR-5832
Standard:	The examinee verifies South Pumpbay level > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 6 Critical <u>N</u>	6. Check North Pumpbay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 2LT-3586A • YR-5832
Standard:	The examinee verifies North Pumpbay level > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 7 Critical <u>N</u>	7. Check Level in Both Pumpbays - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586A • PPCS point 2LT-3586A • YR-5832
Standard:	The examinee verifies Both Pumpbay levels > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 8 Critical <u>N</u>	8. Check Forebay AND BOTH Pumpbay Level's - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586A • PPCS point 2LT-3586A • PPCS point 1LT-3586B • PPCS point 2LT-3586B • YR-5832
Standard:	The examinee verifies Forebay and both Pumpbay levels > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 9 Critical <u>N</u>	9. Check at Least One Unit At Power
Standard:	The examinee verifies both units are at power.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 10 Critical <u>N</u>	10. Stop Liquid Discharges
Standard:	The examinee determines no discharges need to be stopped.
Evaluator Cue:	When asked, there are no discharges currently in progress.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 11 Critical <u>N</u>	11. Check Any Unit Aligned For Ice Melt Operation
Standard:	The examinee determines Unit 2 is aligned for ice melt operations.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 12 Critical <u>N</u>	12. Check Circulating Water Inlet Temperature – Greater Than 38°F <ul style="list-style-type: none"> • YR-5832
Standard:	The examinee determines temperature is below 38°F and transitions to the RNO.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 13 Critical <u>N</u>	12. RNO Raise intake crib temperature <ol style="list-style-type: none"> Fully open ice melt valve <ul style="list-style-type: none"> • CW-1. Throttle seal well outlet valve to establish intake temperature greater than 38°F. <ul style="list-style-type: none"> • CW-3
Standard:	The examinee notes CW-1 is fully open and CW-3 is fully closed.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 14 Critical <u>N</u>	Foldout Page monitored to determine Forebay or Pump Bay levels less than -11.5 feet
Standard:	The examinee determines Forebay and/or Pump Bay level < -11.5 feet and returns back to <u>Step 2</u> .
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 15 Critical <u>N</u>	2. Check Circulating Water Pumps – ONLY ONE RUNNING PER UNIT <ul style="list-style-type: none"> • Unit 1 <ul style="list-style-type: none"> ○ 1P-30A ○ 1P-30B • Unit 2 <ul style="list-style-type: none"> ○ 2P-30A ○ 2P-30B
Standard:	The examinee verifies only one Circulating Pump running per unit.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 16 Critical <u>N</u>	3. Check Forebay Level - GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586B • PPCS point 2LT-3586B • YR-5832
Standard:	The examinee verifies Forebay level > -11.5 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 17 Critical <u>N</u>	4. Check Forebay Level - GREATER THAN -13 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586B • PPCS point 2LT-3586B • YR-5832
Standard:	The examinee verifies Forebay level > -13 ft.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 18 Critical <u>N</u>	5. Check South Pumpbay Level – GREATER THAN -11.5 FEET <ul style="list-style-type: none"> • PPCS point 1LT-3586A • YR-5832
Standard:	The examinee verifies Forebay level is less than -11.5 ft and goes to the RNO.
Evaluator Note:	Only RNO steps requiring actions are contained in the following steps.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 19 Critical <u>N</u>	Step 5 RNO Perform the following: a. Enter TRM TLCO 3.7.7 action condition B for both units. b. Enter TS LCO 3.6.6 action condition C for both units.
Standard:	The examinee informs the OS of the need to enter TRM TLCO 3.7.7 action condition B for both units and, TS LCO 3.6.6 action condition C for both units.
Evaluator Cue:	<u>IF</u> directed, <u>THEN</u> acknowledge the need to enter TRM TLCO 3.7.7 action condition B for both units and, TS LCO 3.6.6 action condition C for both units.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 20 Critical <u>Y</u>	Step 5 RNO Perform the following: e. Trip Unit 1 reactor
Standard:	The examinee trips Unit 1 reactor by depressing the Reactor Trip Pushbuttons.
Evaluator Cue:	<u>IF</u> asked, <u>THEN</u> direct the examinee to carry out the RNO Actions.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 21 Critical <u>Y</u>	Step 5 RNO Perform the following: f. Stabilize plant using EOP's while continuing with this procedure
Standard:	The examinee performs immediate actions of EOP 0 for Unit 1. <ul style="list-style-type: none"> • Reactor Tripped (yes) • Turbine Tripped (yes) • Safeguards Buses Energized (yes from offsite) • Check if SI is required (not required)
Evaluator Cue:	Cue examinee after completion of immediate actions, that they have been verified so continue with AOP-13A actions.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 22 Critical <u>Y</u>	Step 5 RNO Perform the following: g. Shut both Unit 1 MSIVs <ul style="list-style-type: none"> • MS-2018 • MS-2017
Standard:	The examinee shuts Unit 1 MSIV's by positioning 1MS-2017-CS and 1MS-2018-CS to CLOSE after immediate actions completed.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 23 Critical <u>Y</u>	Step 5 RNO Perform the following: i. Stop both Unit 1 circulating water pumps: <ul style="list-style-type: none"> • 1P-30A • 1P-30B
Standard:	The examinee takes the control switch for the operating circulating water pump (1P-30A) to STOP.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	<hr/>

Terminating Cues: This completes the JPM

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

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Unit 2 is on Ice Melt per OI 38, Circulating Water System Operations
- 2CW-1 Ice Melt Valve is 100% Open
- 2CW-3 Seal Well Outlet Valve is Closed
- C01A 4-5, Traveling Screen Differential Level High, alarm is in.
- Due to lowering circulating water temperatures and traveling screen alarm, AOP-13A Circulating Water System Malfunction was entered by OS1.

INITIATING CUES (IF APPLICABLE):

- OS1 directs you to start implementing AOP-13A, starting with Step 1, while he starts making notifications.

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

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}



PBN JPM P004.010b.AOT, Locally Operate a Charging Pump, Rev. 4

JPM
Page 3 of 13

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	DATE
				SUPERVISOR	DATE
Rev. 0-1	See microfilm.				
Rev. 2	Reformatted to current revision of QF-1075-01. Update procedure step numbering to match OI 15 Rev 19.				
<u>Rev. 3</u>	<u>Updated to new Fleet Template</u>				
Rev. 4	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: OI-15, Charging Pump Local Control Station Operation

General References: OI-15, Charging Pump Local Control Station Operation

Task Standards: Control of 2P-2C, Charging Pump transferred to the VFD and speed raised to 30%.

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 PAB operator.
- Both units are at 100% power.
- 2P-2A and 2P-2C, Charging Pumps are currently running.
- The control room has lost speed control for 2P-2C, Charging Pump.
- Controller demand for 2P-2C, Charging Pump is at 20%.

INITIATING CUES (IF APPLICABLE):

- The OS2 directs you to transfer pump control for 2P-2C, Charging Pump to Rack 24 (RK-24) in accordance with OI-15, Charging Pump Local Control Station Operation, steps 5.1.1 – 5.1.4.
- It is NOT desired to transfer breaker control for 2P-2C, Charging Pump.
- The procedure has just been obtained from the C-59 area.
- Following transfer of pump control, contact the control room for speed adjustment instructions.

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 <u>N</u>	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.1 Match the speed potentiometer setting on RK-24 to the indicated controller demand on C-04 (preferred) or to the indicated motor RPM on the VFD.
Standard:	The examinee adjusts the RK speed potentiometer to 200 by turning the pot clockwise to rise or counter-clockwise to lower to the desired setting.
Evaluator Note:	<ul style="list-style-type: none"> ▪ Pot setting taken from Attachment A (200 = 20%) ▪ Pot has a collar – not critical
Evaluator Cue:	RK-24 potentiometer reads 200
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 2 Critical N	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.2 Notify Control that Annunciator C01 B 4-5 (C 4-7), UNIT 1(2) SHUTDOWN EQUIPMENT LOCAL CONTROL will alarm.
Standard:	The examinee may NA the step since breaker control is not to be transferred.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 3 Critical N	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.3 IF transfer of breaker control is desired, THEN place applicable transfer switch 1(2)N-04 or 1(2)N-11 to LOCAL
Standard:	The examinee may NA the step since the switch will not be manipulated.
Evaluator Note:	The switch should not be taken to LOCAL since breaker control transfer is not desired. Position of the switch will not impact remainder of JPM.
Evaluator Cue:	IF examinee desires to manipulate switch, THEN do not allow opening N-04 cabinet, instead have examinee describe operation.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 4 Critical N	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.4 IF transfer of pump control to RK-24 is desired, THEN place the Mode Select NORMAL/EMERGENCY switch on the VFD to EMERGENCY.
Standard:	The examinee positions the Mode Select NORMAL/EMERGENCY switch on the VFD to EMERGENCY.
Evaluator Cue:	The Mode Select NORMAL/EMERGENCY switch on the VFD is positioned to EMERGENCY.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 5 Critical N	Inform CR that 2P-2C, Charging Pump control is aligned to RK-24 and request instructions for speed adjustment.
Standard:	The examinee contacts the control room for speed adjustment instructions.
Evaluator Cue:	The control room acknowledges your report and directs that you raise speed of 2P-2C, Charging Pump from the current 2C04 controller demand of 20% to the equivalent of 30% 2C04 controller demand per Step 5.1.6.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 6 Critical <u>N</u>	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.6 Control charging pump speed and flow to maintain Pressurizer Level and RCP Labyrinth Seal DP using one of the following (local indication in pipe ways 1 & 4) <ul style="list-style-type: none"> Potentiometer on the RK-24 panel
Standard:	The examinee raises 2P-2C, Charging Pump speed demand from 20% to 30% on RK-24 by turning the potentiometer clockwise from 200 to 300.
Evaluator Note:	<ul style="list-style-type: none"> Pot setting taken from Attachment A (300 = 30%) Pot has a collar – not critical
Evaluator Cue:	RK-24 potentiometer reads 300 IF asked, THEN report that there is no audible change in speed from 2P-2C, Charging Pump.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

Performance Step: 7 Critical <u>N</u>	Inform CR 2P-2C speed demand set to 30%.
Standard:	The examinee informs the control room that 2P-2C, Charging Pump speed demand has been raised to 30%.
Evaluator Cue:	CR reports that there is no change in charging flow, directs transfer of pump control to the VFD per OI-15 <u>Step 5.1.5</u> and to report when the transfer is completed.
Performance:	SATISFACTORY ____ UNSATISFACTORY ____
Comments:	_____

<p>Performance Step: 8 Critical <u>Y</u></p>	<p>5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.5 IF transfer of charging pump control to the VFD is desired, THEN perform the following:</p> <ol style="list-style-type: none"> a. DEPRESS and HOLD the MANUAL start pushbutton on the VFD b. Place the Mode Select MANUAL/AUTO switch on the front of the VFD to MANUAL. c. RELEASE the MANUAL start pushbutton on the VFD.
<p>Standard:</p>	<p>The examinee:</p> <ul style="list-style-type: none"> ▪ Depresses the Manual Start pushbutton while positioning the Mode Selector to MANUAL. ▪ Informs the control room that 2P-2C, Charging Pump control is aligned to VFD (not critical).
<p>Evaluator Cue:</p>	<ul style="list-style-type: none"> ▪ You have depressed and are holding the start pushbutton. The Mode Selector is now in MANUAL and manual start pushbutton is released. ▪ CR requests that you raise speed of 2P-2C from the current 2C04 controller demand of 20% to the equivalent of 30% 2C04 controller demand per <u>Step 5.1.6</u>. ▪ Current speed indication on the VFD is 765 RPM
<p>Performance:</p>	<p>SATISFACTORY ____ UNSATISFACTORY ____</p>
<p>Comments:</p>	<hr/>

Performance Step: 9 Critical <u>Y</u>	5.1 VFD Operation – Transfer From REMOTE To LOCAL- Pump In Operation 5.1.6 Control charging pump speed and flow to maintain Pressurizer Level and RCP Labyrinth Seal DP using one of the following (local indication in pipe ways 1 & 4) <ul style="list-style-type: none"> • VFD UP and DOWN arrows on the VFD keyboard
Standard:	The examinee adjusts 2P-2C, Charging Pump speed demand from 20% to 30% by using UP arrow on the VFD keypad.
Evaluator Note:	Speed setting taken from Attachment A (905 RPM = 30%)
Evaluator Cue:	Pump speed on VFD keypad indicates 905
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are the PAB operator.
- Both units are at 100% power.
- 2P-2A and 2P-2C, Charging Pumps are currently running.
- The control room has lost speed control for 2P-2C, Charging Pump.
- Controller demand for 2P-2C, Charging Pump is at 20%.

INITIATING CUES (IF APPLICABLE):

- The OS2 directs you to transfer pump control for 2P-2C, Charging Pump to Rack 24 (RK-24) in accordance with OI-15, Charging Pump Local Control Station Operation, steps 5.1.1 – 5.1.4.
- It is NOT desired to transfer breaker control for 2P-2C, Charging Pump.
- The procedure has just been obtained from the C-59 area.
- Following transfer of pump control, contact the control room for speed adjustment instructions.

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



JOB PERFORMANCE MEASURE

JPM TITLE: Fuel Oil Transfer Between Storage Tanks

JPM NUMBER: PBN JPM P157.003.AOT **REV.** 0

TASK NUMBER(S) / TASK TITLE(S): PBN JPM P157.003.AOT
Transfer Fuel Oil

K/A NUMBERS: 064 K1.03 **K/A VALUE:** 3.6 / 4.0

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: 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

SIMULATOR SETUP INSTRUCTIONS:

- 1.
- 2.

SIMULATOR MALFUNCTIONS:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: OI 145, Fuel Transfer Between Storage Tanks

General References: OI 145, Fuel Transfer Between Storage Tanks

Task Standards: Transfer fuel oil from T-175B to T-175A with Fuel Oil Transfer Pump P-207B in accordance with OI 145, Fuel Oil Transfer Between Storage Tanks.

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 a relief crew AO.
- Both Units are at operating at 100% steady-state conditions.
- G04 EDG is OOS for radiator fan work. G03 EDG is aligned to both 1A-06 and 2A-06 safeguards buses in accordance with OI-35A.
- Engineering has requested confirmation of the ability to transfer fuel oil from T-175B to T-175A Fuel Oil Storage Tanks.

INITIATING CUES (IF APPLICABLE):

- The relief crew supervisor directs you to transfer 500 gallons (approximately 2%) from T-175B to T-175A with Fuel Oil Transfer Pump P-207B in accordance with OI 145, Fuel Oil Transfer Between Storage Tanks, starting at Step 5.3.6.

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 Y	5.3.6 POSITION the valves listed below in preparation for fuel oil transfer: a. UNLOCK AND OPEN FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST.
Standard:	The examinee: <ul style="list-style-type: none"> • Removes the red lock <u>AND</u> • Opens FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST by turning the valve handwheel in counter-clockwise direction until the valve stem is fully extended.
Evaluator Cue:	The red lock is removed and the valve handwheel for FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST is turned in the counter-clockwise direction until the valve stem is fully extended .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

<p>Performance Step: 2 Critical Y</p>	<p>5.3.6 POSITION the valves listed below in preparation for fuel oil transfer: b. UNLOCK AND OPEN FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B.</p>
<p>Standard:</p>	<p>The examinee:</p> <ul style="list-style-type: none"> • Removes the red lock <u>AND</u> • Opens FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B by turning the valve handwheel in counter-clockwise direction until the valve stem is fully extended.
<p>Evaluator Cue:</p>	<p>The red lock is removed and the valve handwheel for FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B is turned in the counter-clockwise direction until the valve stem is fully extended.</p>
<p>Performance:</p>	<p>SATISFACTORY _____ UNSATISFACTORY _____</p>
<p>Comments:</p>	



PBN JPM P157.003.AOT, FUEL OIL TRANSFER BETWEEN STORAGE TANKS, REV. 0

Performance Step: 3 Critical Y	5.3.6 POSITION the valves listed below in preparation for fuel oil transfer: c. OPEN FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1 st Off Isol.
Standard:	The examinee opens FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1 st Off Isol. by turning the valve handwheel in the counter-clockwise direction until the valve stem is fully extended.
Evaluator Cue:	The valve handwheel for FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1 st Off Isol. is turned in the counter-clockwise direction until the valve stem is fully extended .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical Y	5.3.6 POSITION the valves listed below in preparation for fuel oil transfer: d. OPEN FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol.
Standard:	The examinee opens FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol. by turning the valve handwheel in the counter-clockwise direction until the valve stem is fully extended.
Evaluator Cue:	The valve handwheel for FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol. is turned in the counter-clockwise direction until the valve stem is fully extended .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical Y	5.3.6 POSITION the valves listed below in preparation for fuel oil transfer: e. SHUT FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank.
Standard:	The examinee shuts FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank by turning the valve handwheel in the clockwise direction until the valve stem is fully inserted.
Evaluator Cue:	The valve handwheel for FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank is turned in the clockwise direction until the valve stem is fully inserted .
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 6 Critical N	5.3.7 NOTIFY Control Room transfer is about to being and to monitor Fuel Oil Tank Alarms.
Standard:	The examinee notifies the Control Room that transfer is about to being and to monitor for fuel oil tank alarms.
Evaluator Cue:	The control room acknowledges you request.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical Y	5.3.8 START P-207B, G-04 EDG Fuel Oil Transfer Pump to begin transfer.
Standard:	The examinee starts P-207B, G-04 EDG Fuel Oil Transfer Pump by placing the control switch to "ON".
Evaluator Cue:	The control switch for P-207B, G-04 EDG Fuel Oil Transfer Pump is placed to "ON". The green light is off, the red light is on and the pump comes up to speed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 8 Critical Y	5.3.9 WHEN the desired amount has been transferred from T-175B to T-175A, THEN STOP P-207B, G-04 EDG Fuel Oil Transfer Pump.
Standard:	The examinee stops P-207B, G-04 EDG Fuel Oil Transfer Pump by placing the control switch to "AUTO".
Evaluator Note:	Control switch placed in either "AUTO" or "OFF" is acceptable. The critical attribute of this step is that the pump is stopped.
Evaluator Cue:	Inform the examinee that 500 gallons of fuel oil has been transferred. The level of the fuel oil storage tank being monitored has changed by approximately 2%. (T-175B ↓; T-175A ↑)
Evaluator Cue:	The control switch for P-207B, G-04 EDG Fuel Oil Transfer Pump is placed in "AUTO". The green light is on, the red light is off and the pump slows to stop.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical Y	5.3.10 OPEN FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank.
Standard:	The examinee opens FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank by turning the valve handwheel in the counter-clockwise direction until the valve stem is fully extended.
Evaluator Cue:	<ul style="list-style-type: none"> The valve handwheel for FO-214, P-207B G-04 EDG FOTP Disch to T-176B G-04 EDG Day Tank is turned in the counter-clockwise direction until the valve stem is fully extended. Valve position is independently verified and initialed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 10 Critical Y*	5.3.11 SHUT FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol.
Standard:	The examinee shuts FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol. by turning the valve handwheel in the clockwise direction until the valve stem is fully inserted.
Evaluator Cue:	<ul style="list-style-type: none"> The valve handwheel for FO-169, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 2nd Off Isol. is turned in the clockwise direction until the valve stem is fully inserted. Valve position is independently verified and initialed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	*See Evaluator Note in Step 13.

Performance Step: 11 Critical Y*	5.3.12 SHUT FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1 st Off Isol.
Standard:	The examinee shuts FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1 st Off Isol. by turning the valve handwheel in the clockwise direction until the valve stem is fully inserted.
Evaluator Cue:	<ul style="list-style-type: none"> The valve handwheel for FO-168, P-206A/P-207A G-01/G-02 EDG FOTP Test Line 1st Off Isol. is turned in the clockwise direction until the valve stem is fully inserted. Valve position is independently verified and initialed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	*See Evaluator Note in Step 13.

Performance Step: 12 Critical Y*	5.3.13 SHUT <u>AND</u> LOCK FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B.
Standard:	The examinee: <ul style="list-style-type: none"> Shuts FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B by turning the valve handwheel in clockwise direction until the valve stem is fully inserted. <u>AND</u> Installs the red lock
Evaluator Cue:	<ul style="list-style-type: none"> The valve handwheel for FO-170, P-206A/P-207A G-01/G-02 FOTP Disch Isol. To T-175B/T-176A/B is turned in the clockwise direction until the valve stem is fully inserted. The red lock is installed. Valve position is independently verified and initialed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	*See Evaluator Note in Step 13.

Performance Step: 13 Critical Y*	5.3.14 SHUT AND LOCK FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST.
Standard:	The examinee: <ul style="list-style-type: none"> Shuts FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST by turning the valve handwheel in clockwise direction until the valve stem is fully inserted. <p>AND</p> <ul style="list-style-type: none"> Installs the red lock
*Evaluator Note:	It is critical that at least one of the valves from Steps 10 thru 13 is shut to isolate the flowpath from T-175A.
Evaluator Cue:	<ul style="list-style-type: none"> The valve handwheel for FO-207, P-207B G-04 EDG FOTP Discharge to T-175A G-01/G-02 FOST is turned in the clockwise direction until the valve stem is fully inserted. The red lock is installed. Valve position is independently verified and initialed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 14 Critical N	5.3.15 RECORD EDG Fuel Oil Storage Tank levels: T-175A _____ % (LI-3985A) T-175B _____ % (LI-3985B)
Standard:	The examinee records the EDG Fuel Oil Storage Tank levels.
Evaluator Cue:	EDG Fuel Oil Storage Tank levels: T-175A: 92 % (LI-3985A) T-175B: 91 % (LI-3985B)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



PBN JPM P157.003.AOT, FUEL OIL TRANSFER BETWEEN STORAGE TANKS, REV. 0

JPM
Page 15 of
17

Terminating Cues: The JPM is complete.

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

Stop Time: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- You are a relief crew AO.
- Both Units are at operating at 100% steady-state conditions.
- G04 EDG is OOS for radiator fan work. G03 EDG is aligned to both 1A-06 and 2A-06 safeguards buses in accordance with OI-35A.
- Engineering has requested confirmation of the ability to transfer fuel oil from T-175B to T-175A Fuel Oil Storage Tanks.

INITIATING CUES (IF APPLICABLE):

- The relief crew supervisor directs you to transfer 500 gallons (approximately 2%) from T-175B to T-175A with Fuel Oil Transfer Pump P-207B in accordance with OI 145, Fuel Oil Transfer Between Storage Tanks, starting at Step 5.3.6.

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



JOB PERFORMANCE MEASURE

JPM TITLE: START AN AIR COMPRESSOR TO A DEPRESSURIZED RECEIVER

JPM NUMBER: PBN JPM P000.008a.AOT **REV.** 10

TASK NUMBER(S) / TASK TITLE(S): P000.008.AOT / START AIR COMPRESSOR(S) TO DEPRESSURIZED RECEIVERS

K/A NUMBERS: 078 A3.01 **K/A VALUE:** 3.1 / 3.2

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: 15 Minutes Time Critical: No

Alternate Path [NRC]: Yes

Alternate Path [INPO]: Yes

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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the JPM been reviewed and validated by SMEs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Has the completion time been established based on validation data or incumbent experience?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Is the job level appropriate for the task being evaluated if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the K/A appropriate to the task and to the licensee level if required?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is justification provided for tasks with K/A values less than 3.0?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Have the performance steps been identified and classified (Critical / Sequence / Time Critical) appropriately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Have all special tools and equipment needed to perform the task been identified and made available to the trainee?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are all references identified, current, accurate, and available to the trainee?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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}

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

SIMULATOR SETUP INSTRUCTIONS:

SIMULATOR MALFUNCTIONS:

SIMULATOR OVERRIDES:

SIMULATOR REMOTE FUNCTIONS:

Required Materials: AOP 5B, Loss of Instrument Air

General References: AOP 5B, Loss of Instrument Air

Task Standards: Compressor K2A started and aligned to T-33B.

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:

- Service water is lined up for normal operation.
- Instrument air compressor K2A is not running.
- Air receiver T-33B is depressurized following leak repair.

INITIATING CUES (IF APPLICABLE):

- The OS1 directs you to start instrument air compressor K2A in accordance with AOP-5B, Loss of Instrument Air, Attachment BB, Air Compressor Startup to Supply Depressurized Receiver.

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	BB1 Place K2A In Operation: a. Check K2A total closure valve shut <ul style="list-style-type: none"> • IA-226
Standard:	The examinee recognizes IA-226, Total Closure Valve open and proceeds to the RNO column.
Evaluator Cue:	IA-226, Total Closure Valve position indicator points to OPEN (It is preferable to physically indicate position using an object such as a pen or laser pointer, rather than a verbal indication.)
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P000.008a.AOT, Start An Air Compressor To A
Depressurized Receiver, Rev. 10**

Performance Step: 2 Critical Y	a. RNO Perform the following: 1) Shut total closure valve operating air at receiver T33B. • IA-205
Standard:	The examinee shuts IA-205, Total Closure Valve Operating Air at Receiver T33B by rotating the valve handwheel in the clockwise direction until the valve stem is fully inserted.
Evaluator Cue:	The valve handwheel for IA-205, Total Closure Valve Operating Air at Receiver T33B is turned clockwise until the valve stem is fully inserted.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 3 Critical Y	a. RNO Perform the following: 2) Uncap and open K2A total closure air line vents. • IA-218 • IA-219
Standard:	The examinee: • Uncaps IA-218 and IA-219, K2A Total Closure Air Line Vents by rotating the caps in the counter-clockwise direction until they are removed AND • Opens IA-218 and IA-219, K2A Total Closure Air Line Vents by rotating the handwheels in the counter-clockwise direction until the valve stems are fully extended.
Evaluator Note:	A combination wrench hangs on the south wall of the air compressor room.
Evaluator Cue:	• The caps for IA-218 and IA-219, K2A Total Closure Air Line Vents are removed. AND • The valve handwheels for IA-218 and IA-219, K2A Total Closure Air Line Vents are turned in the counter-clockwise direction until the valve stems are fully extended.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 4 Critical Y	a. RNO Perform the following: 3) Using a red combination wrench, shut K2A total closure valve. • IA-226
Standard:	The examinee shuts IA-226, K2A, Total Closure Valve by rotating the valve stem counter-clockwise to the Closed position.
Evaluator Note:	A combination wrench hangs on the south wall of the air compressor room.
Evaluator Cue:	IA-226, K2A, Total Closure Valve local indicator indicates Closed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 5 Critical Y	a. RNO Perform the following: 2) Shut and cap K2A total closure air line vents. • IA-218 • IA-219
Standard:	The examinee: • Shuts IA-218 and IA-219, K2A Total Closure Air Line Vents by rotating the handwheels in the clockwise direction until the valve stems are fully inserted. AND • Caps IA-218 and IA-219, K2A Total Closure Air Line Vents by rotating the caps in the clockwise direction until they are hand tight.
Evaluator Note:	Cap installation is not a critical element of this step.
Evaluator Cue:	• The valve handwheels for IA-218 and IA-219, K2A Total Closure Air Line Vents are turned in the clockwise direction until the valve stems are fully inserted. AND • The caps for IA-218 and IA-219, K2A Total Closure Air Line Vents are installed.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P000.008a.AOT, Start An Air Compressor To A
Depressurized Receiver, Rev. 10**

Performance Step: 6 Critical N	BB1 Place K2A In Operation: b. Start K2A
Standard:	The examinee contacts the Control Room to start K2A
Evaluator Cue:	<ul style="list-style-type: none"> • The Control Room acknowledges your request AND • Reports that K2A has been started • K2A is running locally
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 7 Critical Y	BB1 Place K2A In Operation: c. Using a red combination wrench, open K2A total closure valve <ul style="list-style-type: none"> • IA-226
Standard:	The examinee opens IA-226, K2A, Total Closure Valve by rotating the valve stem clockwise to the Open position.
Evaluator Cue:	IA-226, K2A, Total Closure Valve local indicator indicates Open.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	



**PBN JPM P000.008a.AOT, Start An Air Compressor To A
Depressurized Receiver, Rev. 10**

Performance Step: 8 Critical N	BB1 Place K2A In Operation: d. Check air receiver pressure greater than 30 psig
Standard:	The examinee checks air receiver pressure locally and proceeds to BB1.d RNO
Evaluator Cue:	Receiver pressure indicates 12 psig and rising.
Performance:	SATISFACTORY _____ UNSATISFACTORY _____
Comments:	

Performance Step: 9 Critical Y	d. RNO WHEN pressure greater than 30 psig, THEN perform <u>Step BB1e</u> . OBSERVE CAUTION PRIOR TO STEP BB2 and continue with <u>Step BB2</u> . BB1 Place K2A In Operation: e. Ensure total closure operating air open at receiver T33B <ul style="list-style-type: none"> • IA-205
Standard:	The examinee opens IA-205, Total Closure Operating Air to Receiver T33B by rotating the valve handwheel in the counter-clockwise direction until the valve stem is fully extended.
Evaluator Cue:	<ul style="list-style-type: none"> • Time has passed; receiver pressure indicates 31 psig and slowly rising. • The handwheel for IA-205, Total Closure Operating Air to Receiver T33B is turned in the counter-clockwise direction until the valve stem is fully extended.
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: _____

TURNOVER SHEET

INITIAL CONDITIONS:

- Service water is lined up for normal operation.
- Instrument air compressor K2A is not running.
- Air receiver T-33B is depressurized following leak repair.

INITIATING CUES (IF APPLICABLE):

- The OS1 directs you to start instrument air compressor K2A in accordance with AOP-5B, Loss of Instrument Air, Attachment BB, Air Compressor Startup to Supply Depressurized Receiver.

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

Facility: Point Beach Scenario No.: 1 Op-Test No.: 2017

Examiners: _____ Operators: _____

Initial Conditions: Unit 1 is at approximately 100%. 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage. 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.

Turnover: Normal Shift routine. Lower power utilizing OP 3A, Power Operation to Hot Standby at 30%/hr in preparation for refueling outage

Event No.	Malf. No.	Event Type*	Event Description
1	XMT1CNM014A	I-BOP I-SRO TS-SRO	1PT-947, Loop A Containment Pressure Transmitter fails low
2	CNH1CFW003F	I-BOP I-SRO	1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic
3	XMT1AFW005A	TS-SRO	0LT-4040, T-24A CST Level Transmitter fails low
4	ANN-C02D-A09	R-RO N-BOP R-SRO	1X01, Main Transformer loss of cooling (rapid down power)
5	CNH1PCS004F	C-RO C-SRO	1P-2A, Auto Charging Pump controller oscillation failure
6	MAL1RCS001	M-ALL	Large Break LOCA
7	BKR1RHR001 MOT1RHR002	C-BOP	1P-10A, RHR pump fails to start in Auto 1P-10B, RHR pump trips upon starting
8	RLY1PPL020 RLY1PPL021	C-BOP	Containment Spray fails to actuate

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective	<p>Given specific plant conditions, the students will be able to respond to the failures listed below in accordance with plant procedures:</p> <ol style="list-style-type: none"> 1. 1PT-947, Loop B Containment Pressure Transmitter failing low / removing from service 2. 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillating in automatic only 3. 0LT-4040 Condensate Storage Tank Level transmitter fails low 4. 1X-01, Main Transformer loss of cooling 5. Auto charging pump controller oscillating in automatic only 6. Instantaneous Large Break LOCA 7. RHR pump failures <ol style="list-style-type: none"> a. 1P-10A, RHR pump failing to auto start b. 1P-10B, RHR pump tripping 8. Containment Spray failing to actuate <p>Embedded within these events is the expectation to properly utilize Technical Specifications.</p>
Enabling Objectives:	None
Prerequisites:	<ol style="list-style-type: none"> 1. Simulator available 2. Students enrolled in Initial License Program
Training Resources:	<ol style="list-style-type: none"> 1. Floor Instructor as Shift Manager / Shift Technical Advisor 2. Simulator Booth Operator 3. Communicator 4. NRC Evaluators
References:	<ol style="list-style-type: none"> 1. 0-SOP-IC-001 BLUE, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Blue Channels 2. 0-SOP-IC-002, Technical Specifications LCO – Instrument Cross Reference 3. AOP-1D Unit 1, Chemical And Volume Control System Malfunction 4. AOP-2B Unit 1, Feedwater System Malfunction 5. AOP-17A Unit 1, Rapid Power Reduction 6. AOP-24, Response to Instrument Malfunctions 7. ARP C02 D 1-9, 1X-01 Main Trans Loss Of Cooling 8. ARP C01 A 2-9, T-24A or B Condensate Storage Tanks – Level High or Low 9. CSP-P.1 Unit 1, Response To Imminent Pressurized Thermal Shock Condition 10. EOP-0 Unit 1, Reactor Trip Or Safety Injection

11. EOP-1 Unit 1, Loss Of Reactor Or Secondary Coolant
12. EOP-1.3 Unit 1, Transfer To Containment Sump Recirculation, Low Head Injection
13. OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients
14. OP-3A Unit 1, Power Operation To Hot Standby Unit 1
15. RMS Alarm Setpoint And Response Book
16. Technical Specifications

Protected Content: None

Evaluation Method: Simulator performance will be evaluated in accordance with NUREG 1021.

Operating Experience: N/A

Risk Significant Operator Actions: HEP-RHR-EOP13-LL, OPS FAIL TO ALIGN SI FLOR LOW CONT SUMP RECIRC (LLOCA/MLOCA), FV: 4.46E-03



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	DATE
				REVIEWER	DATE
Rev. 0	Developed for 2017 NRC ILT Exam.				

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

- Unit 1 is at approximately 100% EOL.
 - 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.
 - 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.
- Normal Shift routine will be to lower power at 30%/hr utilizing OP-3A Unit 1, Power Operation To Hot Standby Unit 1.
- Events:
 - 1PT-947, Loop A Containment Pressure Transmitter fails low
 - 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic
 - 0LT-4040 Condensate Storage Tank Level transmitter fails low
 - 1-X01, Main Transformer loss of cooling
 - 1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto
 - Large Break LOCA
 - RHR pump malfunctions
 - 1P-10A, RHR Pump fails to auto start
 - 1P-10B, RHR Pump trips
 - Containment Spray fails to actuate
- Terminate the scenario when crew has completed Step 21 of EOP-1.3 Unit 1, Transfer To Containment Sump Recirculation – Low Head Injection and is waiting for RWST level to lower to 34%.

SEQUENCE OF EVENTS

Event #	Description
1.	<p>1PT-947, Loop A Containment Pressure Transmitter fails low Once the crew has taken the shift, 1PT-947, Loop A Containment Pressure Transmitter fails low.</p> <ul style="list-style-type: none"> The crew should implement AOP-24, Response to Instrument Malfunctions and take the channel out of service in accordance with 0-SOP-IC-001 BLUE, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE. Address Technical Specifications.
2.	<p>1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic</p> <ul style="list-style-type: none"> After identifying the malfunction, the crew may shift 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller to manual to mitigate the transient per OM 3.7, AOP and EOP Procedure Usage for Response to Plant Transients The crew should implement AOP-2B Unit 1, Feedwater System Malfunction and lower turbine load to maintain reactor power less than 100% in accordance with AOP-17A Unit 1, Rapid Power Reduction if required. The crew may reference and or implement AOP-24, Response to Instrument Malfunctions.
3.	<p>0LT-4040 Condensate Storage Tank T-24A Level Transmitter fails low</p> <ul style="list-style-type: none"> The crew should reference ARP C01 A 2-9 and ARB C01 A 3-9 for the failed level transmitter and determine the applicable Technical Specification's Required Actions.
4.	<p>1-X01, Main Transformer loss of cooling Unit 1, 1X-01, Main Transformer "B" phase incurs a loss of cooling as indicated by annunciator C02 D 1-9, 1X-01 Main Trans Loss of Cooling.</p> <ul style="list-style-type: none"> The crew should implement ARP C02 D1-9, 1X-01 Main Trans Loss of Cooling and based on field reports, begin ramping the unit off-line in accordance with AOP-17A Unit 1, Rapid Power Reduction.
5.	<p>1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto During the load reduction, 1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto.</p> <ul style="list-style-type: none"> The should take manual control of 1HC-428A, 1P-2A Charging Pump Hand Controller and implement AOP-1D Unit 1, Chemical and Volume Control System Malfunction. The crew may implement/reference AOP-24, Response to Instrument Malfunctions (not required).

6.	<p>Large Break LOCA</p> <ul style="list-style-type: none"> The crew should implement EOP-0 Unit 1, Reactor Trip or Safety Injection, EOP-1 Unit 1, Loss of Reactor or Secondary Coolant and EOP-1.3 Unit 1, Transfer To Containment Sump Recirculation, Low Head Injection.
7.	<p>RHR pump malfunctions: 1P-10A, RHR Pump fails to auto start and 1P-10B, RHR Pump trips</p> <ul style="list-style-type: none"> The crew should address the failures by starting 1P-10A, RHR Pump: <ul style="list-style-type: none"> After EOP-0 Unit 1 Immediate Actions are complete in accordance with OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients OR EOP-0 Unit 1, ATTACHMENT A, AUTOMATIC ACTION VERIFICATION Step <u>A3.b.RNO</u>.
8.	<p>Containment Spray fails to actuate</p> <ul style="list-style-type: none"> The crew should address the failures by aligning the Containment Spray System: <ul style="list-style-type: none"> After EOP-0 Unit 1 Immediate Actions are complete in accordance with OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients OR EOP-0 Unit 1, ATTACHMENT A, AUTOMATIC ACTION VERIFICATION Step <u>A12.a.RNO</u>.
STOP	<p>Terminate the scenario when crew has completed <u>Step 21</u> of EOP-1.3 Unit 1, Transfer To Containment Sump Recirculation – Low Head Injection and is waiting for RWST level to lower to 34%.</p>

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the site specific Simulator Setup Checklist.

General Instructions

Simulator Setup Instructions:

- Load **IC-3** and go to run
- Open the saved Event and Schedule files from the secure drive:
- Verify all commands listed in table below are contained in the Schedule File
- Insert the setup malfunction(s)
- Reposition bistable switches for: **1PT-950, Loop B Containment Pressure Transmitter**
- Make any necessary adjustments or corrections
- Freeze the simulator and save to scenario specific IC
- Re-initialize into saved IC and go to run
- Open and start the Event and Schedule files
- Open and start InSight and Alarm files for data collection
- Run the scenario real time
- Save InSight, Event, Alarm, Schedule Files to the secure drive and collect procedure markups for SBT
- Complete TR-AA-23001008-F01 Scenario Based Testing (SBT) Checklist

Multiple Use:

- Load saved IC and go to run
- Open the saved Event and Schedule files:
- Start the Schedule File
- Walk down the control boards to ensure plant conditions accurately reflect the scenario's initial conditions
- Make any necessary adjustments or corrections
- Update documentation if required
- Resave if required
- Turnover to the crew

SIMULATOR – SCENARIO SETUP:

Setup: 1PT-950, Loop B Containment Pressure Transmitter is out of service / 1W-3B, CTL Rod Drive Shroud Fan								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1CNM017A	1-PT950 LOOP B CONT PRESSURE XMTR FIXED OUTPUT				00 :00 :00	-	90	Preload
Simulator Setup: <ol style="list-style-type: none"> Place OOS magnet at PT-950, Containment Pressure Place a RED dot on C01 B 1-5, U1 Containment Pressure Channel Alert Place 1W-3B CS in pull-out, install OOS magnet. Install an orange Guarded magnet at 1W-3A. 								

SIMULATOR MALFUNCTIONS:

Event 1: / 1P-947, Loop A Containment Pressure Transmitter fails low								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1CNM014A	1-PT947 LOOP A CONT PRESSURE XMTR FIXED OUTPUT	00 :00 :00	00 :00 :00	1	00 :00 :00	-	-6	SETUP
Expected field communications: <ol style="list-style-type: none"> None 								

Event 2: 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
CNH1CFW003F	1-PC2273 FW HTR EMER BYPASS VLV CNTRL OSC AUTO ONLY	00 :00 :00	00 :01 :00	5	00 :00 :00	-	90	PLE
Expected field communications: <ol style="list-style-type: none"> <u>IF</u> directed to locally monitor Feedwater Heater level, <u>THEN</u> report #2 Feedwater Heater level is (was) low and that the level control system is responding in automatic to restore level. With the controller in automatic: <ul style="list-style-type: none"> <u>IF</u> an operator is dispatched to locally investigate 1CS-2273, Feedwater Heater Emergency Bypass Valve, <u>THEN</u> after two minutes report that the valve is cycling open and close in response to the air signal being supplied. With the controller in manual: <ul style="list-style-type: none"> <u>IF</u> an operator is dispatched to locally investigate 1CS-2273, Feedwater Heater Emergency Bypass Valve, <u>THEN</u> after two minutes report that the valve is stable (matching the control room's indication). 								

Event 3: 0LT-4040 Condensate Storage Tank T-24A Level Transmitter fails low

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1AFW005A	0-LT4040 COND STOR TK T24A LEVEL FIXED OUTPUT	00 :00 :00	00 :00 :03	11	00 : 00 :00	-	0	PLE

Expected Communications:

- IF** an AO is sent to locally investigate 0LT-4040, wait two minutes and **THEN** report that there doesn't seem to be anything out-of-normal locally.

Event 4: 1X-01, Main Transformer loss of cooling

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
ANN-C02D-A09	MAIN TRANS 1X01 LOSS OF COOLING	00 :00 :00	-	9	00 :00 :00	-	ON	PLE
LOA1CFW083	1-P99A SGFP SEAL WATER INJECT PUMP C.S.	00 :01 :00	-	11	00 :00 :00	-	ON	PLE
LOA1CFW084	1-P99B SGFP SEAL WATER INJECT PUMP C.S.	00 :01 :10	-	11	00 :00 :00	-	ON	PLE

Expected field communications:

- IF** an AO is directed to locally investigate 1X-01, Main Transformer; wait two minutes and **THEN** report breaker 8MN in the Cooler Control Cabinet for phase B is in the tripped condition and none of the cooling units are running.
- IF** an AO is directed to locally start 1P-99A and 1P-99B, Main Feed Pump Seal Water Pumps; insert **Trigger 11** and **THEN** report when they are running.

Event 5: 1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
CNH1PCS004F	1-HC428A P-2A CHARGE PUMP SPEED HAND CTLR OSC AUTO ONLY	00 :00 :00	00 :00 :10	13	00 :00 :00	-	100	PLE

Expected field communications:

- IF** the PAB AO is directed to check that there are no charging pump relief valves lifting on unit 1; wait two minutes and **THEN** report that no charging pump relief valves on are lifting Unit 1.

Event 6: Large Break LOCA								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1RCS001	DBA LOCA	00 :00 :00	00 :00 :00	15	00 :00 :00	-	HOT LEG A	PLE
LOA1SWS048	0-SW-322 1HX-12A CC HTEXCH OUTLET	00 :04 :00	00 :00 :30	17	00 :00 :00	-	0.4	When directed by crew
LOA1CCW018	1-CC-744B BA EVAP HX-8A RETURN STOP VALVE	00 :07 :00	00 :00 :30	17	00 :00 :00	-	0	When directed by crew
LOA1CCW016	1-CC-740A NON-REGEN HX-3A&B INLET VALVE	00 :01 :00	00 :00 :30	17	00 :00 :00	-	0	When directed by crew
LOA1CCW021	1-CC-750A SEAL STR HX-5 INLET VALVE	00 :02 :30	00 :00 :30	17	00 :00 :00	-	0	When directed by crew
LOA1SIS030	1-SI-897A HANDWHEEL GAG	00 :01 :00	00 :00 :30	19	00 :00 :00	-	0	When directed by crew
LOA1SIS031	1-SI-897B HANDWHEEL GAG	00 :02 :00	00 :00 :30	19	00 :00 :00	-	0	When directed by crew
Expected field communications:								
<ol style="list-style-type: none"> WHEN directed to locally check RW Service Water valves, LW-61 and 62, THEN report both valves are shut. WHEN directed to locally check CW pump house temperature <105 °F, wait 3 minutes and THEN report the temperature is 72 °F and stable. WHEN directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and THEN report the temperature is 75 °F and stable. IF directed to periodically check the status of spent fuel cooling, wait 5 minutes and THEN report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable. WHEN directed to perform Attachment A of EOP-1.3; insert trigger 17, wait for the valves to finish stroking and THEN report that the CCW alignment is complete. WHEN directed to locally shut 1SI-897A and B, SI Test Line Return Isolation AOVs; insert trigger 19, wait for the valves to finish stroking, and THEN report the valves are closed. 								

Event 7: RHR pump malfunctions: 1P-10A, RHR Pump fails to auto start and 1P-10B, RHR Pump trips

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
BKR1RHR001	1-B5212A P-10A RH REMOVAL PUMP CKTBKR	00 :00 :00	-	-	00 :00 :00	-	FAIL AUTO CL	PRELOAD
MOT1RHR002	P-10B RH RESIDUAL HEAT REMOVAL PUMP	00 :00 :00	-	-	00 :00 :00	-	WINDING GROUND	PRELOAD

Expected field communications:

- IF** the PAB AO is directed to check 1P-10B, RHR Pump; wait two minutes and **THEN** report that the motor is not running, discolored, hot to the touch and smells acrid. **IF** asked; **THEN** report that there is no fire.
- IF** an AO is directed to locally investigate breaker 1B52-21A on 1B-04 for 1P-10B, RHR Pump; wait two minutes and **THEN** report that breaker has tripped on overcurrent.

Event 8: Containment Spray fails to actuate

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
RLY1PPL020	1-CS-10X TRAIN "A" CONT SPRAY AUXILIARY	00 :00 :00	-	-	00 :00 :00	-	FAIL AS IS	PRELOAD
RLY1PPL021	1-CS-20X TRAIN "B" CONT SPRAY AUXILIARY	00 :00 :00	-	-	00 :00 :00	-	FAIL AS IS	PRELOAD

Expected field communications:

- None

BRIEF / TURNOVER INFORMATION

- Conduct simulator crew pre-scenario brief using TR-AA-230-1007-F06, Simulator Instructor Pre-Exercise Checklist.
- Brief the scenario evaluators
- Brief surrogates using TR-AA-230-1007-F11, Surrogate Brief Checklist, if necessary.
- Crew Shift Turnover Information: See Attached

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
Crew takes the watch: _____	Normal Shift routine will be to lower power utilizing OP-3A Unit 1, Power Operation To Hot Standby Unit 1.	CREW	Implements OP-3A Unit 1, Power Operation To Hot Standby Unit 1 , starting at Step 5.1.9.
<p>Event 1: 1PT-947, Loop A Containment Pressure Transmitter fails low</p> <p>Start: _____</p>	<p>Trigger 1 [XMT1CNM017A, 1-PT-947 LOOP A CONT PRESSURE XMTR FIXED OUTPUT, Value = -6, Ramp = 0 sec]</p> <p>After completion of crew turnover and the examinees have assumed the watch, insert Trigger 1 to cause 1PT-947, Loop A Containment Pressure Transmitter to fail low.</p> <p>Plant Response: 1PT-947, Loop A Containment Pressure Transmitter fails low bringing in a containment pressure PPCS Alarm.</p> <p>Cues: 1C20 D 2-1, PPCS Priority Alarm Containment Pressure PPCS Alarm</p> <p>Expected Communications: None</p> <p>Instructor Note: If the crew decides to NOT remove the failed containment pressure channel from service, have the Shift Manager provide a cue directing the crew to take action to remove it from service.</p>	<p>BOP</p> <p>OS BOP</p> <p>OS BOP</p>	<p>The crew responds to the containment pressure alarm and diagnoses that alarm being due to an instrument failure.</p> <p>Implements AOP-24, Response to Instrument Malfunctions</p> <ol style="list-style-type: none"> 1. Identify Failed Instrument 2. Check If Failed Instrument Is A Controlling Channel 3. Establish Manual Control As Required 4. Return Affected Parameter(s) To Desired Value(s) 5. Using Attachment A, PPCS PARAMETERS USED TO CALCULATE REACTOR THERMAL OUTPUT, Verify That Failed Instrument Is <u>NOT</u> An Input To RTO 6. Remove Failed Instrument Channel From Service Per 0-SOP-IC-001, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE 7. Return Controls To Automatic If Desired 8. Check Failure For Technical Specification Or TRM Applicability 9. Return To <u>Procedure And Step In Effect</u> <p>Implements 0-SOP-IC-001 BLUE, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE</p> <ol style="list-style-type: none"> 1. In cabinet C-115, place the following bistable trip switches in the "TRIP" position (toggle switch up) and check expected response <ul style="list-style-type: none"> • SAFEGUARD ACTUATION (P/947) • CONTAINMENT SPRAY LOGIC (P/947) 2. Remove from scan PPCS point ID PT947, CNMT LR PRESS BLU.



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE																					
	<p>Continuation Criteria: Once the crew has completed taking the channel out of service per 0-SOP-IC-001 BLUE and has addressed Technical Specifications, or at the discretion of the Lead Examiner, proceed with the next event.</p>	OS	<p>Reference Technical Specifications Technical Specifications: Reference 0-SOP-IC-002:</p> <table border="1"> <tr> <td>Table 3.3.2-1 Item 1c item 2c item 3c item 4d-2 item 4e-2 item 5c item 6c</td> <td>D. One channel inoperable</td> <td>D.1 Place channel in trip <u>OR</u> D.2.1 Be on MODE 3 <u>AND</u> D.2.2 Be in MODE 4</td> <td>1 hour</td> <td>7 hours</td> <td>13 hours</td> </tr> <tr> <td>Table 3.3.3-1 item 11</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Table 3.3.5-1 item 2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Table 3.3.2-1 Item 1c item 2c item 3c item 4d-2 item 4e-2 item 5c item 6c	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2.1 Be on MODE 3 <u>AND</u> D.2.2 Be in MODE 4	1 hour	7 hours	13 hours	Table 3.3.3-1 item 11						Table 3.3.5-1 item 2					
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Table 3.3.3-1 item 11																								
Table 3.3.5-1 item 2																								

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 2: 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic</p> <p>Start: _____</p>	<p>Trigger 5 [CHN1CFW003F, 1-PC2273 FW HTR EMER BYPASS VLV CNTRL OSC AUTO ONLY = 90; Ramp = 00:01:00]</p> <p>Insert Trigger 5 to cause 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller to oscillate in automatic.</p> <p>Plant Response: 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller output oscillates (90% of scale), 1CS-2273, Feedwater Heater Emergency Bypass Valve indication shows intermediate (Red and Green lights lit, rise in reactor power, SG A and B level deviations with corresponding annunciators for SG A and B level deviations.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller output oscillates (90% of scale) • 1CS-2273, Feedwater Heater Emergency Bypass Valve indication shows intermediate (Red and Green lights lit) • Reactor power rises • SG A and B level deviated from normal program band • Annunciators: <ul style="list-style-type: none"> • 1C03 1E2 1-2, Steam Generator A Level Setpoint Deviation/Trouble • 1C03 1E2 1-5, Steam Generator B Level Setpoint Deviation/Trouble • 1C03 1F 3-1, LP Feedwater Heater 1, 2, or 3 Level Low 	<p>BOP</p> <p>OS1</p> <p>OATC</p> <p>BOP</p>	<p>Identifies 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller malfunction by indicated 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller output oscillating (90% of scale), 1CS-2273, Feedwater Heater Emergency Bypass Valve indication showing intermediate (Red and Green lights lit), rise in reactor power, SG A and B level deviations with corresponding annunciators for SG A and B level deviations. May take manual control of 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller to mitigate the transient.</p> <p>Implements AOP-2B Unit 1, Feedwater System Malfunction Monitor Foldout Page</p> <ol style="list-style-type: none"> 1. Maintain Reactor Power Less Than or Equal to 100% RNO: Reduce power per AOP-17A Unit 1, Rapid Power Reduction as necessary to maintain reactor power less than or equal to 100%. 2. Determine the Secondary System Malfunction <u>AND</u> go to the appropriate step (16) 16. Perform the following: <ol style="list-style-type: none"> a. Check Main Feed Pump Suction Pressure – GREATER THAN 190 PSIG b. Check LP Feedwater Heater Bypass Valve - SHUT RNO: Perform the following: <ol style="list-style-type: none"> 1) <u>IF</u> 1CS-2273 open due to controller malfunction, <u>THEN</u> perform the following: <ol style="list-style-type: none"> a) Ensure LP feedwater heater bypass controller set at 25 psig below main feed pump suction pressure in auto <ul style="list-style-type: none"> • 1PC-2273 b) <u>IF</u> controller will <u>NOT</u> operate in auto, <u>THEN</u> place controller in manual and place LP feedwater heater bypass valve in desired position. c. Return to <u>Step 2</u> c. Return to <u>Step 2</u> 3. Check Plant Conditions – STABLE 4. Check Secondary System Alignment – NORMAL 5. Check Change in Reactor Power – LESS THAN 15% IN ANY ONE HOUR 6. Notify the DSM

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>The crew should implement AOP-2B Unit 1, Feedwater System Malfunction, and lower turbine load to maintain reactor power less than 100%. Prompt action by the crew to take manual control of 1CS-2273 may eliminate the need to take action to reduce turbine load.</p> <p>If the overpower condition is recognized before the crew has diagnosed the secondary malfunction, the crew may enter AOP-17A first to address the overpower condition.</p> <p>IF the crew discusses returning to full power, THEN monitor for proper reactivity control implementation and supervisor oversight.</p> <p>Expected Communications:</p> <ul style="list-style-type: none"> IF directed to locally monitor Feedwater Heater level, THEN report #2 Feedwater Heater level is (was) low and that the level control system is responding in automatic to restore level. <p>With the controller in automatic:</p> <ul style="list-style-type: none"> IF an operator is dispatched to locally investigate 1CS-2273, Feedwater Heater Emergency Bypass Valve, THEN after two minutes report that the valve is cycling open and close in response to the air signal being supplied. <p>With the controller in manual:</p> <ul style="list-style-type: none"> IF an operator is dispatched to locally investigate 1CS-2273, Feedwater Heater Emergency Bypass Valve, THEN after two minutes report that the valve is stable (matching the control room's indication). <p>Continuation Criteria:</p> <p>After the crew has addressed the 1CS-2273 failure per AOP-2B Unit 1, or at the discretion of the Lead Examiner, continue on with the next event.</p>	<p>OS</p> <p>OS OATC</p> <p>BOP</p> <p>OATC/BOP</p> <p>OATC OATC</p>	<p>7. Return to <u>Procedure and Step in Effect</u></p> <p>Implements AOP-17A Unit 1, Rapid Power Reduction (if necessary)</p> <ol style="list-style-type: none"> Check Power – GREATER THAN 100% Reduce Load – LESS THAN 100% <ol style="list-style-type: none"> Manually insert control rods 10 steps to initially lower RCS temperature. WHEN control rod movement has started, THEN reduce turbine load. <ol style="list-style-type: none"> Select Turbine Manual. Reduce turbine load by 2% by pulsing “GV Down” pushbutton. Commence Boration per shiftly reactivity brief. IF NI power is still greater 100%, THEN reduce turbine load in 1% increments and adjust rods as necessary until less than 100%. Return control rods to auto. IF less than 100% AND additional load reduction is required, THEN Go to Step 3. <p>RNO Perform the following:</p> <ol style="list-style-type: none"> Restore Tavg-Tref differential to <1°F using rod control in manual. Return affected controls to automatic per Shift Management. <ul style="list-style-type: none"> Turbine controls Rod Control Go to <u>Procedure and Step In Effect</u>.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 4: 1-X01, Main Transformer loss of cooling</p> <p>Start: _____</p>	<p>Trigger 9 [ANN-C02D-A09, MAIN TRANS 1X01 LOSS OF COOLING = ON]</p> <p>Insert Trigger 9 to override on the annunciator for C02 D 1-9, 1X-01 Main Tran Loss of Cooling.</p> <p>Plant Response: Annunciator only.</p> <p>Cues:</p> <ul style="list-style-type: none"> • C02 D 1-9, 1X-01 Main Tran Loss of Cooling <p>Outside air temperature for this scenario is 24°F (-4.44°C). Per the table using a conservative temperature of 0°C, time to get the unit off-line should be 2.6 hours.</p> <p>Expected Communications: WHEN an AO is directed to locally investigate 1X-01, Main Transformer; wait two minutes and THEN report breaker 8MN in the Cooler Control Cabinet for phase B is in the tripped condition and none of the cooling units are running.</p> <p>Continuation Criteria: When the crew begins reducing load per AOP-17A, Rapid Power Reduction, or at the discretion of the Lead Examiner, continue with the next event.</p>	<p>BOP</p> <p>OS</p>	<p>Acknowledge the alarm and refer to Alarm Response Procedure for C02 D 1-9, 1X-01 Main Tran Loss of Cooling.</p> <p>Implements ARP C02 D 1-9, 1X-01 Main Tran Loss of Cooling</p> <p>3.1 DISPATCH AO to validate alarm for the affected Main Transformer(s) and PERFORM the following:</p> <ul style="list-style-type: none"> • CHECK cooler fan operation • CHECK oil cooler operation • CHECK local alarm panel <p>3.2 INSTRUCT AO to perform the following for affected transformer(s):</p> <p>3.2.1 Continuously MONITOR Winding and Oil temperature indicators and REPORT temperature changes to Control Room.</p> <p>3.2.2 CONTINUE attempts to restore cooling at each affected transformer using the flowing steps as applicable:</p> <ol style="list-style-type: none"> CHECK affected Transformer Phase Cooling Control Cabinet(s) for alarms OPEN affected Cooling Control Cabinet(s) and CHECK for tripped Main Power Supply breaker 8MN. IF no cooling banks can be started, THEN immediately TAKE Main Generator OFF-LINE AND DE-ENERGIZE Main Transformer based on loading and ambient temperature as follows: <ol style="list-style-type: none"> REFER to AOP-17A Unit 1, Rapid Power Reduction AND REDUCE power at a rate determined by Shift Management



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <p>IF an AO is directed to locally start 1P-99A and 1P-99B, Main Feed Pump Seal Water Pumps; insert Trigger 11 and THEN report when they are running.</p>	<p>OS</p> <p>OATC/BOP</p>	<ol style="list-style-type: none"> 6. Notify Power System Supervisor (PSS) Of Load Reduction 7. Check Rod Control System – IN AUTO 8. Energize Pressurizer Backup Heaters 9. Check PZR Pressure – CONTROLLING IN AUTO 10. Check PZR Level – CONTROLLING IN AUTO 11. Check Steam Generator Level – CONTROLLING IN AUTO 12. Ensure Main Feed Pump Seal Water Pump – RUNNING <ul style="list-style-type: none"> o 1P-99A o 1P-99B 13. Maintain RCS Tavg: <ul style="list-style-type: none"> • Greater than 540°F • Less than 577°F • Within 7°F of program Tavg 14. Check AFD – WITHIN LIMITS: <ul style="list-style-type: none"> o PPCS Screen “AFD PLOT” o ROD 1.2, HFP EQUIL DELTA FLUX 15. Control MSR temperatures – LESS THAN 500°F <ul style="list-style-type: none"> o HC-2085 16. Determine Desired End-Point – LESS THAN 60% TURBINE LOAD



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Continuation Criteria: When the crew has addressed the failure per AOP-1D Unit 1 and is pursuing returning the system to automatic, or at the discretion of the Lead Examiner, continue with the next event.</p>	<p>OS OATC BOP</p>	<p>May implement AOP-24, Response to Instrument Malfunctions</p> <ol style="list-style-type: none"> 1. Identify Failed Instrument RNO: IF a controller has failed, THEN go to <u>Step 3</u> 3. Establish Manual Control as Required: <ul style="list-style-type: none"> o Place affected controller in manual OR o Place any affected equipment controls in manual 4. Return Affected Parameter(s) To Desired Value(s) 5. Using Attachment A, PPCS PARAMETERS USED TO CALCULATE REACTOR THERMAL OUTPUT, Verify That Failed Instrument Is NOT An Input To RTO. 6. Remove Failed Instrument Channel From Service Per 0-SOP-IC-001, ROUTINE MAINTENANCE PROCEDURE REMOVAL OF SAFEGUARDS OR PROTECTION SENSOR FROM SERVICE RNO: IF failed instrument channel can NOT be removed from service OR is NOT addressed in 0-SOP-IC-001, THEN perform the following: <ol style="list-style-type: none"> a. IF failed channel can NOT be removed from service, THEN inform SM of failed channel status. 7. Return Controls To Automatic If Desired 8. Check Failure For Technical Specification Or TRM Applicability 9. Return To <u>Procedure And Step In Effect</u>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 6: Large Break LOCA</p> <p>Start: _____</p>	<p>Trigger 15: [MAL1RCS001, DBA LOCA HOT LEG A]</p> <p>Insert Trigger 15 to cause a Large Break LOCA. 1P-10A, RHR Pump fails to auto start and 1P-10B, RHR Pump trips.</p> <p>Plant Response: Rapid depressurization of RCS, automatic SI actuation.</p> <p>Cues:</p> <ul style="list-style-type: none"> • Rapid drop in RCS pressure • Auto SI 	<p>OATC</p> <p>OS OATC</p> <p>BOP</p>	<p>DIAGNOSE a large break LOCA event.</p> <p>Implements EOP-0, Unit 1 Reactor Trip or Safety Injection</p> <ol style="list-style-type: none"> 1. Verify Reactor Trip 2. Verify Turbine Trip 3. Verify Power to AC Safeguards Buses 4. Check if SI is Actuated <ol style="list-style-type: none"> a. Any SI annunciators LIT b. Both trains of SI - Actuated <p>RNO: Manually actuate both trains of SI and CI</p>
<p>Event 7: RHR pump malfunctions: 1P-10A, RHR Pump fails to auto start and 1P-10B, RHR Pump trips</p> <p>Event 8: Containment Spray fails to actuate</p>	<p>Preloads: [BKR1RHR001, 1-B5212A P-10A RH Removal Pump CKTBKR, Fail Auto Close] [MOT1RHR002, P-10B RH Removal Pump, Winding Ground]</p> <p>Preloads: [RLY1PPL020, 1-CS-10X TRAIN 'A' CONT SPRAY AUXILIARY, Fail As Is] [RLY1PPL021, 1-CS-20X TRAIN 'B' CONT SPRAY AUXILIARY, Fail As Is]</p>	<p>BOP</p>	<p>NOTE: Following immediate actions, CREW may manually start RHR and realign the Containment Spray system in accordance with OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients.</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> • IF the PAB AO is directed to check 1P-10B, RHR Pump; wait two minutes and THEN report that the motor is not running, discolored, hot to the touch and smells acrid. IF asked; THEN report that there is no fire. • IF an AO is directed to locally investigate breaker 1B52-21A on 1B-04 for 1P-10B, RHR Pump; wait two minutes and THEN report that breaker has tripped on overcurrent. 	<p>OATC</p> <p>BOP</p> <p>OATC</p>	<p>EOP-0 continued ... Monitor Foldout Page Criteria: RCP Trip Criteria IF both conditions listed below occur, THEN trip both RCPs:</p> <ul style="list-style-type: none"> • RCS subcooling - LESS THAN [36 °F] 26 °F • SI Pumps - AT LEAST ONE RUNNING AND CAPABLE OF DELIVERING FLOW <p>5. Perform ATTACHMENT A, Automatic Action Verification while continuing with this procedure</p> <p>6. Verify AFW pumps – Running</p> <p>7. Check RCP Seal Cooling</p> <p>8. Check RCS Temperatures</p> <p>9. Check PZR PORVs and Spray Valves</p> <p>10. Check if RCPs should be stopped</p> <p>11. Check if SGs are NOT Faulted</p> <p>12. Check if SG Tubes are NOT Ruptured</p> <p>13. Check if RCS is Intact</p> <p>RNO: Go to <u>EOP-1 UNIT 1, LOSS OF REACTOR OR SECONDARY COOLANT</u></p>
	<p>The LOCA / SI injection will result in meeting a Critical Safety Function INTEGRITY RED path condition. Depending on when this condition is identified, the crew may enter, then immediately exit CSP-P.1, Response to Imminent Pressurized Thermal Shock Condition, at Step 1.</p> <p>STA CUE: Identify and report the INTEGRITY Critical Safety Function RED path when appropriate.</p>		<p>May implement CSP-P.1, Response to Imminent Pressurized Thermal Shock Condition.</p> <p>1. Check RCS pressure – GREATER THAN [450 PSIG] 325 PSIG. RNO: IF RHR flow is greater than 550 gpm, THEN return to <u>procedure and step in effect.</u></p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p><u>EOP-0 Unit 1, Attachment A</u></p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • WHEN directed to locally check shut RW Service Water valves, LW-61 and 62, THEN report both valves are closed. • WHEN directed to locally check CW pump house temperature <105 °F, wait 3 minutes and THEN report the temperature is 72 °F and stable. • WHEN directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and THEN report the temperature is 75 °F and stable. • IF directed to periodically check the status of spent fuel cooling, wait 5 minutes and THEN report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable. 	<p>BOP</p>	<p>EOP-0 Unit 1, Attachment A, Automatic Action Verification</p> <p>A1 Verify Feedwater isolation A2 Verify Containment Isolation</p> <p>* CT-5, Manually start at least one Low-Head ECCS Pump</p> <p>A3 Verify ECCS Pumps RUNNING a. SI Pumps – BOTH RUNNING b. RHR Pumps – BOTH RUNNING RNO WHEN SI sequence is complete, THEN manually start RHR pumps</p> <p>A4 Verify Service Water Pumps RUNNING A5 Verify Containment Accident Cooling Units RUNNING A6 Verify Component Cooling Water Pumps – ONLY ONE RUNNING A7 Check If Main Steam Lines Can Remain Open A8 Verify Containment Spray Not required a. Containment pressure recorder – HAS REMAINED LESS THAN 25 psig RNO Perform the following: 1) Check containment spray actuated: • Annunciator {C01 B 2-6}, CONTAINMENT SPRAY, lit IF containment spray has NOT actuated, THEN manually actuate containment spray.</p> <p>A9 Verify ECCS Flow A10 Verify AFW valve alignment – PROPER EMERGENCY ALIGNMENT A11 Verify Proper ECCS Valve Alignment</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
		BOP	<p>*CT-3, Manually actuate containment cooling</p> <p>A12 Check Containment Spray NOT ACTUATED RNO Check containment spray alignment</p> <ol style="list-style-type: none"> 1. Ensure all containment spray pump discharge MOVs are open 2. Ensure at least one containment spray pump is running 3. IF two containment spray pumps are running, THEN place one containment spray pump in pull out 4. WHEN containment spray has been actuated for GREATER THAN two minutes, THEN ensure spray additive educator suction valve is open on running train <p>A13 Stop any boration via the blender in progress A14 Ensure the Auxiliary Building Filter/Exhaust Fans – OPERATING A15 Verify Service Water System Alignment A16 Check Miscellaneous Valves – SHUT A17 Check Control Room Ventilation A18 Check Cable Spreading Room Ventilation System – OPERATING A19 Check Computer Room Ventilation System – OPERATING A20 Check AFW Recirc fans – ONE RUNNING A21 Check Circulating Water Pump House Temperature Less Than 105°F A22 Check G03/G04 Switchgear Room Temperature less than 95°F A23 Periodically check status of spent fuel cooling</p>
		OS	<p>Implements EOP-1, Loss of Reactor or Secondary Coolant Monitor Foldout Page criteria: Containment Sump Recirculation Switchover Criteria IF either condition below is satisfied, THEN Go to <u>EOP-1.3, TRANSFER TO CONTAINMENT SUMP RECIRCULATION - LOW HEAD INJECTION</u></p> <ul style="list-style-type: none"> ○ RWST level - LESS THAN 60% OR ○ RCS pressure less than [450 psig] 325 psig <u>AND</u> RHR flow greater than 550 gpm

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> WHEN directed to perform Attachment A of EOP-1.3; insert trigger 17, wait for the valves to finish stroking and THEN report that the CCW alignment is complete. 	<p>OS</p> <p>BOP OATC</p> <p>BOP</p>	<p>Implements EOP-1.3 Unit 1, Transfer to Containment Sump Recirculation - Low Head Injection</p> <ol style="list-style-type: none"> Reset SI Check RCS Break Size Align CCW per ATTACHMENT A, LOCAL ALIGNMENT OF COMPONENT COOLING WATER While Continuing With The Procedure Direct Unnecessary Personnel To Evacuate The PAB Check if Containment Sump pH Must Be Adjusted Check if Train 'A' SI Flow Should Be Stopped <ol style="list-style-type: none"> Check Train 'B'; RHR injection flow - GREATER THAN 550 GPM RNO Go to Step 7 Check if Train 'B' SI Flow Should Be Stopped <ol style="list-style-type: none"> Check Train 'A'; RHR injection flow - GREATER THAN 550 GPM Stop train 'B' SI pump and place in pull out Stop train 'B' RHR pump and place in pull out Monitor Core Cooling <ol style="list-style-type: none"> Maintain core exit thermocouple temperatures - LESS THAN 700° F Evaluate Control Room Conditions: <ol style="list-style-type: none"> Check Control Room RMS high alarms - CLEAR <ul style="list-style-type: none"> 1RE-101 1RE-235

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> WHEN directed to locally shut 1SI-897A and B, SI Test Line Return Isolation AOVs; insert trigger 19, wait for the valves to finish stroking, and THEN report the valves are closed. 	<p>BOP</p>	<ol style="list-style-type: none"> 10 Isolate Component Cooling Flow To Containment <ol style="list-style-type: none"> a. Check RCPs - BOTH STOPPED b. Shut containment equipment CC supply header isolation valve: <ul style="list-style-type: none"> • 1CC-719 11 Isolate Component Cooling Flow to Non-Regenerative Heat Exchanger 12 Check Service Water Pumps - SIX RUNNING 13 Check Service Water Ring Header - CONTINUOUS FLOWPATH ESTABLISHED 14 Establish Component Cooling Flow To RHR Heat Exchangers: <ol style="list-style-type: none"> a. Ensure component cooling pumps - AT LEAST ONE RUNNING b. Open only one RHR heat exchanger shell side inlet valve: <ul style="list-style-type: none"> ○ 1CC-738A ○ 1CC-738B c. Start second component cooling pump d. Open second RHR heat exchanger shell side inlet valve: <ul style="list-style-type: none"> ○ 1CC-738A ○ 1CC-738B 15 Ensure RV Injection MOVs - BOTH OPEN 16 Align SI Test Lines For Recirculation <ol style="list-style-type: none"> a. Check containment spray discharge valves - AT LEAST ONE OPEN IN EACH TRAIN <ul style="list-style-type: none"> • Train A <ul style="list-style-type: none"> ○ 1SI-860A ○ 1SI-860B (preferred) • Train B <ul style="list-style-type: none"> ○ 1SI-860C ○ 1SI-860D (preferred) b. Locally shut both SI test line return isolation AOVs: <ul style="list-style-type: none"> • 1SI-897A • 1SI-897B

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Termination Criteria: Terminate the scenario when crew has completed Step 21 of EOP-1.3 Unit 1, Transfer To Containment Sump Recirculation – Low Head Injection and is waiting for RWST level to lower to 34% or at the discretion of the Lead Examiner.</p>	<p>BOP</p>	<ul style="list-style-type: none"> 17 Align RHR Sump Suction Valves <ul style="list-style-type: none"> a. Open train A RHR pump suction from containment sump B isolation valve: <ul style="list-style-type: none"> • 1SI-850A <p>RNO: Locally open valve:</p> b. Open train B RHR pump suction from containment sump B isolation valve <ul style="list-style-type: none"> • 1SI-850B 18 Check Train 'A' - READY FOR RECIRCULATION 19 Check Train 'B' - READY FOR RECIRCULATION 20 Check Battery Chargers Supplying DC Buses - ENERGIZED 21 Check RHR Trains - At Least One Ready For Recirculation <ul style="list-style-type: none"> o Train A <u>OR</u> o Train B 22 Check RWST Level - LESS THAN OR EQUAL TO 34% RNO: Perform the following: <ul style="list-style-type: none"> a. WHEN RWST level is less than or equal to 34%, THEN immediately return to this procedure and continue with <u>Step 23</u>. b. Implement Critical Safety Procedures and continue with <u>Procedure And Step In Effect</u>.

*** END OF SCENARIO ***

QUANTITATIVE ATTRIBUTES

(Use this form for NRC/INPO Evaluations only as required to document associated quantitative information.)

Malfunctions:

Before EOP Entry:

- 1PT-947, Loop A Containment Pressure Transmitter fails high
- 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic
- 0LT-4040, Condensate Tank T-24A Level Transmitter fails low
- 1-X01, Main Transformer loss of cooling
- 1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto

After EOP Entry:

- RHR pump malfunctions
 - 1P-10A, RHR Pump fails to auto start
 - 1P-10B, RHR Pump trips
- Containment Spray fails to actuate

Abnormal Events:

- 1PT-947, Loop A Containment Pressure Transmitter fails high
- 1PC-2273, Feedwater Heater Emergency Bypass Valve Controller oscillates in automatic
- 0LT-4040, Condensate Tank T-24A Level Transmitter fails low
- 1-X01, Main Transformer loss of cooling
- 1HC-428A, 1P-2A, Charging Pump Hand Controller oscillates in auto

Major Transients:

- Large Break LOCA

Critical Tasks:

1.	CT-3	Manually actuate containment cooling
2.	CT-5	Manually Start at Least One Low-Head ECCS Pump

CT-3	Manually actuate containment cooling
Applicable ERG Version	LP
Applicable ERG	E-0, ECA-0.2, FR-Z.1

Critical Task:

Manually actuate at least one Containment Spray pump before an extreme (RED path) challenge develops to the containment CSF.

Plant Conditions:

- Containment cooling is required but the minimum required complement of containment cooling equipment is not automatically actuated (instrument failure is not the cause of the requirement for containment cooling)
- The minimum required complement of containment cooling equipment can be manually actuate from the control room

Cues:

- Indication and/or annunciation that containment cooling is required (containment pressure > 25 psig)
- Indication and/or annunciation that Containment Spray is not actuated

Performance Indicator:

Manipulation of controls as required to actuate at least one Containment Spray Pump

Feedback:

- Indication and/or annunciation that at least one Containment Spray pump is running

CT-5	Manually Start at Least One Low-Head ECCS Pump
Applicable ERG Version	HP, LP
Applicable ERG	E-0, ECA-0.2

Critical Task:

Manually start at least one low-head ECCS pump before transition out of EOP-0

Plant Conditions:

- Large-break LOCA
- Reactor trip
- SI
- RCS pressure below the shutoff head of the low-head ECCS pumps
- Both low-head ECCS pumps fail to automatically start upon SI
- At least one low-head ECCS pump can be started provided that manual action is taken as necessary

Cues:

- Indication and/or annunciation that low-head ECCS pumped injection is required
 - SI actuation
 - RCS pressure below the shutoff head of the low-head ECCS pumps

AND

- Indication and/or annunciation that no low-head ECCS pump is injecting into the core
 - Control switch indication that the circuit breakers or contactors for both low-head ECCS pumps are open
 - All low-head ECCS pump discharge pressure indicators read zero
 - All flow rate indicators for low-head pumped injection read zero

Performance Indicator:

Manipulation of controls as required to start at least one low-head ECCS pump

- Control switch indication that the circuit breaker for at least one low-head ECCS pump is closed

Feedback:

Indication and/or annunciation that at least one low-head ECCS pump is injecting

- Flow rate indication of injection from at least one low-head ECCS pump

1.0 Plant Conditions:

	<u>Unit 1</u>	<u>Unit 2</u>
Time in Core Life (MWD/MTU):	19,400	
Reactor Power:	100%	
Boron Concentration:	11 ppm	
Rod Height:	CBD @ 220	

2.0 Equipment Out of Service:

- 1PT-950, U1C High Range Pressure Transmitter
- 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.

3.0 Technical Specification LCOs NOT Met and Action Conditions in Effect:

<u>LCO NOT Met</u>	<u>TSAC</u>	<u>Required Actions</u>	<u>Completion Time</u>
3.3.2	A. One or more Functions with one or more channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D.2.2 Be in MODE 4	1 hour 7 hours 13 hours

4.0 Planned Evolutions:

- Normal Shift routine will be to lower power at 30%/hr utilizing OP-3A Unit 1, Power Operation To Hot Standby Unit 1.

5.0 Common:

- Safety Monitor is Green
- Today is Sunday, clock time is real time and you have a normal shift complement.

Facility: Point Beach Scenario No.: 2 Op-Test No.: 2017

Examiners: _____ Operators: _____

Initial Conditions: Unit 1 is in OP 1C, Startup to Power Operation, at approximately 29% post chemistry hold coming out of a forced outage. Chemistry has requested a bump of Main Feed and Condensate pumps for iron flushing in accordance with Step 5.31. 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure. 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.

Turnover: Start 1P-28B, SGFP and 1P-25B, Condensate Pump then secure 1P-28B SGFP, and 1P-25B Condensate Pump after 5 minutes for iron flushing. Raise power to 50%.

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP N-SRO	Bump SG Feed Pump and Condensate Pump
2		R-RO N-BOP R-SRO	Raise power to 50%
3	XMT1SGN001A	I-BOP I-SRO TS-SRO	1FI-464, SG Steam Flow fails slowly high
4	XMT1MSS009A	I-BOP I-SRO TS-SRO	1PT-486, Turbine First Stage Pressure fails low
5	MAL1RCP001B	C-RO C-SRO	1P-1B, RCP Seal leak develops, which degrades requiring reactor trip
6	MAL1RCS003F	M-ALL	Small Break LOCA from RTD Bypass Line occurs on reactor trip
7	MAL1PPL001A MAL1PPL001B	C-RO	Reactor fails to trip (CSP-S.1, Response to Nuclear Power Generation/ATWS)
8	MOT1SIS001 BKR1SIS002	C-BOP	1P-15A, SI Pump trips upon starting 1P-15B, SI Pump fails to start in Auto

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective Given specific plant conditions, the students will be able to respond to the failures listed below in accordance with plant procedures:

- 1FT-464, SG Steam Flow Transmitter fails high (no auto shift to single element)
- PT-486, Turbine First Stage Pressure fails low
- 1P-1B, Reactor Coolant Pump seal leak develops, then degrades to trip criteria
- Small Break LOCA
- Reactor fails to trip (ATWS)
- Safety Injection Pump failures
 - 1P-15A, Safety Injection pump trips upon starting
 - 1P-15B, Safety Injection pump fails to auto start

Embedded within these events is the expectation to properly utilize Technical Specifications.

Enabling Objectives: None

Prerequisites:

1. Simulator available
2. Students enrolled in Initial License Program

Training Resources:

1. Floor Instructor as Shift Manager / Shift Technical Advisor
2. Simulator Booth Operator
3. Communicator
4. NRC Evaluators

References:

1. 0-SOP-IC-001 Blue, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Blue Channels
2. 0-SOP-IC-001 Red, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Red Channels
3. 0-SOP-IC-002, Technical Specifications LCO – Instrument Cross Reference
4. OP 1C, Startup to Power Operation Unit 1
5. AOP-1B Unit 1, Reactor Coolant Pump Malfunction
6. AOP-2B, Feedwater System Malfunction
7. AOP-24, Response to Instrument Malfunctions
8. ARP 1C03 1E2 3-2, Steam Generator A Feed Water Flow Channel Alert
9. ARP 1C03 1E2 4-2, Tavg Steam Dump Channel Alert
10. CSP-S.1 Unit 1, Response to Nuclear Power Generation / ATWS
11. EOP-0 Unit 1, Reactor Trip Or Safety Injection

- 12. EOP-1 Unit 1, Loss Of Reactor Or Secondary Coolant
- 13. OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients
- 14. Technical Specifications

Protected Content: None

Evaluation Method: Simulator performance will be evaluated in accordance with NUREG 1021 Rev. 9.

Operating Experience: N/A

Risk Significant Operator Actions: HEP-ODA-EOP12-05, FAILURE TO COOLDOWN AN DEPRESSURIZE RS FO LONG TERM COOLING BY SECONDARY STEA, FV: 3.86E-02



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	DATE
				REVIEWER	DATE
Rev. 0	Developed for 2017 NRC ILT Exam.				

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

- Unit 1 is in OP 1C Unit 1, Startup to Power Operation Unit 1 at approximately 28% post chemistry hold coming out of a forced outage. Chemistry has requested a bump of the idle main feed and condensate pumps for iron flushing in accordance with Step 5.31.
 - Start and run 1P-28B, Main Feedwater Pump and 1P-25B, Condensate Pump for 5 minutes for iron flushing.
 - Raise power to 50% in accordance with OP 1C Unit 1, Startup to Power Operation Unit 1.
- OOS Equipment
 - 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.
 - 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.
- Events
 - 1FT-464, 1HX-1A SG Steam Flow Transmitter fails high (no auto shift to single element)
 - 1PT-486, Turbine First Stage pressure transmitter fails low
 - 1P-1B, Reactor Coolant Pump seal leak develops, then degrades to trip criteria
 - Small Break LOCA
 - Reactor fails to trip (ATWS)
 - Safety Injection Pump failures
 - 1P-15A, Safety Injection pump trips upon starting
 - 1P-15B, Safety Injection pump fails to auto start
- Terminate the scenario when crew has completed Step 13 of EOP-1 Unit 1, Loss of Reactor or Secondary Coolant.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	Start and run 1P-28B, Main Feedwater Pump and 1P-25B, Condensate Pump for 5 minutes for iron flushing beginning with OP-1C Unit 1, Startup to Power Operation Unit 1, Step 5.31.
2.	Raise power to 50% (or per Lead Examiner) in accordance with OP 1C Unit 1, Startup to Power Operation Unit 1.
3.	1FT-464, 1HX-1A SG Steam Flow Transmitter fails high (no auto shift to single element) <ul style="list-style-type: none"> The crew should respond by taking 1FIC-466A, 1 HX-1A Primary Flow Indicating Controller to manual and controlling steam generator level. The crew should implement AOP-24, Response to Instrument Malfunctions and 0-SOP-IC-001 Red, Routine Maintenance Procedure Removal of Safeguards or Protection Sensor from Service – Red Channels to shift to a new controlling channel and take the flow transmitter out of service. The crew may implement ARP 1C03 1E2 2-2, Steam Generator A Feed Water Flow High to shift to a new controlling channel.
4.	1PT-486, Turbine First Stage Pressure Transmitter fails low <ul style="list-style-type: none"> The crew should implement : <ul style="list-style-type: none"> ARP 1C03 1E2 4-2, Tavg Steam Dump Channel Alert and realign the condenser steam dump system for continued operation. AOP-24, Response to Instrument Malfunction and 0-SOP-IC-001 Blue, Routine Maintenance Procedure Removal of Safeguards or Protection Sensor from Service – Blue Channels to take the transmitter out of service Technical Specifications for the failed channel
5.	1P-1B, Reactor Coolant Pump seal leak develops, then degrades requiring a reactor trip <ul style="list-style-type: none"> Unit conditions degrade such that AOP-1B Unit 1, Foldout Page criteria are met and a transition to <u>Step 18</u> to trip the unit and secure the pump is warranted.
6.	Small Break LOCA from RTD bypass line <ul style="list-style-type: none"> Will result in a Safety Injection signal

<p>7.</p>	<p>Reactor fails to trip (ATWS)</p> <ul style="list-style-type: none"> • Upon failure of the reactor to trip from the control room, the crew should transition from AOP-1B Unit 1/EOP-0 Unit 1, Reactor Trip or Safety injection to CSP-S.1 Unit 1, Response to Power Generation / ATWS. • After completing the actions in CSP-S.1 Unit 1, the crew should transition back to EOP-0 Unit 1, Step 1 RNO. • Concurrent with the implementation of EOP-0 Unit 1, the crew should complete the remainder of AOP-1B Unit 1 Step 18 which was suspended when entering CSP-S.1 Unit 1. • The crew should complete the actions of EOP-0 Unit 1 and transition to EOP-1 Unit 1, Loss Of Reactor Or Secondary Coolant and then to EOP-1.2 Unit 1, Post LOCA Cooldown and Depressurization to address the Small Break LOCA.
<p>8.</p>	<p>Safety Injection Pump failures: 1P-15A, Safety Injection pump trips upon starting and 1P-15B, Safety Injection pump fails to auto start</p> <ul style="list-style-type: none"> • Following immediate actions of EOP-0 Unit 1, The crew may manually start a Safety Injection Pump in accordance with OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients, otherwise pump start is addressed in EOP-0 Unit 1, Attachment A, <u>Step A3.a.RNO</u> .
<p>STOP</p>	<p>Terminate the scenario when crew has completed <u>Step 9</u> of EOP-1 Unit 1, Loss of Reactor or Secondary Coolant.</p>

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the site specific Simulator Setup Checklist.

General Instructions

Simulator Setup Instructions:

- Load **IC-7** and go to run
- Open the saved Event and Schedule files from the secure drive:
- Verify all commands listed in table below are contained in the Schedule File
- Insert the setup malfunction(s)
- Reposition bistable switches for: **1PT-950, Loop B Containment Pressure Transmitter**
- Make any necessary adjustments or corrections
- Freeze the simulator and save to scenario specific IC
- Re-initialize into saved IC and go to run
- Open and start the Event and Schedule files
- Open and start InSight and Alarm files for data collection
- Run the scenario real time
- Save InSight, Event, Alarm, Schedule Files to the secure drive and collect procedure markups for SBT
- Complete TR-AA-23001008-F01 Scenario Based Testing (SBT) Checklist

Multiple Use:

- Load saved IC and go to run
- Open the saved Event and Schedule files:
- Start the Schedule File
- Walk down the control boards to ensure plant conditions accurately reflect the scenario's initial conditions
- Make any necessary adjustments or corrections
- Update documentation if required
- Resave if required
- Turnover to the crew

SIMULATOR – SCENARIO SETUP:

Setup: 1PT-950, Loop B Containment Pressure Transmitter is out of service								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1CNM017A	1-PT950 LOOP B CONT PRESSURE XMTR FIXED OUTPUT				00 :00 :00	-	90	Preload
Simulator Setup: <ol style="list-style-type: none"> Place OOS magnet at PT-950, Containment Pressure Place a RED dot on C01 B 1-5, U1 Containment Pressure Channel Alert Place 1W-3B CS in pull-out, install OOS magnet. Install an orange Guarded magnet at 1W-3A. 								

SIMULATOR MALFUNCTIONS:

Event 1: Start and run 1P-28B, Main Feedwater Pump and 1P-25B, Condensate Pump for 5 minutes for iron flushing. Event 2: Raise power to 50% in accordance with OP 1C Unit 1, Startup to Power Operation Unit 1.								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
LOA1CFW079	1-P73A 1P-28B SGFP AC LUBE OIL PUMP CS	-	-	11	-	-	ON	Directed from Crew
Expected field communications: <ol style="list-style-type: none"> [5.31.6] 1CS-182B, 1P-25B-M Cond Pump Motor Cooling Condensate Return To Suction has been adjusted for 30 gpm to motor bearing cooling. [5.31.7] Prestart checks for the idle Main Feedwater Pump have been completed. [5.31.9] 1P-28BA is aligned per Step 5.31.9. [5.31.10] 1P-28B temperatures are as follows: <ul style="list-style-type: none"> 1TI-3156B, Top Case Temp 294°F 1IT-3157B, Bottom Case Temp 302°F 1IT-2191 SGFP Discharge Temp 310°F [5.31.14.b] 1FIC-2188, 1P-28B SGFP Suction Flow Indication Controller, is indicating properly. [5.31.16] When directed to perform step, use LOA1CFW079 to stop 1P-73A, report actions completed SAT, and that oil pressure is normal at 18 psig.. [5.31.17.c] 1P-73A-CS, P-73A SGFP AC Lube Oil Pump Local Stl Station is ON. (Trigger 11) [5.31.17.c.3] Lowering suction flow at 1FI-2188, 1P-28B SGFP Suction Flow Indicator. [5.31.17.d.2] 1P-25B, Condensate pump is stopped and not rotating backwards. 								

Event 3: 1FT-464, 1HX-1A SG Steam Flow Transmitter fails high (no auto shift to single element)								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1SGN001A	1-FT464 LOOP A STEAM FLOW FIXED OUTPUT	00 :00 :00	00 :00 :45	1	00 :00 :00	-	2.0	PLE
Expected field communications: <ol style="list-style-type: none"> None 								

Event 4: 1PT-486, Turbine First Stage Pressure Transmitter fails low

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1MSS009A	1-PT486 FIRST STAGE PRESSURE XMTR FIXED OUTPUT	00:00:00	00:00:05	3	00:00:00	-	0	PLE

Expected field communications:

1. **IF** and AO is dispatched to locally investigate 1PT-486, Turbine First Stage Pressure Transmitter, wait two minutes and **THEN** report that locally there doesn't seem to anything out of normal.

Event 5: 1P-1B, Reactor Coolant Pump seal leak develops, then degrades to trip criteria

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1RCP001B	RCP #1 SEAL FAILURE PUMP B	00:00:00	00:05:00	5	00:00:00	-	5	PLE
LOA1CVC048	1-CV-300B P-1B RCP SEAL INJ THROTTLE	00:00:00	00:00:00	-	00:00:00	-	Per Crew Direct.	When directed by the Crew
MAL1RCP001B	RCP #1 SEAL FAILURE PUMP B	00:00:00	00:01:00	7	00:00:00	5	300	PLE

Expected field communications:

1. **IF** the PAB AO is dispatched to monitor Unit 1 Reactor Coolant Drain Tank level; call up Instructor Station Drawing 1WPS1 and **THEN** report as indicated. The change in RCDT level should indicate a <1% change in 5 minutes.
2. **IF** the PAB AO is directed to throttle 1CV-300B, 1P-1B RCP Seal Injection Throttle Valve; coordinate with the Control Room and **THEN** make adjustments using **LOA1CVC048, 1-CV-300B P-1B RCP SEAL INJ THROTTLE** as directed.

Event 6: Small Break LOCA

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1RCS003F	RTD BYPASS LINE LEAK LOOP B COMMON	00:00:00	00:00:30	9 Cond			75	1C04 Trip pushbuttons [X14I055A == 1 X14I057A == 1]

Expected field communications:

1. None

Event 7: Reactor fails to trip (ATWS)

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1PPL001A	REACTOR TRIP BREAKER 52/RTA FAILURE	00 :00 :00	-	-	00 :00 :00	-	Fails to Open	PRELOAD
MAL1PPL001B	REACTOR TRIP BREAKER 52/RTB FAILURE	00 :00 :00	-	-	00 :00 :00	-	Fails to Open	PRELOAD

Expected field communications:

- FOLLOWING** the PA announcement for ATWS or when directed to locally open the reactor trip breakers, allow 2 minutes for travel to the Rod Drive Room and **THEN** report to the control room. **WHEN** directed to open the Unit 1 reactor trip breakers change MAL1PPL001A and MAL1PPL001B to Trip and **THEN** report the reactor trip breakers are open

Event 8: Safety Injection Pump failures: 1P-15A, Safety Injection pump trips upon starting and 1P-15B, Safety Injection pump fails to auto start

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MOT1SIS001	1-P15A SAFETY INJECTION PUMP	00 :00 :00	-	-	00 :00 :00	-	Winding Ground	PRELOAD
BKR1SIS002	1-A5285 P-15B SAFETY INJ PUMP CKTBKR	00 :00 :00	-	-	00 :00 :00	-	Failauto cl	PRELOAD

Expected field communications:

- WHEN** directed to locally check RW Service Water valves, LW-61 and 62, **THEN** report both valves are shut.
- WHEN** directed to locally check CW pump house temperature <105 °F, wait 3 minutes and **THEN** report the temperature is 72 °F and stable.
- WHEN** directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and **THEN** report the temperature is 75 °F and stable.
- IF** directed to periodically check the status of spent fuel cooling, wait 5 minutes and **THEN** report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable.
- IF** an AO is dispatched to locally investigate 1P-15A, Safety Injection pump, wait 2 minutes and **THEN** report that the motor is hot to the touch and there is a faint acrid smell in the area. There is no fire.
- IF** an AO is dispatched to locally investigate breaker 1A52-59, Pwr to 1P-15A, Safety Injection Pump, wait 2 minutes and **THEN** report the breaker has tripped.

BRIEF / TURNOVER INFORMATION

- Conduct simulator crew pre-scenario brief using TR-AA-230-1007-F06, Simulator Instructor Pre-Exercise Checklist.
- Brief the scenario evaluators
- Brief surrogates using TR-AA-230-1007-F11, Surrogate Brief Checklist, if necessary.
- Crew Shift Turnover Information: See Attached

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 1: Start and run 1P-28B, Main Feedwater Pump and 1P-25B, Condensate Pump for 5 minutes for iron flushing.</p> <p>Start: _____</p>	<p>Unit 1 is in OP 1C, Startup to Power Operation Unit 1, at approximately 28% post chemistry hold coming out of a forced outage. Chemistry has requested a bump of the idle main feedwater and condensate pumps for iron flushing in accordance with Step 5.31.</p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • [5.31.4] An AO is standing by to monitor pump start, reports as SAT following pump start. • [5.31.6] 1CS-182B, 1P-25B-M Cond Pump Motor Cooling Condensate Return To Suction has been adjusted for 30 gpm to motor bearing cooling. • [5.31.7] Prestart checks for the idle Main Feedwater Pump have been completed. • [5.31.9] 1P-28B is aligned per Step 5.31.9. • [5.31.10] 1P-28B temperatures are as follows: <ul style="list-style-type: none"> • 1TI-3156B, Top Case Temp 294°F • 1TI-3157B, Bottom Case Temp 302°F • 1TI-2191 SGFP Discharge Temp 310°F • [5.31.14.b] 1FIC-2188, 1P-28B SGFP Suction Flow Indication Controller, is indicating properly. 	<p>CREW</p>	<p>Implements OP 1C Unit 1, Startup to Power Operation Unit 1</p> <p>5.31.4 WHEN directed by Shift Management, THEN START the second Condensate Pump AND RECORD date/time.</p> <p>5.31.5 N/A</p> <p>5.31.6 IF 1P-25B was started in Step 5.31.4.b, THEN OBSERVE 1FI-3116B, 1HX-84B Cond Pump Motor Cooler Cooling Water Flow Ind, AND ADJUST 1CS-182B, 1P-25B-M Cond Pump Motor Cooling Condensate Return To Suction, for 30 gpm to motor bearing cooler.</p> <p>5.31.7 ENSURE the following Prestart Checks for the idle Main Feedwater Pump have been completed in accordance with OP 13A Unit 1, Secondary Systems Startup Unit 1:</p> <p>5.31.8 N/A</p> <p>5.31.9 IF 1P-28B is the idle Main Feedwater Pump, THEN ENSURE the following are aligned as indicated:</p> <p>5.31.10 Locally RECORD the following temperatures for the idle SGFP and MARK remaining pump N/A:</p> <p>5.31.11 POSITION the control switch for the idle SGFP to AUTO and OBSERVE its mini-recirc valve stroke full OPEN: MARK as N/A pump not selected.</p> <p style="padding-left: 20px;">b. 1P-28B-CS, 1P-28B Steam Generator Feed Pump Control Switch, paired with 1CS-2188, 1P-28B SGFP Mini Recirc Flow Control</p> <p>5.31.12 START the Second Main Feed Pump and RECORD date/time and MARK step for pump NOT started N/A</p> <p>5.31.13 N/A</p> <p>5.31.14 IF 1P-28B was started, THEN PERFORM the following:</p> <p style="padding-left: 20px;">a. CHECK OPEN 1CS-2189, 1P-28B Discharge MOV</p> <p style="padding-left: 20px;">b. Locally CHECK 1FIC-2188, 1P-28B SGFP Suction Flow Indicating Controller, for proper indication.</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<ul style="list-style-type: none"> • [5.31.16] When directed to perform step, use LOA1CFW079 to stop 1P-73A. report actions completed SAT, and that oil pressure is normal at 18 psig. • [5.31.17.c] 1P-73B-CS, P-73B SGFP AC Lube Oil Pump Local Stl Station is ON. (Trigger 11) • [5.31.17.c.3)] Lowering suction flow at 1FI-2188, 1P-28B SGFP Suction Flow Indicator. • [5.31.17.c..6] MFP coastdown SAT • [5.31.17.d.2)] 1P-25B, Condensate pump is stopped and not rotating backwards. 		<p>5.31.15 N/A</p> <p>5.31.16 IF 1P-28B was started THEN PERFORM the following: (NOT MODELED)</p> <p>5.31.17 WHEN a minimum of 5 minutes of flushing is obtained on the train of main feed and condensate, THEN DETERMINE main feed and condensate train to be secured as follows:</p> <ol style="list-style-type: none"> a. ENSURE 1PC-2273, Low Pressure Heater Bypass Pressure Controller, SET to 190 psig b. N/A c. IF 1P-28B, Steam Generator Feed Pump, will be STOPPED, THEN PERFORM the following: <ol style="list-style-type: none"> 1) POSITION 1P-73A,-CS, P-73A SGFP AC Lube Oil Pump Local Ctl Station, to ON. 2) SHUT 1CS-2189, 1P-28B SGFP Discharge MOV by positioning 1CS2189-CS, 1P-28B SGFP Discharge MOV control switch, to CLOSE. 3) MONITOR 1CS-2189 closure and decreasing suction flow at 1FI-2188, 1P-28B SGFP Suction Flow Indicator. 4) BEFORE 1CS-2189 reaches fully SHUT, THEN HOLD 1CS-2189-CS in CLOSE position. 5) ENSURE 1CS-2188, 1P-28B SGFP Mini Recirc Flow Control, begins modulating OPEN 6) STOP 1P-28B by positioning 1P-28B-CS, 1P-28B Steam Generator Feed Pump Control Switch, to STOP. 7) RELEASE 1CS-2189-CS. 8) OBSERVE 1CS-2188 goes fully SHUT, THEN POSITION 1P-28B-CS to PULLOUT. d. STOP a Condensate Pump <ol style="list-style-type: none"> 1) POSITION selected condensate pump control switch in PULLOUT. Remaining pump control switch may be marked N/A: 2) Locally ENSURE pump selected in STEP 5.3.17.d.1) has stopped (NOT rotating backwards) 3) RETURN condensate pump control switch in PULLOUT, to AUTO. Remaining pump control switch may be marked N/A: <p>5.31.18 NOTIFY Chemistry MFP / Cond pump bump is complete.</p>



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
			<p>5.32 WHEN directed by Shift Management, THEN PLACE an additional feed train in service as follows: Deferred to 50% - 60% power</p> <p>5.33 Restriction For Continued Load Escalation</p> <p>5.33.1 IF Step 5.27 was performed, THEN BEFORE continued load escalation, PERFORM the following:</p> <ul style="list-style-type: none"> a. DETERMINE magnitude and rate of continued load escalation and RECORD below: (15%/hr) b. INITIATE notification of continued load escalation in accordance with NP 2.1.5, Electrical Communications, Switchyard Access and Work Planning. <p>5.33.2 WHEN power is approximately 35%, THEN CHECK the following indications:</p> <p>5.34 Load Escalation</p> <p>5.34.1 NOTIFY Turbine Hall Operator to monitor the following:</p> <p>5.34.2 NOTIFY Primary Auxiliary Building (PAB) Operator, to PERFORM the following:</p> <p>5.34.3 IF determined necessary by Operations Shift Management, THEN LOWER the PPCS constants for SG Blowdown Flow by 5 KLBS/hr.</p> <p>5.34.4 IF required, THEN PLACE an additional Letdown Orifice in service.</p> <p>5.35.1 IF Step 5.32 was performed, THEN ENSURE one hour has elapsed beyond the time recorded in Step 5.32.5.32.2.</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 2: Raise power to 50% in accordance with OP 1C Unit 1, Startup to Power Operation Unit 1. Start: _____</p>	<p>Raise power to 50% in accordance with OP 1C Unit 1, Startup to Power Operation Unit 1.</p> <p>Expected Communication: SM</p> <ul style="list-style-type: none"> If necessary, prompt the crew to continue with the power ascension. If requested, report that NP 2.1.5 notifications have been completed. <p>Continuation Criteria: Once the crew has raised reactor power about 3% to 5%. Or at the discretion of the Lead Examiner, continue to the next event.</p>		<p>5.35.2 WHEN Reactor Engineering activities are complete, THEN RESUME power escalation, observing any other required Reactor Engineering hold points.</p> <p>5.35.3 On 1C03, ENSURE 1DTIC-2525, T-23 HDT Differential Temperature Indicator Ctr, is selected to AUTO</p> <p>5.35.4 CONTINUE load escalation as follows:</p> <ol style="list-style-type: none"> ENSURE Governor Valves are off Valve Position Limiter (VPL) MOVE Valve Position Limiter (VPL) to its desired position (e.g., 100% value) SELECT the desired EH Control System mode of Operation and MARK mode NOT selected N/A: SHIFT to the selected rate recorded ins Step 5.33.1.a. <p>5.36 Continuous Action During Power Increase</p> <p>5.36.1 MAINTAIN controls in AUTO as practicable</p> <p>5.36.2 MAINTAIN Control Banks within the insertion, sequence, and overlap limits specified in the COLR. LCO 3.1.6</p> <p>5.36.3 MAINTAIN Tavg within 1.5°F of Tref</p> <p>5.36.4 ADJUST Power Range NIS as directed by 1-TS-RE-001, Power Level Determination Unit 1</p> <p>5.36.5 MAINTAIN VARS OUT while keeping the null meter zeroed.</p> <p>5.36.6 MAINTAIN the controller setpoint for the LP Feed Water Heater Bypass Valve (1CS-2273, LP FWH Bypass Press Controller) at 25 psig below SG Feed Pump suction pressure</p> <p>5.36.7 MONITOR FWH/MSR high level alarms to check the dump valves control level</p> <p>5.36.8 MONITOR Ice Melt operations as necessary.</p> <p>5.36.9 IF required, THEN CONTINUE OPENING MSR Control Valves using manual operation of controller 1HX-2085 at the rate of less than or equal to 25°F per 30 minutes.</p> <p>5.36.10 WHEN power is approximately 35%, THEN CHECK the following:</p>



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
		BOP	<p>Implements 0-SOP-IC-001 Red, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Red Channels Remove from Service</p> <p>NOTE: Steps 1 through 4 may be N/A'd if both transfer switches are already in "WHITE."</p> <ol style="list-style-type: none"> 1. PLACE Feedwater Regulating Valve in MANUAL: FIC-466A, HX-1A Primary Flow Indicating Controller NOTE: Controlling channel will be FT-465. 2. PLACE SG A Steam Flow Control Transfer Switch to "465" (WHITE). NOTE: Controlling change will be FT-467. 3. PLACE SG A Feedwater Flow Control Transfer Switch to "467" (WHITE). 4. PLACE Feedwater Regulating Valve Controller in AUTO unless directed otherwise by Shift Management: FIC-466A, HX-1A Primary Flow Indicating Controller 5. In cabinet C-112, PLACE the following bistable trip switches in the "TRIP" position (toggle switch up) and CHECK expected response. 6. REMOVE from scan PPCS point ID FT466V, SA A-1 SF RED.



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE			
		OS	Reference Technical Specifications Technical Specifications:			
			Table 3.3.1-1 item 14-2 SF/FF Mismatch	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2 Be in MODE 3	1 hour 7 hours
			Table 3.3.2-1 item 4d-1 SLI-High Steam Flow	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D2.2 Be in MODE 4	1 hour 7 hours 13 hours
			Table 3.3.2-1 item 4e-1 SLI-High Steam Flow	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D2.2 Be in MODE 4	1 hour 7 hours 13 hours

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Continuation Criteria: Once the crew has</p> <ul style="list-style-type: none"> • Switched controlling channels • Placed the FRV in auto, AND • Addressed technical specifications <p>or at the discretion of the Lead Examiner, continue with the next event.</p>	<p>OS1 BOP</p>	<p>Implement ARP 1C03 1E2 3-2, Steam Generator A Feed Water Flow Channel Alert</p> <p>3.4 IF alarm is due to an instrument failure, THEN PERFORM the following to select an operable control channel unless directed otherwise by Shift Management:</p> <p>3.4.1 IF an of the following transmitters is failed, THEN PERFORM Steps 3.4.1.a through 3.4.1.e:</p> <ul style="list-style-type: none"> • 1FT-464, Steam Flow Loop A a. IF 1PT-468, Steam Generator Pressure Loop A has failed, THEN ENSURE 1HC-468, SG A Atmospheric Steam Dump Controller in "MANUAL." b. PLACE 1FIC-466A, 1HX-1A Primary Flow Indicating Controller in "MANUAL." c. PLACE SG A Feedwater Flow Control Transfer Switch, to "467" (WHITE). d. PLACE SG A Steam Flow Control Transfer Switch, to "465" (WHITE). e. PLACE 1FIC-466A, 1HX-1A Primary Flow Indicating Controller in "AUTO" unless directed otherwise by Shift Management.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 4: 1PT-486, Turbine First Stage Pressure Transmitter fails low</p> <p>Start: _____</p>	<p>Trigger 3 [XMT1MSS009A, 1-PT486 FIRST STAGE PRESSURE XMTR FIXED OUTPUT, VALUE = 0, RAMP = 5 sec]</p> <p>Insert Trigger 3 to cause 1PT-486, Turbine First Stage Pressure Transmitter to fail low.</p> <p>Plant Response: Arms condenser steam dumps and alarms annunciator 1C03 1E2 4-2, Tavg Steam Dump Channel Alert.</p> <p>Cues:</p> <ul style="list-style-type: none"> 1C03 E2 4-2, Tavg Steam Dump Channel Alert 1PI-486, Turbine First Stage (STM DUMP) Pressure Indicator reads 0 psig <p>Expected Communications:</p> <ul style="list-style-type: none"> IF and AO is dispatched to locally investigate 1PT-486, Turbine First Stage Pressure Transmitter, wait two minutes and THEN report that locally there doesn't seem to anything out of normal. 	<p>BOP</p>	<p>Acknowledges alarm and references ARP 1C03 1E2 4-2, Tavg Steam Dump Channel Alert.</p> <p>Implements ARP 1C03 1E2 4-2, Tavg Steam Dump Channel Alert</p> <p>3.1 CHECK condition of steam dump system</p> <p>3.2 CHECK to see if steam dump required, Tavg→Tref with turbine runback or trip.</p> <p>3.3 IF the alarm is due to an instrument failure, AND it is desired to defeat the failed channel, THEN PERFORM the following unless directed otherwise by shift management:</p> <p>3.3.1 PLACE the Condenser Steam Dump Controller 1HFC-484 in "MANUAL", AND ENSURE controller output is ZERO on C03.</p> <p>3.3.2 PLACE the Steam Dump Mode Selector Switch in "MANUAL" on C03.</p> <p>3.3.3 PLACE the Condenser Steam Dump controller 1HFC-484 on C03 in "AUTO" as follows, unless directed by Shift Management:</p> <ol style="list-style-type: none"> LOWER the controller AUTO set point to 50 psig above the current Main Steam header pressure. PLACE the controller in AUTO. RETURN the controller to the original AUTO set point. <p>3.4 REFERENCE AOP-6C, Uncontrolled Motion of RCCAs</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 5: 1P-1B, Reactor Coolant Pump seal leak develops</p> <p>Start: _____</p>	<p>Trigger 5 [MAL1RCP001B, RCP#1 SEAL FAILURE PUMP B, RAMP = 00 :05 :00, VALUE = 5]</p> <p>After the crew has stabilized the plant and has exited the applicable AOPs, insert Trigger 5 to ramp in a ~5 gpm #1 seal leak on 1P-1B, Reactor Coolant Pump.</p> <p>Plant Response: Leak off flow will increase. Alarms for RCP No. 1 Seal Water Flow High or Low, Lab Seal ΔP Low, RCP Lab Seal Water or Bearing Temperature High and RCP #1 RCP Seal Water Outlet Temperature High. The affected RCP seal and bearing temperatures increase. The seal outlet temperatures increase. The seal ΔP lowers or is negative.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1C03 1D 2-1, 1P-1A or B RCP Labyr Seal Delta P low • 1C03 1D 3-3, 1P-1B RCP No. 1 Seal Water Flow High or Low 	<p>OATC</p> <p>OS1</p> <p>OATC/BOP</p>	<p>Acknowledges alarms and identifies that 1P-1B, RCP is the affected pump based on alarms and available indications.</p> <p>Implements AOP-1B, Reactor Coolant Pump Malfunction</p> <p>Monitors Fold out Page</p> <ol style="list-style-type: none"> 1. Check Annunciator P-1A&B RP VIBRATION ALARM – CLEAR <ul style="list-style-type: none"> • 1C04 1C 1-5 2. Check Annunciator 1TR-2001 TEMPERATURE MONITOR ALARM – CLEAR <ul style="list-style-type: none"> • 1C04 1C 3-10 3. Check Annunciator 1P-1A OER B RCP UPPER OR LOWER SUMP OIL LEVEL HIGH OR LOW – CLEAR <ul style="list-style-type: none"> • 1C04 1D 3-11 4. Check RCP No. 1 Seal Leakage – GREATER THAN 0.8 gpm 5. Check RCP No. 1 Seal Leakage – LESS THAN 6 gpm <ul style="list-style-type: none"> • 1FR-177 <p>RNO IF seal outlet temperature is rising, THEN go to <u>Step 18</u>.</p> <ul style="list-style-type: none"> ○ 1TI-182 for RCP B IF RCP No. 2 seal leakage greater than 2 gpm, THEN go to <u>Step 18</u>. ○ RCDT level change greater than 2% in 3 ½ minutes. ○ Standpipe level high alarm ○ 1C03 1D 1-3 for RCP B <ol style="list-style-type: none"> 6. Verify RCP Seal Cooling: <ol style="list-style-type: none"> a. Labyrinth seal ΔP – GREATER THAN 20 inches <ul style="list-style-type: none"> • 1PI-124 for RCP B <p>RNO Perform the following:</p> <ol style="list-style-type: none"> 1) Adjust seal injection throttle valves and charging flow control valve as necessary to establish a positive labyrinth seal ΔP <ul style="list-style-type: none"> ○ 1CV-300B for RCP B ○ 1HC-142 2) IF positive labyrinth seal ΔP can NOT be established AND component cooling water can NOT be maintained greater than 21 gpm, THEN go to <u>Step 18</u>.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> • IF the PAB AO is dispatched to monitor Unit 1 Reactor Coolant Drain Tank level; call up Instructor Station Drawing 1WPS1 and THEN report as indicated. The change in RCDT level should indicate a <1% change in 5 minutes. • IF the PAB AO is directed to throttle 1CV-300B, 1P-1B RCP Seal Injection Throttle Valve; coordinate with the Control Room and THEN make adjustments using LOA1CVC048, 1-CV-300B P-1B RCP SEAL INJ THROTTLE as directed. <p>Continuation Criteria: When the crew has completed Step 9 of AOP-1B Unit 1, Reactor Coolant Pump Malfunction, or at the discretion of the Lead Examiner continue with the next event.</p>	<p>BOP</p>	<ul style="list-style-type: none"> b. Component cooling RCP thermal barrier – NORMAL <ol style="list-style-type: none"> 1) Thermal barrier outlet AOV – OPEN <ul style="list-style-type: none"> • 1CC-761B for RCP B 2) RCP Cooling water flow low alarm – CLEAR <ul style="list-style-type: none"> • 1C03 1D 1-5 for RCP B c. RCP component cooling return temperature alarm – CLEAR <ul style="list-style-type: none"> • 1C03 1D 2-4 7. Check RCP Related Firework Panel Alarms – CLEAR 8. Check RCP No 2 Seal Indications – NORMAL <ul style="list-style-type: none"> • Annunciator 1P-1B RCP STANDPIPE LEVEL HIGH – CLEAR • 1C03 1D 1-3 • RCP No. 2 seal leakage – LESS THAN OR EQUAL TO 0.5 gpm • RCP No. 1 seal leakage flow has remained stable <ul style="list-style-type: none"> ○ 1FR-175 ○ 1FR-177 9. Check RCP Seal Injection Temperatures – NORMAL <ul style="list-style-type: none"> • Annunciator VCT TEMPERATURE HIGH – CLEAR • 1C04 1C 3-7 • VCT outlet temperature – LESS THAN 130°F • 1TI-140 10. Determine RCP Seal Status: <ul style="list-style-type: none"> • RCP No. 1 and No. 2 combined seal leakage – BETWEEN 0.8 gpm AND 6 gpm • RCP No. 2 seal leakage – LESS THAN 1.1 gpm <p>RNO Perform the following</p> <ol style="list-style-type: none"> a. Shutdown per OP-3A, POWER OPERATION TO HOT STANDBY

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 8: Safety Injection Pump failures: 1P-15A, Safety Injection pump trips upon starting and 1P-15B, Safety Injection pump fails to auto start</p>	<p>PRELOAD: [MOT1SIS001, 1-P15A SAFETY INJECTION PUMP, Winding Ground] [BKR1SIS002, 1-A5285 P-15B SAFETY INJ PUMP CKTBKR, Failautocl]</p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • IF an AO is dispatched to locally investigate 1P-15A, Safety Injection pump, wait 2 minutes and THEN report that the motor is hot to the touch and there is a faint acrid smell in the area. There is no fire. • IF an AO is dispatched to locally investigate breaker 1A52-59, Pwr to 1P-15A, Safety Injection Pump, wait 2 minutes and THEN report the breaker has tripped. 	<p>OS1 OATC</p> <p>BOP</p> <p>BOP OATC</p>	<p>Implements EOP-0, Unit 1 Reactor Trip or Safety Injection</p> <ol style="list-style-type: none"> 1. Verify Reactor Trip 2. Verify Turbine Trip 3. Verify Power to AC Safeguards Buses 4. Check if SI is Actuated <ol style="list-style-type: none"> a. Any SI annunciators LIT b. Both trains of SI - Actuated RNO: Manually actuate both trains of SI and CI <p>NOTE: Following immediate actions, CREW may manually start a Safety Injection Pump in accordance with OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients.</p> <p>NOTE: The ATWS interrupted performance of AOP-1B Unit 1. Step 18 and should now be completed upon the return to EOP-0 Unit 1, Reactor Trip or Safety Injection.</p> <p>Monitor Foldout Page Criteria: RCP Trip Criteria IF both conditions listed below occur, THEN trip both RCPs:</p> <ul style="list-style-type: none"> • RCS subcooling - LESS THAN [36 °F] 26 °F • SI Pumps - AT LEAST ONE RUNNING AND CAPABLE OF DELIVERING FLOW <ol style="list-style-type: none"> 5. Perform ATTACHMENT A, Automatic Action Verification while continuing with this procedure 6. Verify AFW pumps – Running 7. Check RCP Seal Cooling 8. Check RCS Temperatures 9. Check PZR PORVs and Spray Valves 10. Check if RCPs should be stopped 11. Check if SGs are NOT Faulted 12. Check if SG Tubes are NOT Ruptured 13. Check if RCS is Intact <p>RNO: Go to <u>EOP-1 UNIT 1, LOSS OF REACTOR OR SECONDARY COOLANT</u></p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p><u>EOP-0 Unit 1, Attachment A</u></p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • WHEN directed to locally check shut RW Service Water valves, LW-61 and 62, THEN report both valves are closed. • WHEN directed to locally check CW pump house temperature <105 °F, wait 3 minutes and THEN report the temperature is 72 °F and stable. • WHEN directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and THEN report the temperature is 75 °F and stable. • IF directed to periodically check the status of spent fuel cooling, wait 5 minutes and THEN report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable. 	<p>BOP</p>	<p>EOP-0 Unit 1, Attachment A, Automatic Action Verification</p> <p>A1 Verify Feedwater isolation A2 Verify Containment Isolation</p> <p>CT-6, Establish flow from at least one high-head SI pump</p> <p>A3 Verify ECCS Pumps RUNNING a. SI Pumps – BOTH RUNNING RNO WHEN SI sequence is complete, THEN manually start SI pumps b. RHR Pumps – BOTH RUNNING</p> <p>A4 Verify Service Water Pumps RUNNING A5 Verify Containment Accident Cooling Units RUNNING A6 Verify Component Cooling Water Pumps – ONLY ONE RUNNING A7 Check If Main Steam Lines Can Remain Open A8 Verify Containment Spray Not required a. Containment pressure recorder – HAS REMAINED LESS THAN 25 psig</p> <p>A9 Verify ECCS Flow A10 Verify AFW valve alignment – PROPER EMERGENCY ALIGNMENT A11 Verify Proper ECCS Valve Alignment A12 Check Containment Spray NOT ACTUATED A13 Stop any boration via the blender in progress A14 Ensure the Auxiliary Building Filter/Exhaust Fans – OPERATING A15 Verify Service Water System Alignment A16 Check Miscellaneous Valves – SHUT A17 Check Control Room Ventilation A18 Check Cable Spreading Room Ventilation System – OPERATING A19 Check Computer Room Ventilation System – OPERATING A20 Check AFW Recirc fans – ONE RUNNING A21 Check Circulating Water Pump House Temperature Less Than 105°F A22 Check G03/G04 Switchgear Room Temperature less than 95°F A23 Periodically check status of spent fuel cooling</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Termination Criteria: Terminate the scenario when crew has completed <u>Step 13</u> of EOP-1 Unit 1, Loss of Reactor or Secondary Coolant or at the discretion of the Lead Examiner.</p>	<p>OS1 BOP</p>	<p>Implements EOP-1 Unit 1, Loss of Reactor or Secondary Coolant</p> <ol style="list-style-type: none"> 1. Check If RCPs Should Be Stopped 2. Check If SGs Are NOT Faulted 3. Check Intact SG Level 4. Check Secondary Radiation 5. Check PZR PORV and Block Valves 6. Reset SI 7. Reset Isolation and Lockout Signals 8. Establish Instrument Air to Containment <ol style="list-style-type: none"> a. Check instrument air header pressure – GREATER THAN 80 PSIG b. Open instrument air containment isolation valves one at a time <ul style="list-style-type: none"> • 1IA-2047 • 1IA-3048 9. Check Power Supply To Charging Pumps 10. Check If Charging Flow Has Been Established 11. Check If ECCS Flow Should Be Terminated RNO: Go to <u>Step 12</u>. 12. Check If Containment Spray Should Be Stopped 13. Check If RHR Pumps Should Be Stopped <ol style="list-style-type: none"> a. Check RCS pressure <ol style="list-style-type: none"> 1) Pressure - GREATER THAN [450 PSIG] 325 PSIG 2) Pressure - STABLE OR RISING RNO: Go to <u>Step 14</u>

*** END OF SCENARIO ***

QUANTITATIVE ATTRIBUTES

(Use this form for NRC/INPO Evaluations only as required to document associated quantitative information.)

Malfunctions:

Before EOP Entry:

- 1FT-464, 1HX-1A SG Steam Flow Transmitter fails high (no auto shift to single element)
- 1PT-486, Turbine First Stage Pressure Transmitter fails low
- 1P-1A, Reactor Coolant Pump seal leak

After EOP Entry:

- Small Break LOCA from RTD By-pass Line
- Reactor fails to trip (ATWS)
- Safety Injection Pump failures
 - 1P-15A, Safety Injection pump trips upon starting
 - 1P-15B, Safety Injection pump fails to auto start

Abnormal Events:

- 1FT-464, 1HX-1A SG Steam Flow Transmitter fails high (no auto shift to single element)
- 1PT-486, Turbine First Stage Pressure Transmitter fails low
- 1P-1A, Reactor Coolant Pump seal leak

Major Transients:

- Small Break LOCA
- ATWS

Critical Tasks:

1. CT-6 Establish flow from at least one high-head SI pump
2. CT-52 Insert negative reactivity into the core

CT-6	Establish flow from at least one high-head SI pump
Applicable ERG Version	LP
Applicable ERG	E-0, ECA-0.2

Critical Task:

Establish flow from at least one Safety Injection pump before transition out of E-0

Plant Conditions:

- Reactor trip
- SI
- Small-break LOCA
- RCS pressure below high-head ECCS pumps shutoff head
- LP Plants:
 - Both Safety Injection pumps fail to start automatically
 - At least one SI pump can be started provided that manual action is taken as necessary

Cues:

- Indication and/or annunciation that SI pump injection is required
 - SI actuation
 - RCS pressure below the shutoff head of the SI pump

AND

- Indication and/or annunciation that no SI pump is injecting into the core
 - Control switch indication that the circuit breaker or contactors for both SI pumps are open
 - All SI pump discharge pressure reads zero
 - All flow rate indicators for SI pump injection read zero

Performance Indicator:

Manipulation of controls as required to establish flow from at least one SI pump

- Control switch indication that the circuit breaker or contactor for at least one SI pump
- Flow rate indication of injection from at least one SI pump

Feedback:

- Indication and/or annunciation that at least one SI pump is injecting
- Flow rate indication of injection from at least one SI pump

CT-52	Insert negative reactivity into the core
Applicable ERG Version	LP
Applicable ERG	FR-S.1

Critical Task:

Insert negative reactivity into the core by inserting control rods prior to completion of immediate actions.

Plant Conditions:

ATWS (Indication exists that the reactor is not tripped and that a manual reactor trip is not effective.)

Cues:

- Indication of ATWS

AND

- Indication that the reactor is not tripped and that a manual reactor trip is not effective

Performance Indicator:

Manipulation of controls in the control room as required to initiate the insertion of negative reactivity into the core

- For scenarios in which it is possible for the crew to insert control rods:
 - Group and individual rod position indication systems show control rods moving inward
 - Control rod banks sequentially reach core bottom (unless RTBs opened locally)

Feedback:

- Indication of a negative SUR on the intermediate range of the excore NIS
- Indication of less than 5% power on the power range of the excore NIS

1.0 Plant Conditions:

	<u>Unit 1</u>	<u>Unit 2</u>
Time in Core Life (MWD/MTU):	1005	
Reactor Power:	28%	
Boron Concentration:	1874 ppm	
Rod Height:	CBD @ 151	

2.0 Equipment Out of Service:

- 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.
- 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.

3.0 Technical Specification LCOs NOT Met and Action Conditions in Effect:

<u>LCO NOT Met</u>	<u>TSAC</u>	<u>Required Actions</u>	<u>Completion Time</u>
3.3.2	A. One or more Functions with one or more channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D.2.2 Be in MODE 4	1 hour 7 hours 13 hours

4.0 Planned Evolutions:

- Normal Shift routine will be to bump main feed and condensate pumps for iron flushing and raise power to 50% utilizing OP-1C Unit 1, Startup to Power Operation Unit 1.

5.0 Common:

- Safety Monitor is Green
- Today is Sunday, clock time is real time and you have a normal shift complement.



SIMULATOR EXERCISE GUIDE

SEG

SITE: Point Beach

Revision #: 0

LMS ID: PBN LOI NRC 17E

LMS Rev. Date:

SEG TITLE: 2017 NRC Exam Scenario 3

SEG TYPE: Training

Evaluation

PROGRAM: LOCT LOIT Other:

DURATION: 90 minutes

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 (Line)

Date

Facility: Point Beach Scenario No.: 3 Op-Test No.: 2017

Examiners: _____ Operators: _____

Initial Conditions: Unit 1 was lowered to approximately 75% at the request of MISO/ATC due to grid stability issues. Grid stability has been restored and the unit is ready to be returned to full power in accordance with OP 1C, Startup to Power Operations. 1P-2B, Charging Pump is OOS and isolated per OI 50, Charging Pump Isolation for pump repairs. 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure. 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.

Turnover: Commence raising power to 100%

Event No.	Malf. No.	Event Type*	Event Description
1	BKR1SWS001	C-BOP C-SRO TS-SRO	P-32A, Service Water Pump trip with reduced head capacity on two running SW pumps
2	XMT1RMS076A	C-BOP C-SRO	1RE-219, SG Blowdown Monitor fails high off scale 1MS-2083, HX-1A SG Sample Isolation Control Valve fails open
3	MAL1RCS008A	R-RO N-BOP R-SRO TS-SRO	SG 'A' Tube Leak approximately 10 gpm (rapid down power)
4	MAL1CCW002A	C-BOP C-SRO TS-SRO	Running CCW Pump seal leak, lowering surge tank (Pumps need to be shifted)
5	MAL1GEN006	M-ALL	Voltage Regulator Trouble leading to a Main Generator Lockout
6	MALCRF001-B6 MALCRF001-B8 MALCRF001-C5 MALCRF001-E11	C-RO	Multiple (4) Stuck Rods post trip
7	MAL1RCS008A	C-RO	SGTL turns into SGTR
8	CNH1PCS007B CNH1PCS008B	C-RO	Spray valves fail causing use of the PORV for RCS depressurization

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective Given specific plant conditions, the students will be able to respond to the failures listed below in accordance with plant procedures:

- P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D.
- 1HX-1A, SG tube leak of approximately 10 gpm.
- 1RE-219, SG Blowdown Monitors fails high off-scale with no change in leak rate of 1HX-1A SG.
 - 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close.
- The mechanical pump seal for 1P-11A, Component Cooling Water Pump begins leaking at an increased rate that causes a lowering CCW Surge Tank level.
- Main Turbine Generator Voltage Regulator Trouble results in Main Generator Lockout and reactor trip
- Multiple stuck rods post trip
- 1HX-1A SG tube leak increases in size to a steam generator tube rupture
- 1RC-431A and B, PZR Spray Valves fail closed.

Embedded within these events is the expectation to properly utilize Technical Specifications.

Enabling Objectives: None

Prerequisites:

1. Simulator available
2. Students enrolled in Initial License Program

Training Resources:

1. Floor Instructor as Shift Manager / Shift Technical Advisor
2. Simulator Booth Operator
3. Communicator
4. NRC Evaluators

- References:**
1. AOP-3 Unit 1, Steam Generator Tube Leak
 2. AOP-9A, Service Water System Malfunction
 3. AOP-9B Unit 1, Component Cooling System Malfunction
 4. AOP-17A Unit 1, Rapid Power Reduction
 5. ARB 1C20 C 3-2, Unit 1 SG Blowdown Radiation High
 6. EOP-0 Unit 1, Reactor Trip Or Safety Injection
 7. EOP-0.1 Unit 1, Reactor Trip Response
 8. EOP-3 Unit 1, Steam Generator Tube Rupture
 9. OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients
 10. OP 1C, Startup To Power Operation Unit 1
 11. RMSARB CI 1RE-219
 12. Technical Specifications

Protected Content: None

Evaluation Method: Simulator performance will be evaluated in accordance with NUREG 1021 Rev. 9.

Operating Experience: N/A

Risk Significant Operator Actions: HEP-ODC-EOP3-21, Operator fails to cooldown and depressurized the intact SG (SGTR). [FV: 7.19E-05]



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	DATE
				REVIEWER	DATE
Rev. 0	Developed for 2017 NRC ILT Exam.				

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

Insert brief description of what will occur during this simulator exercise.

- 1P-2B, Charging Pump, is out of service for mechanical seal replacement. Work is expected to take another 4 hours.
- 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.
- 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.
- Unit 1 was lowered to approximately 75% at the request of MISO/ATC due to grid stability issues. Grid stability has been restored and the unit is ready to be returned to full power in accordance with OP 1C, Startup to Power Operations.
- Commence raising power to 100%.

Events

- P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D.
- 1RE-219, SG Blowdown Monitors fails high off-scale with no change in leak rate of 1HX-1A SG.
 - 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close.
- 1HX-1A, SG tube leak of approximately 10 gpm.
- The mechanical pump seal for 1P-11A, Component Cooling Water Pump begins leaking at an increased rate that causes a lowering CCW Surge Tank level.
- Main Turbine Generator Voltage Regulator Trouble results in Main Generator Lockout and reactor trip
- Multiple stuck rods post trip
- 1HX-1A SG tube leak increases in size to a steam generator tube rupture
- 1RC-431A and B, PZR Spray Valves fail closed.

Insert brief description of termination criteria.

- When the crew has stopped SI pumps and taken appropriate action(s) per step 30 of EOP-3 Unit 1, Steam Generator Tube Rupture, then verify with the Lead Evaluator, freeze the simulator, and take the shift.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	<p>P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D</p> <ul style="list-style-type: none"> The crew may start an idle SW pump to clear the low flow alarm. The crew should respond by implementing AOP-9A, Service Water System Malfunction and referring to Technical Specifications.
2.	<p>1RE-219, SG Blowdown Monitor fails high off-scale with no change in leak rate of 1HX-1A SG. 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close.</p> <ul style="list-style-type: none"> The crew should reference the RMSARB CI RE219 and take actions to align equipment that did not automatically reposition.
3.	<p>1HX-1A, SG tube leak of approximately 10 gpm.</p> <ul style="list-style-type: none"> The crew should implement AOP-3 Unit 1, Steam Generator Tube Rupture, determine a leak rate and reference Technical Specifications. The crew should make preparations to reduce load in accordance with OP 3A Unit 1, Power Operation to Hot Standby Unit 1 or AOP-17A Unit 1, Rapid Power Reduction.
4.	<p>The mechanical pump seal for 1P-11A, Component Cooling Water Pump begins leaking at an increased rate that causes a lowering CCW Surge Tank level.</p> <ul style="list-style-type: none"> The crew should manually start 1P-11B, Component Cooling Water Pump, secure 1P-11A, implement AOP-9B Unit 1, Component Cooling System Malfunction and refer to Technical Specifications
5.	<p>Main Turbine Generator Voltage Regulator Trouble results in Main Generator Lockout and reactor trip</p> <ul style="list-style-type: none"> Initially the crew should dispatch an Auxiliary Operator to investigate local alarms. Once the unit has tripped the crew should respond by implementing EOP-0 Unit 1, Reactor Trip or Safety Injection and EOP-0.1 Unit 1, Reactor Trip Response.
6.	<p>Multiple stuck rods post trip</p> <ul style="list-style-type: none"> The crew should borate in accordance with EOP-0.1 Unit 1, Reactor Trip Response.
7.	<p>1HX-1A SG tube leak increases in size to a steam generator tube rupture</p> <ul style="list-style-type: none"> After addressing the stuck rods EOP-0.1 Unit 1, plant conditions degrade necessitating a safety injection and return to EOP-0 Unit 1, Step 4 per the Foldout Page Criteria in EOP-0.1 Unit 1. The crew will then transition for EOP-0 Unit 1 to EOP-3 Unit 1, Steam Generator Tube Rupture to isolate the ruptured generator and cooldown/depressurize the unit to minimize primary to secondary coolant leakage.
8.	<p>1RC-431A and B, PZR Spray Valves fail closed.</p> <ul style="list-style-type: none"> Unavailable normal spray will require the crew to use a PORV during the depressurization phase of EOP-3 Unit 1 in order to effectively reduce RCS pressure.



STOP

Terminate the scenario when the crew has stopped SI pumps and taken appropriate action(s) per step 30 of EOP-3 Unit 1, Steam Generator Tube Rupture.

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the site specific Simulator Setup Checklist.

General Instructions

Simulator Setup Instructions:

- Load **IC-4** and go to run
- Open the saved Event and Schedule files from the secure drive:
- Verify all commands listed in table below are contained in the Schedule File
- Insert the setup malfunction(s)
- Reposition bistable switches for: **1PT-950, Loop B Containment Pressure Transmitter**
- Make any necessary adjustments or corrections
- Freeze the simulator and save to scenario specific IC
- Re-initialize into saved IC and go to run
- Open and start the Event and Schedule files
- Open and start InSight and Alarm files for data collection
- Run the scenario real time
- Save InSight, Event, Alarm, Schedule Files to the secure drive and collect procedure markups for SBT
- Complete TR-AA-23001008-F01 Scenario Based Testing (SBT) Checklist

Multiple Use:

- Load saved IC and go to run
- Open the saved Event and Schedule files:
- Start the Schedule File
- Walk down the control boards to ensure plant conditions accurately reflect the scenario's initial conditions
- Make any necessary adjustments or corrections
- Update documentation if required
- Resave if required
- Turnover to the crew

SIMULATOR – SCENARIO SETUP:

SETUP Unit 1 was lowered to approximately 75%, ready to be returned to full power. OOS: 1P-2B, 1W-3B, 1PT-950								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
BKR1CVC006	1-B5213B P-2B CHARGING PUMP CKTBKR	-	-	-	-	-	Fail Cont Fuse	Preload
XMT1CNM017A	1-PT950 LOOP B CONT PRESSURE XMTR FIXED OUTPUT				00 :00 :00	-	90	Preload
Simulator set-up: <ol style="list-style-type: none"> Place 1P-2B CS in pullout OOS-Maint magnet om 1P-2B Orange "Guarded" magnets on 1P-2A and C Place OOS magnet at PT-950, Containment Pressure Place a RED dot on C01 B 1-5, U1 Containment Pressure Channel Alert Place 1W-3B CS in pull-out, install OOS magnet. Install an orange "Guarded" magnet at 1W-3A. 								

SIMULATOR MALFUNCTIONS:

Event 1: P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
BKR1SWS001	1-B5210C P-32A SERVICE WATER PUMP CKTBKR	00 :00 :00	-	1	00 :00 :00	-	Trip	PLE
PMP1SWS002C	0-P32B SERVICE WATER PUMP B HEAD CAPACITY	00 :00 :00	-	1	00 :00 :00	-	90	PLE
PMP1SWS004C	0-P32D SERVICE WATER PUMP D HEAD CAPACITY	00 :00 :00	-	1	00 :00 :00	-	90	PLE
LOA1SWS001	SW-10 P32A SW PUMP DISCH	00 :00 :00	00 :00 :30	3	00 :00 :00	1.0	0	When directed by the crew
LOA1CWS023	1C-068A/C-068B LOCAL PANEL ALARM RESET	00 :00 :00	-	5	00 :00 :00	FALSE	TRUE	When directed by the crew
LOA2CWS023	2C-069A/C-069B LOCAL PANEL ALARM RESET	00 :00 :05	-	5	00 :00 :00	FALSE	TRUE	When directed by the crew
Expected field communications: <ol style="list-style-type: none"> IF an AO is dispatched to locally investigate P-32A, Service Water Pump, wait two minutes and THEN report that the pump is not running and the motor is hot to the touch. IF an AO is dispatched to locally investigate breaker 1B52-10C, Power to P-32A Service Water Pump, wait two minutes and THEN report that breaker has tripped on overcurrent. WHEN directed to locally shut SW-10, P-32A Service Water Discharge Isolation, insert Trigger 3 and THEN report when the valve has repositioned. IF directed to reset the local control panel alarms for Circ Pumps Cooling Water Flow Low, THEN insert Trigger 5 and report when the panel alarms have been reset. IF directed to check power to RK31 and RK32, THEN report power is available to RK31 and RK32. IF asked, report SW zurn strainer D/P is normal. 								

Event 2: 1RE-219, SG Blowdown Monitors fails high off-scale with no change in leak rate of 1HX-1A SG. 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close.

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1RMS076A	1-RE219 SG BLOWDOWN LIQUID RM FIXED OUTPUT	00 :00 :00	00 :00 :05	11	00 :00 :00	400	1.0E+006	PLE
VLV1NSS001	1-MS-2083 STM GEN 1A SAMP ISOL VLV 1-V2083	00:00 :00	-	-	00 :00 :00	-	Open	PRELOAD
VLV1NSS001	1-MS-2083 STM GEN 1A SAMP ISOL VLV 1-V2083	00 :00 :00	-	13 Cond.	Delete Malf	-	Closed	When 1MS-2083 is taken to close Cond. = [x01i126c==1]

Expected field communications:

- IF** RP is directed to take Unit 1 main steam line surveys, wait 5 minutes and **THEN** report that both Unit 1A and B main steam lines read background.

Event 3: 1HX-1A, SG tube leak of approximately 10 gpm

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1RCS008A	STEAM GENERATOR A TUBE RUPTURE	00 :00 :00	00 :00 :00	7	00 :00 :00	0	0.035	PLE
LOA1CFW083	1-P99A SFP SEAL WATER INJECT PUMP C.S.	00 :00 :00	-	9	00 :00 :00	AUTO	ON	When directed by the crew
LOA1CFW084	1-P99B SGFP SEAL WATER INJECT PUMP C.S.	00 :00 :05	-	9	00 :00 :05	AUTO	ON	When directed by the crew

Expected field communications:

- IF** RP is requested to perform steam line surveys, **THEN** wait 5 minutes and report:
 - 'A' main steam line is 5 mrem above background.
 - 'B' main steam line is at background.
- WHEN** directed to start 1P-99A and 1P-99B SGFP Seal Water Injection Pumps, insert **Trigger 9** and **THEN** report when they are started.

Event 4: The mechanical pump seal for 1P-11A, Component Cooling Water Pump begins leaking at an increased rate that causes a lowering CCW Surge Tank level.								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1CCW002A	CCW PUMP 11A SEAL FAILURE	00 :00 :00	00 :00 :00	15	00 :00 :00	-	1	PLE 1C03 1D 3-6: 1T-12 CC Surge Tank Level High or Low 20 gal/%
LOA1CCW031	1-CC-773 T-12 CC SURGE TNK DEMN WTR INLT	00 :00 :00	00 :00 :30	17	00 :00 :00	-	OPEN	When directed by the crew. CLOSE when directed by the crew or adequate level.
LOA1CCW002	1-CC-723A CC P-11A SUCTION VALVE	00 :01 :00	00 :00 :30	19	00 :00 :00	-	0	When directed by the crew.
LOA1CCW004	1-CC-725A CC P-11A DISCHARGE VALVE	00 :01 :30	00 :01 :00	19	00 :00 :00	-	0	When directed by the crew.
Expected field communications: <ol style="list-style-type: none"> 1. WHEN an AO is dispatched to locally investigate, THEN wait two minutes and report that there is excessive seal leakage coming from 1P-11A, CCW pump recommends immediately securing the pump. RP is in the area controlling the leakage. 2. IF an AO is directed to locally makeup to 1T-12 CC Surge Tank by cycling 1CC-773, Component Cooling Surge Tank Demin Water Inlet, THEN cycle open/close 1CC-773 to maintain tank level between 20% and 60%. 3. IF the crew directs the AO to locally isolate 1P-11A, Component Cooling Water Pump, THEN insert TRIGGER 19 and report when the valves are repositioned and the seal leak has subsided. 								

Event 5: Main Turbine Generator Voltage Regulator trouble results in Main Generator Lockout and reactor trip								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1GEN006	VOLTAGE REGULATOR FAILURE	00 :00 :00	00 :15 :00	21	00 :00 :00	19.499	25	PLE
OVR-GEN045C	U1 VRC RG AUTO POSITON UNIT 1 VOLTAGE REGULATOR CS	00 :00 :01	-	21	00 :00 :00	-	TRUE	
OVR-GEN045A	U1 VRC RG MAN POSITON UNIT 1 VOLTAGE REGULATOR CS	-	-	-	-	-	FALSE	PRELOAD
Expected field communications: <ol style="list-style-type: none"> 1. IF an AO is dispatched to 1E02 to check local annunciator panel ANN2 (on Voltage Regulator Panel), wait two minutes and THEN report that the alarm is 'HXL is Limiting.' 								

Event 6: Multiple stuck rods post trip								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1CRF001-B6	STUCK ROD B6	00 :00 :00	-	-	00 :00 :00	-	Non-Trippable	PRELOAD
MAL1CRF001-B8	STUCK ROD B8	00 :00 :00	-	-	00 :00 :00	-	Non-Trippable	PRELOAD
MAL1CRF001-C5	STUCK ROD C5	00 :00 :00	-	-	00 :00 :00	-	Non-Trippable	PRELOAD
MAL1CRF001-E11	STUCK ROD E11	00 :00 :00	-	-	00 :00 :00	-	Non-Trippable	PRELOAD

Expected field communications:

- WHEN** directed to locally check RW Service Water valves, LW-61 and 62, **THEN** report both valves are shut.
- WHEN** directed to locally check CW pump house temperature <105 °F, wait 3 minutes and **THEN** report the temperature is 72 °F and stable.
- WHEN** directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and **THEN** report the temperature is 75 °F and stable.
- IF** directed to periodically check the status of spent fuel cooling, wait 5 minutes and **THEN** report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable.

Event 7: 1HX-1A SG tube leak increases in size to a steam generator tube rupture								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1RCS008A	STEAM GENERATOR A TUBE RUPTURE	00 :00 :00	00 :00 :00	23	00 :00 :00	0	0.4	PLE
LOA1SGN023	1-MS-235 P-29 AFP & RADWASTE STM ISOL	00 :00 :00	00 :00 :00	25	00 :00 :00	1.0	0	When directed by the crew.

Expected field communications:

- WHEN** directed to shut 1MS-235, AFP Radwaste Steam Isolation and 1MS-228, Main Steam Trap Header Isolation, wait 5 minutes **THEN** insert **Trigger 25** and report when the valves are closed.

Event 8: 1RC-431B, PZR Spray Valve B Loop fails closed.								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
CNH1PCS008B	1-HC431H 1-PCV431B SPRAY VALVE HAND CTRLR FIXED AUTO/MAN	00 :00 :00	00 :00 :00	23	00 :00 :00	-	0	PLE
CNH1PCS007B	1-HC431C 1-PCV431A SPRAY VALVE HAND CTRLR FIXED AUTO/MAN	00 :00 :00	00 :00 :00	23	00 :00 :00	-	0	PLE



Expected field communications:

1. None

BRIEF / TURNOVER INFORMATION

- Conduct simulator crew pre-scenario brief using TR-AA-230-1007-F06, Simulator Instructor Pre-Exercise Checklist.
- Brief the scenario evaluators
- Brief surrogates using TR-AA-230-1007-F11, Surrogate Brief Checklist, if necessary.
- Crew Shift Turnover Information: See Attached



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Commence raising power to 100%</p> <p>Start: _____</p>	<p>Unit 1 was lowered to approximately 75% at the request of MISO/ATC due to grid stability issues. Grid stability has been restored and the unit is ready to be returned to full power in accordance with OP 1C, Startup to Power Operations.</p> <p>Commence raising power to 100%.</p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • None <p>Note: The crew should take action to prepare the power ascension, but they may not actually initiate the power change.</p>	<p>CREW</p>	<p>Implements OP 1C, Startup to Power Operation Unit 1, at Step 5.44, "Power Level At Between 75% And 85% Requirements"</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 1: P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D</p> <p>Start: _____</p>	<p>Trigger 1 [BKR1SWS001, 1-B5210C P-32A SERVICE WATER PUMP CKTBKR, VALUE = TRIP] [PMP1SWS002C, 0-P32B SERVICE WATER PUMP B HEAD CAPACITY, VALUE = 90] [PMP1SWS004C, 0-P32D SERVICE WATER PUMP D HEAD CAPACITY, VALUE = 90]</p> <p>After completion of crew turnover and the examinees have assumed the watch, insert Trigger 1 to cause P-32A, Service Water Pump to trip with reduced head capacity on P-32B and P-32D.</p> <p>Plant Response: This malfunction causes indicated North and South Service Water pressures to lower and brings in the corresponding North or South Service Water Header Pressure Low Alarm.</p> <p>Cues:</p> <ul style="list-style-type: none"> • Indicated North and South Service Water pressures lower • Annunciators include: <ul style="list-style-type: none"> • C01A 3-5, North or South Service Water header Pressure Low • C01 B 3-4, U1 Motor Breaker Trip 	<p>BOP</p> <p>OS1 BOP</p>	<p>Identifies the event by low SW header pressure, loss of P-32A SW Pump. Starts additional SW pumps to restore pressure to >50 psig. Dispatches operators to walk down the system for potential leaks.</p> <p>Implements AOP-9A, Service Water System Malfunction</p> <ol style="list-style-type: none"> 1. Check Forebay Level – GREATER THAN -11.5 FEET 2. Check Pumpbay Level – GREATER THAN -11.5 FEET 3. Check Annunciator Traveling Screen Differential Level High Alarm – CLEAR 4. Check North or South Service Water Header Pressure Low Alarm – Clear <ol style="list-style-type: none"> a. Start service water pumps - MAINTAIN PRESSURE BETWEEN 50 PSIG AND 90 PSIG d. IF Any Service Water Pumps Tripped OR Recently Stopped, THEN ensure affected pump is in pullout and locally shut associated pump discharge valve <ul style="list-style-type: none"> o SW-10 for P-32A e. Go to <u>Step 9</u> 9. Notify Duty Station Manager and Enters Applicable TSACs 10. Check if Emergency Plan Should be Implemented per EPIP 1.2, Emergency Classification 11. Check Supply Header Integrity 12. Check Zurn Strainer – Normal 13. Ensure Service Water Header Valves – OPEN 14. Check Component Alarms – Clear 15. OBSERVE NOTE PRIOR TO STEP 1 and Return to <u>Step 1</u> <p>Repeat steps 1-4</p> <ol style="list-style-type: none"> 5. Check Zurn Strainer – NORMAL 6. Check component alarms – CLEAR 7. Check Service Water System – INTACT 8. Return to <u>Procedure And Step In Effect</u>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE						
	<p>Expected Communications:</p> <ul style="list-style-type: none"> • IF an AO is dispatched to locally investigate P-32A, Service Water Pump, wait two minutes and THEN report that the pump is not running and the motor is hot to the touch. • IF an AO is dispatched to locally investigate breaker 1B52-10C, Power to P-32A Service Water Pump, wait two minutes and THEN report that breaker has tripped on overcurrent. • WHEN directed to locally shut SW-10, P-32A Service Water Discharge Isolation, insert Trigger 3 and THEN report when the valve has repositioned. • IF directed to check power to RK31 and RK32, THEN report power is available to RK31 and RK32. • IF asked, report SW zurn strainer D/P is normal. • IF directed to reset the local control panel alarms for Circ Pumps Cooling Water Flow Low, THEN insert Trigger 5 and report when the panel alarms have been reset. <p>Continuation Criteria: Once the crew has completed the actions of AOP-9A, Service Water Malfunction and addressed Technical Specifications, or at the discretion of the Lead Examiner, continue with the next event.</p>		<p>Reference Technical Specifications Technical Specifications:</p> <p>SW System TLCO 3.7.7.D is not met – one SW pump inoperable and requirements of Table 3.7.7-2 not met.</p> <p>LCO 3.7.8, Service Water System is not met.</p> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One SW pump inoperable <u>AND</u> Both units in MODE 1, 2, 3, or 4.</td> <td>A.1 Restore SW pump to OPERABLE status.</td> <td>7 days AND 14 days from discovery of failure to meet the LCO</td> </tr> </tbody> </table>	CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One SW pump inoperable <u>AND</u> Both units in MODE 1, 2, 3, or 4.	A.1 Restore SW pump to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO
CONDITION	REQUIRED ACTION	COMPLETION TIME							
A. One SW pump inoperable <u>AND</u> Both units in MODE 1, 2, 3, or 4.	A.1 Restore SW pump to OPERABLE status.	7 days AND 14 days from discovery of failure to meet the LCO							

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 2: 1RE-219, SG Blowdown Monitors fails high off-scale. Sample Isolation Control Valve fails to auto close.</p> <p>Start: _____</p>	<p>Trigger 11 [XMT1RMS076A, 1-RE219 SG BLOWDOWN LIQUID RM FIXED OUTPUT, VALUE =1.0e+006, RAMP = 5 SEC]</p> <p>Insert Trigger 11 to cause 1RE-219, SG Blowdown Monitors to fail high off-scale with no change in leak rate of 1HX-1A SG. 1MS-2083, 1HX-1A SG Sample Isolation Control Valve will fail to auto close.</p> <p>Plant Response: High Alarm 1C20 C 3-2, Unit 1 SG Blowdown Radiation High automatically shuts.</p> <ul style="list-style-type: none"> MS-5958, "A" SG blowdown isolation MS-5959, "B" SG blowdown isolation MS-2083, "A" SG sample isolation (fails) MS-2084, "B" SG sample isolation MS-2040, Blowdown Tank Outlet Cont Vlv <p>Cues:</p> <ul style="list-style-type: none"> 1C20 C-3-2, Unit 1 SG Blowdown Radiation High <p>Expected Communications:</p> <ul style="list-style-type: none"> <u>IF</u> RP is directed to take Unit 1 main steam line surveys, wait 5 minutes and <u>THEN</u> report that both Unit 1A and B main steam lines read background. 	<p>OATC</p> <p>OS1 OATC/BOP</p> <p>OS1/OATC</p>	<p>Acknowledges annunciator 1C20 C 3-2, Unit 1 SG Blowdown Radiation High, references applicable ARB and RMSASRB CI 1RE-219.</p> <p>Implements ARB 1C20 C 3-2, Unit 1 SG Blowdown Radiation High</p> <p>6.1 Follow actions specified in the Radiation Monitoring System Alarm Setpoint and Response Book (RMSARB) for SG blowdown monitor 1RE-219.</p> <p>6.2 Refer to EPIP's for potential classification issues.</p> <p>7.1 High alarm automatically shuts</p> <p>7.1.1 MS-5958, "A" SG blowdown isolation</p> <p>7.1.2 MS-5959, "B" SG blowdown isolation</p> <p>7.1.3 MS-2040, SG blowdown tank outlet</p> <p>7.1.4 MS-2083, "A" SG sample isolation</p> <p>7.1.5 MS-2084, "B" SG sample isolation</p> <p>Implements RMSARB CI 1RE-219</p> <ol style="list-style-type: none"> Ensure the following valves are shut <ol style="list-style-type: none"> MS-5958, 1HX-1A SG Blowdown Isolation MS-5959, 1HX-1B SG Blowdown Isolation MS-2040, SG Blowdown Tank Outlet Control MS-2083, 1HX-1A SG Sample Isolation Control MS-2084, 1HX-1B SG Sample Isolation Control Compare channel to available redundant indication: <ol style="list-style-type: none"> 1RE-222, Unit 1 steam generator blowdown tank radiation alarm 1RE-215, Unit 1 air ejector radiation alarm RE-225, Combined air ejector radiation alarm 1RE-231, Unit 1 steam line "A" radiation alarm 1RE-232, Unit 1 steam line "B" radiation alarm 1RE-229, Unit 1 service water overboard radiation alarm. Refer to appropriate AOP: <ol style="list-style-type: none"> AOP-1A Unit 1, Reactor Coolant Leak AOP-3 Unit 1, Steam Generator Tube Leak AOP-4A Unit 1, High Effluent Activity Refer to CTS 15.3.1.D.4 {ITS 3.4.13} IF the High Alarm is received, AND the cause is other than known testing or know movements of radioactive materials through the area, THEN NOTIFY RP Supervision (Duty & Cal, if off normal hours).

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>(Minimum operable channels per RECM Table 3-1, Radioactive Liquid Effluent Monitoring Instrumentation are met.)</p> <p>Continuation Criteria: Once 1MS-2083, 1HX-1A SG Sample Isolation Control Valve is shut and the crew has addressed the ARB and RMSASRB actions for 1RE-219, or at the discretion of the Lead Examiner, continue with the next event.</p>		<p>Failure Alarm Operator Response: Refer to generic response section. If this channel becomes inoperable, refer to the Radiological Effluent Control Manual (RECM)</p> <p>IF this channel becomes INOPERABLE, AND redundant RMS channels are OOS (i.e., RE-225, RE-215, or RE-231/232), THEN a Priority 2 work order shall be written to restore RMS for primary to secondary leakage monitoring AND NP 3.2.4 referenced.</p> <p>Generic RMS Alarm Response Guidelines</p> <p>2.1 Check on system Server, SS, to see if the alarm is HIGH or FAIL. If alarm is HIGH:</p> <p>2.1.1 IF the HIGH Alarm is received, AND the cause is other than known testing or known movements of radioactive materials through the area, THEN NOTIFY RP supervision (Duty & Call, if off normal hours).</p> <p>2.1.2 See alert responses.</p> <p>2.1.3 If HiGH alarm is from an area monitor, ensure that affected areas are properly posted per RP procedures.</p> <p>2.1.4 If HIGH alarm is from a process monitor with a control function:</p> <p>a) Check that the control function has actuated, e.g., discharge valve shuts, ventilation dampers shifts, etc.</p> <p>b) If control function has not actuated, initiate the control function manually. Identify the problem and correct it prior to attempting to return the channel to normal operation.</p> <p>2.1.5 If the HIGH alarm is from a process monitor without a control function: identify the cause of the alarm.</p> <p>2.1.6 Effluent pathways that have a monitor above its Alert alarm setpoint for at least one ten minute period should be sampled to determine Emergency Plan initiation/classification based on NUUREG 1022 reporting requirements. Ensure samples are collected at the time of the event.</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 3: 1HX-1A, SG tube leak of approximately 10 gpm</p> <p>Start: _____</p>	<p>Trigger 7 [MAL1RCS008A, STEAM GENERATOR A TUBE RUPTURE, VALUE = 0.035]</p> <p>Once, insert Trigger 7 to cause a 1HX-1A, SG tube leak of approximately 10 gpm</p> <p>Plant Response: RMS alarms coincident with lowering RCS inventory.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1C20C 1-2 U1 Stm Line A Radiation High • Lowering PZR level • Rising Secondary Radiation / Alarms: <ul style="list-style-type: none"> • Stm Line Radiation • Air Ejector exhaust <p>Expected Communications:</p> <ul style="list-style-type: none"> • IF RP is requested to perform steam line surveys, THEN wait 5 minutes and report: <ul style="list-style-type: none"> • 'A' main steam line is 5 mrem above background. • 'B' main steam line is at background. 	<p>OATC</p> <p>OS1 OATC</p> <p>BOP</p>	<p>Identifies lowering pressurizer level, increased auto charging pump speed and increasing RMS.</p> <p>Implements AOP-3 Unit 1, Steam Generator Tube Leak</p> <ol style="list-style-type: none"> 1. Check Safety Injection Not Required 2. Check Reactor Trip Not Required 3. Check PZR Level - STABLE AT OR TRENDING TO PROGRAM RNO: IF PZR level trending lower, THEN perform the following: <ol style="list-style-type: none"> a. Control charging and letdown to maintain PZR level b. IF PZR level continues to lower, THEN isolate letdown. 4. Check PZR Pressure - STABLE AT OR TRENDING TO DESIRED PRESSURE 5. Check Reactor Makeup Control 6. Notify DSM, Chemistry, And Implement The Emergency Plan 7. Identify Leaking SG 8. Determine Leak Rate (~10 gpm) 9. Check Reactor Shutdown Required 10. Determine Action Response Based on SG Leakage: <ul style="list-style-type: none"> • Reduce Power to ≤ 50% in 1 hour and Mode 3 in the next two hours. 11. Place the Unit In MODE 3 12. Notify Chemistry Of Leak Rate And Rate Of Change 13. Monitor Leakage Every 15 Minutes 14. Direct Radiation Protection To Perform Exposure And Contamination Evaluations 15. Check Leaking SG - IDENTIFIED 16. Adjust Affected SG Atmospheric Steam Dump Controller To 1050 psig <ul style="list-style-type: none"> ○ 1HC-468 for A SG 17. Isolate Blowdown on Affected Steam Generator <ul style="list-style-type: none"> ○ A SG <ul style="list-style-type: none"> • 1MS-5958 • 1MS-2042

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
			<ul style="list-style-type: none"> 18. Shut Affected Steam Generator Sample Isolation Valve <ul style="list-style-type: none"> o 1MS-2083 for A SG 19. Ensure Condensate Storage Tank Isolated from Condenser Hotwell <ul style="list-style-type: none"> a. Ensure condenser reject isolation valve SHUT <ul style="list-style-type: none"> • 1CS-113 20. Locally Align Low Pressure Trap Header to Condenser ...
	<p>Expected Communications:</p> <ul style="list-style-type: none"> • WHEN directed by crew to start 1P-99A and 1P-99B, MFP Seal Water Injection Pumps, wait 1 minute THEN insert Trigger 9, and report the pumps started. <p>Continuation Criteria: Once the crew has reduced load by 3% to 5%, or at the discretion of the Lead Examiner, continue to the next event.</p>	<p>OS1 OATC</p> <p>BOP</p> <p>OATC</p>	<p>IMPLEMENT AOP-17A Unit 1, Rapid Power Reduction</p> <ul style="list-style-type: none"> 1. Check Power – GREATER THAN 100% RNO Go To <u>Step 3</u> 3. Determine Desired Power Level or Condition to Be Met 4. Commence Boration As Necessary To Target Load. 5. Select Rate Reduction Rate And Reduce Load: 6. Notify Power System Supervisor (PSS) Of Load Reduction 7. Check Rod Control System – IN AUTO 8. Energize pressurizer backup heaters. 9. Check PZR Pressure Controlling – IN AUTO 10. Check PZR Level Controlling – IN AUTO 11. Check Steam Generator Level Controlling – IN AUTO 12. Ensure Main Feed Pump Seal Water Pump – RUNNING 13. Maintain RCS Tavg: 14. Check AFD – WITHIN LIMITS OF ROD 1.2, HFP EQUIL DELTA FLUX. 15. Determine Desired End-Point – LESS THAN 50% TURBINE LOAD

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 4: The mechanical pump seal for 1P-11A, Component Cooling Water Pump begins leaking at an increased rate that causes a lowering CCW Surge Tank level.</p> <p>Start: _____</p>	<p>Trigger 15 [MAL1CCW002A, CCW PUMP 11A SEAL FAILURE, VALUE = 1]</p> <p>Insert Trigger 15 to cause 1P-11A, Component Cooling Water Pump seal failure</p> <p>Plant Response: Inventory is lost (out of) the CCW System resulting in lowering 1T-12 CC Surge Tank. Indicated level on 1LI-618B lowers and annunciator 1C03 1D 3-6, 1T-12 CC Surge Tank Level High or Low alarms at 45% level lowering. Aux Building Sump -19 Ft. P-40A and P-40B Run Time Meters will begin to indicate as they cycle on and off to accommodate the CCW leakage draining to the -19 FT sump.</p> <p>Cues:</p> <ul style="list-style-type: none"> Lowering CC Surge Tank level as indicated on indicator 1LI-618B Annunciator 1C03 1D 3-6, 1T-12 CC Surge Tank Level High or Low <p>Expected Communications:</p> <ul style="list-style-type: none"> WHEN an AO is dispatched to locally investigate, THEN wait two minutes and report that there is excessive seal leakage coming from 1P-11A, CCW pump and recommends immediately securing the pump. RP is in the area controlling the leakage. IF an AO is directed to locally makeup to 1T-12 CC Surge Tank by cycling 1CC-773, Component Cooling Surge Tank Demin Water Inlet, THEN cycle open/close 1CC-773 to maintain tank level between 20% and 60%. (Trigger 17 opens 1CC-773) 	<p>BOP</p> <p>OS1 BOP</p>	<p>Identifies lowering 1T-12 CC Surge Tank level and references ARB 1C03 1D 3-6, 1T-12 CC Surge Tank Level High or Low</p> <p>Implements AOP-9B Unit 1, Component Cooling System Malfunction</p> <ol style="list-style-type: none"> Check Component Cooling Pumps – AT LEAST ONE RUNNING Maintain Surge Tank Level <ol style="list-style-type: none"> Check surge tank level – LOWERING Start reactor makeup water pump aligned for RMW services Ensure component cooling surge tank vent – OPEN Cycle emergency makeup valve to maintain level – BETWEEN 20% AND 60% Identify and isolate leak per ATTACHMENT A, LEAK ISOLATION FOR LOWERING SURGE TANK LEVEL, while continuing with this procedure. Check component cooling surge tank level – STABLE RNO <u>WHEN</u> leak isolated, <u>THEN</u>: <ol style="list-style-type: none"> Shut surge tank makeup valve. Stop reactor makeup water pump. Check Surge Tank Level – GREATER THAN 10% Check Component Cooling System For Inleakage Check Reactor Trip – NOT REQUIRED Check RHR Status Request Chemistry Analyze Component Cooling Water Notify DSM And Implement Emergency Plan Return To <u>Procedure And Step In Effect</u> <p>Attachment A</p> <p>A1 Isolate Leakage Out Of Component Cooling System Using One Of The Following: (<u>Step A2</u>)</p> <p>A2 System Leakage To Atmosphere</p> <ol style="list-style-type: none"> Inspect system piping to identify the source of the leak. Isolate the leak Return to <u>g</u> (main body).

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE						
	<p>Communications (cont.)</p> <ul style="list-style-type: none"> • IF the crew directs the AO to locally isolate 1P-11A, Component Cooling Water Pump, THEN insert TRIGGER 19 and report when the valves are repositioned and the seal leak has subsided. <p>Instructor Note: If the crew starts to implement AOP-12A, the SM should notify the crew that the Unit 2 OS will be implementing AOP-12A.</p> <p>Continuation Criteria: After 1P-11B, Component Cooling Water Pump has been started, 1P-11A secured and Technical Specifications addressed, or at the discretion of the Lead Examiner, continue with the next event.</p>	<p>CREW</p>	<p>Reference Technical Specifications Technical Specifications:</p> <p>CCW LCO 3.7.7 is not met.</p> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One CC pump inoperable</td> <td>A.1 Restore CC pump to OPERABLE status.</td> <td>72 hours AND 144 hours from discovery of failure to meet the LCO</td> </tr> </tbody> </table>	CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One CC pump inoperable	A.1 Restore CC pump to OPERABLE status.	72 hours AND 144 hours from discovery of failure to meet the LCO
CONDITION	REQUIRED ACTION	COMPLETION TIME							
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SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 5: Main Turbine Generator Voltage Regulator Trouble results in Main Generator Lockout and reactor trip</p> <p>Start: _____</p>	<p>Trigger 21 [MAL1GEN006, VOLTAGE REGULATOR FAILURE, VALUE = 25, RAMP = 15 min.]</p> <p>Insert Trigger 21 to cause a voltage regulator failure which results in a generator lockout and reactor trip.</p> <p>Plant Response: The regulator failure will cause vars to increase. Operators may recognize the failure and select manual voltage control. Unit operations can continue in manual. In Automatic Control the If the malfunction severity is set for a high voltage then an over excitation trip will occur. Over excitation and voltage regulator trouble and alert will alarm. The turbine generator and reactor trip. Turbine speed increases to 1900 rpm as crossover steam dumps open to limit speed.</p> <p>Cues:</p> <ul style="list-style-type: none"> • C01 1A 1-3, Unit 1 Voltage Regulator Alert • C01 1A 3-1, Unit 1 TG-01 or X-01 Over-Excitation • C01 1A 4-4, Unit 1 Voltage Regulator Trouble. <p>Expected Communications:</p> <ul style="list-style-type: none"> • IF an AO is dispatched to 1E02 to check local annunciator panel ANN2 (on Voltage Regulator Panel), wait two minutes and THEN report that the alarm is 'HXL is Limiting.' 	<p>BOP</p> <p>OS1</p> <p>OATC</p> <p>OS1</p>	<p>Identifies rising generator volts and outward vars. References ARP C01 A 1-3, Unit 1 Voltage Regulator Alert and dispatches an AO to investigate.</p> <p>May direct a reactor trip.</p> <p>Implements EOP-0 Unit 1, Reactor Trip or Safety Injection</p> <ol style="list-style-type: none"> 1. Verify Reactor Trip Identifies stuck rods B6, B8, C5, E11 by IRPI and non-lit rod bottom lights. RNO Manually trip reactor <ul style="list-style-type: none"> • Train A • Train B 2. Verify Turbine Trip 3. Verify Power to AC Safeguards Buses 4. Check if SI is Actuated <ol style="list-style-type: none"> a. Any SI annunciators LIT RNO IF SI is NOT required, THEN go to <u>EOP-0.1 Unit 1, Reactor Trip Response.</u>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 6: Multiple stuck rods post trip</p>	<p>PRELOAD: [MAL1CRF001-B6, B8, C5, E11, STUCK ROD B6, B8, C5, E11, VALUE = Non-Trippable]</p> <p>Plant Response: Non-Trippable rods will not move under any circumstance</p> <p>Cues: Rods B6, B8, C5 and E11 will remain at their original position and rod bottom lights will not be lit upon reactor trip.</p> <p>Expected Communications: None</p> <p>Continuation Criteria: Once the crew has addressed the stuck rods by initiating a boration, or at the discretion of the Lead Examiner, continue with the next event.</p>	<p>OATC</p> <p>BOP</p> <p>BOP OATC</p>	<p>Implements EOP-0.1 Unit 1, Reactor Trip Response</p> <ol style="list-style-type: none"> 1. Check RCS Temperatures: <ol style="list-style-type: none"> a. Condenser Steam Dumps – AVAILABLE <ul style="list-style-type: none"> • Place Steam Dump Mode Selector in MANUAL b. RCS Temperature <ul style="list-style-type: none"> ○ With any RCP running: <ul style="list-style-type: none"> • RCS average temperature – STABLE AT OR TRENDING TO 547°F OR ○ With No RCP running <ul style="list-style-type: none"> • RCS wide range cold leg temperatures – STABLE AT OR TRENDING TO 547°F 2. Check Feedwater Status <ol style="list-style-type: none"> a. Main feedwater regulating control valves – BOTH SHUT <ul style="list-style-type: none"> • 1FIC-466A • 1FIC-476A b. Transfer feedwater control to bypass regulating valves: <ol style="list-style-type: none"> 1) Check main feedwater pumps – AT LEAST ONE RUNNING 2) Control feedwater flow using regulating bypass valves <ul style="list-style-type: none"> • 1CS-480 • 1CS-481 3) Maintain both SG levels – BETWEEN 32% AND 63% 4) Reset Loss of Feedwater Turbine Trip 5) Stop any running AFW pumps. 3. Verify All Control Rods – FULLY INSERTED RNO IF two or more control rods are NOT fully inserted, THEN initiate emergency boration: <ol style="list-style-type: none"> a. Record initial level for in service BAST b. Perform the following to adjust charging flow: <ol style="list-style-type: none"> 1) Control charging pump speed as necessary to maintain flow GREATER THAN OR EQUAL TO 60 GPM. 2) Control charging line flow controller as necessary to maintain labyrinth seal ΔP GREATER THAN 20 inches

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p><u>EOP-0 Unit 1, Attachment A</u></p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • <u>WHEN</u> directed to locally check shut RW Service Water valves, LW-61 and 62, <u>THEN</u> report both valves are closed. • <u>WHEN</u> directed to locally check CW pump house temperature <105 °F, wait 3 minutes and <u>THEN</u> report the temperature is 72 °F and stable. • <u>WHEN</u> directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and <u>THEN</u> report the temperature is 75 °F and stable. • <u>IF</u> directed to periodically check the status of spent fuel cooling, wait 5 minutes and <u>THEN</u> report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable. 	<p>BOP</p>	<p>EOP-0 Unit 1, Attachment A, Automatic Action Verification</p> <p>A1 Verify Feedwater isolation A2 Verify Containment Isolation A3 Verify ECCS Pumps RUNNING A4 Verify Service Water Pumps RUNNING A5 Verify Containment Accident Cooling Units RUNNING A6 Verify Component Cooling Water Pumps – ONLY ONE RUNNING A7 Check If Main Steam Lines Can Remain Open A8 Verify Containment Spray Not required a. Containment pressure recorder – HAS REMAINED LESS THAN 25 psig A9 Verify ECCS Flow A10 Verify AFW valve alignment – PROPER EMERGENCY ALIGNMENT A11 Verify Proper ECCS Valve Alignment A12 Check Containment Spray <u>NOT</u> ACTUATED A13 Stop any boration via the blender in progress A14 Ensure the Auxiliary Building Filter/Exhaust Fans – OPERATING A15 Verify Service Water System Alignment A16 Check Miscellaneous Valves – SHUT A17 Check Control Room Ventilation A18 Check Cable Spreading Room Ventilation System – OPERATING A19 Check Computer Room Ventilation System – OPERATING A20 Check AFW Recirc fans – ONE RUNNING A21 Check Circulating Water Pump House Temperature Less Than 105°F A22 Check G03/G04 Switchgear Room Temperature less than 95°F A23 Periodically check status of spent fuel cooling</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> WHEN directed to shut 1MS-235, AFP Radwaste Steam Isolation and 1MS-228, Main Steam Trap Header Isolation, wait 5 minutes THEN insert Trigger 25 and report when the valves are closed. 	<p>OS1 BOP</p>	<p>Implements EOP-3, Unit 1 Steam Generator Tube Rupture</p> <ol style="list-style-type: none"> Check If RCPs Should Be Stopped Identify Ruptured SG(s) <p>CT-18 Isolate feedwater flow into and steam flow from the ruptured SG before a transition to ECA-3.1 occurs.</p> <ol style="list-style-type: none"> Isolate Flow From Ruptured SG <ol style="list-style-type: none"> IF SG A is ruptured, THEN isolate SG A: <ol style="list-style-type: none"> Shut 1MS-2018 MSIV 1MS-234 MSIV Bypass Ensure 1MS-2016 – SHUT Ensure 1HC-468 “A” ADV Controller – SET TO 1050 psig Shut 1MS-2020, TDAFWP Steam supply Ensure SG blowdown is isolated <ul style="list-style-type: none"> 1MS-5958 – SHUT 1MS-2042 – SHUT Locally shut the following: <ul style="list-style-type: none"> 1MS-235 1P-29/Radwaste Isolation 1MS-228 Main Steam Trap Isolation Check Ruptured SG(s) Level: <ol style="list-style-type: none"> Level - GREATER THAN [51%] 32% RNO: Maintain feed flow to ruptured SG(s) unit level is greater than [51%] 32% Continue with <u>Step 5</u>. IF SG A is ruptured, THEN Stop feed flow to ruptured SG A: <ol style="list-style-type: none"> Place in manual and shut 1AF-4074A Ensure 1AF-4001 TDAFW flow control Valve - SHUT Ensure AF-4023 SSG supply valve - SHUT Check Ruptured SG(s) Pressure – GREATER THAN 590 PSIG

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

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		BOP	<ul style="list-style-type: none"> 6. Initiate RCS cooldown <ul style="list-style-type: none"> a. Check SI signal status: <ul style="list-style-type: none"> 1) ANY <u>Auto</u> SI signal - IN RNO: Block SI 2) <i>Reset SI</i> b. Determine required core exit temperature: c. Dump steam to condenser from intact SG at maximum rate d. Check core exit TCs - LESS THAN REQUIRED TEMPERATURE e. Stop RCS cooldown f. Maintain core exit TCs - LESS THAN REQUIRED TEMPERATURE 7. Check Intact SG Level 8. Check PZR PORVs And Block Valves 9. Check SI Signal Status 10. Reset Isolation And Lockout Signals 11. Establish Instrument Air To Containment 12. Check If RHR Pumps Should Be Stopped: <ul style="list-style-type: none"> a. RHR pumps – ANY RUNNING WITH SUCTION ALIGNED TO RWST b. RCS pressure – GREATER THAN [450 PSIG] 325 psig c. Stop both RHR pumps and place in auto 13. Establish Charging Flow <ul style="list-style-type: none"> a. Charging Pumps - AT LEAST ONE RUNNING b. Align charging pump suction to RWST c. Establish maximum charging flow 14. Check If RCS Cooldown Should Be Stopped 15. Check Ruptured SG Pressure STABLE OR RISING 16. Check RCS Subcooling Based On core Exit Thermocouples - GREATER THAN [94°F] 55 °F

<p>Event 8: 1RC-431A and B, PZR Spray Valves fail closed.</p>	<p>Trigger 23 [CNH1PCS008B, 1-HC431H 1-PCV431B SPRAY VALVE HAND CTLR FIXED AUTO/MAN, VALUE = 0]</p> <p>[CNH1PCS007B, 1-HC431C 1-PCV431A SPRAY VALVE HAND CTLR FIXED AUTO/MAN, VALUE = 0]</p> <p>Trigger 23 (inserted for the SGTR) causes 1PCV-431A and B, Spray valves to fail closed in auto and manual.</p>	<p>OATC</p>	<p>17. Depressurize RCS To Minimize Break Flow And Refill PZR</p> <p>a. Normal PZR spray – AVAILABLE RNO- OBSERVE CAUTIONS AN NOTE PRIOR TO STEP 18 and go to Step 18.</p> <p>18. Depressurize RCS Using PZR PORV To Minimize Break Flow and Refill PZR:</p> <p>a. At least one PZR PORV – AVAILABLE</p> <p>b. Open one PORV until any of the following conditions satisfied:</p> <ul style="list-style-type: none"> o Both of the following: <ul style="list-style-type: none"> 1) RCS pressure - LESS THAN RUPTURED SG PRESSURE 2) PZR level - GREATER THAN [32%] 13% <p style="text-align: center;">OR</p> o Both of the following <ul style="list-style-type: none"> 1) RCS PRESSURE – WITHIN 300 psid OF RUPTURED SG PRESSURE 2) PZR level greater than <p style="text-align: center;">OR</p> o PZR level - GREATER THAN [50%] 43% o RCS subcooling based on core exit TCs - LESS THAN [74°F] 35°F <p>c. Shut PZR PORV</p> <p>d. Go to <u>Step 20</u></p> <p>e. OBSERVE CAUTION PRIOR TO STEP 21 and go to <u>Step 21</u>.</p> <p>20. Check RCS Pressure – RISING:</p>
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		<p>BOP/OATC</p>	<p>CT-21 Terminate SI before the SG goes water solid (simulator out of limits alarm) and control RCS pressure and makeup flow so that primary and secondary inventory are stable before the end of the scenario.</p> <ul style="list-style-type: none"> 21. Check If ECCS Flow Should Be Terminated <ul style="list-style-type: none"> a. RCS subcooling based on core exit thermocouples - GREATER THAN [74°F] 35°F b. Secondary Heat Sink: <ul style="list-style-type: none"> o Intact SG level - GREATER THAN [51%] 32% OR o Total feed flow to SGs - GREATER THAN OR EQUAL TO 230 GPM AVAILABLE c. RCS pressure - STABLE OR RISING d. PZR level - GREATER THAN [32%] 13% 22. Stop Both SI Pumps And Place In Auto 23. Establish Charging Flow 24. Ensure Adequate RCS Depressurization <ul style="list-style-type: none"> a. Check normal spray – AVAILABLE RNO – Go to <u>Step 25</u> 25. Verify SI flow is Not Required: <ul style="list-style-type: none"> a. RCS subcooling based on core exit thermocouples - GREATER THAN [74° F] 35° F. b. PZR level - GREATER THAN [32%] 13% 26. Check Reactor Makeup Control: <ul style="list-style-type: none"> a. Ensure MCCs - ENERGIZED <ul style="list-style-type: none"> • 1B-31, 1B52-14C, train A • B-43, 1B52-21C, train B b. Makeup set for greater than 2800 ppm c. VCT level - GREATER THAN 17% d. Ensure makeup armed and in auto
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		OATC	<p>27. Check if Letdown can be established</p> <ol style="list-style-type: none"> a. PZR level - GREATER THAN [44%] 24% b. Establish Letdown <ol style="list-style-type: none"> 1) Open letdown line containment isolation valves: <ul style="list-style-type: none"> • 1CV-371A • 1CV-371 2) Open RCS loop B cold leg letdown isolation valve: <ul style="list-style-type: none"> • 1RC-427 3) Ensure component cooling flow to non-regenerative heat exchanger – ESTABLISHED <ul style="list-style-type: none"> • 1HC-130 4) Ensure charging flow - AT LEAST 21 GPM 5) Adjust backpressure as necessary and open letdown isolation valves to establish letdown flow: <ul style="list-style-type: none"> ○ 1CV-200A ○ 1CV-200B ○ 1CV-200C <p>28. Align Charging Pump Suction To VCT:</p> <ol style="list-style-type: none"> a. VCT level - GREATER THAN 17% b. Open VCT outlet to charging pump suction MOV: <ul style="list-style-type: none"> • 1CV-112C c. Shut RWST to charging pump suction MOV: <ul style="list-style-type: none"> • 1CV-112B <p>29. Check If SI Accumulators Should Be Isolated:</p> <ol style="list-style-type: none"> a. RCS pressure - LESS THAN 1075 psig RNO: WHEN RCS pressure is less than 1075 psig THEN do Steps 29.b, 29.c, 29.d, and 29.e. Observe CAUTION prior to Step 30 and continue with Step 30
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<p>End: _____</p>	<p>Termination Criteria: Terminate the scenario when the crew has stopped SI pumps and taken appropriate action(s) per step 30 of EOP-3 Unit 1, or at the discretion of the Lead Evaluator. .</p>	<p>OS1</p>	<p>30. Control RCS Pressure And Charging To Minimize Leakage</p> <p>a. Perform appropriate action(s) from table below and use ATTACHMENT B handout as desired:</p> <table border="1"> <thead> <tr> <th rowspan="2">PZR LEVEL</th> <th colspan="3">RUPTURED SG LEVEL</th> </tr> <tr> <th>RISING</th> <th>LOWERING</th> <th>OFF SCALE HIGH</th> </tr> </thead> <tbody> <tr> <td>LESS THAN OR EQUAL TO [44%] 24%</td> <td>Raise charging flow Depressurize RCS using Step 29.b</td> <td>Raise charging flow</td> <td>Raise charging flow Maintain RCS and ruptured SG pressures equal</td> </tr> <tr> <td>BETWEEN [44%] 24% AND 50%</td> <td>Depressurize RCS using Step 29.b</td> <td>Turn on PZR heaters</td> <td>Maintain RCS and ruptured SG pressures equal</td> </tr> <tr> <td>BETWEEN 50% AND [62%] 68%</td> <td>Depressurize RCS using Step 29.b Reduce charging flow</td> <td>Turn on PZR heaters</td> <td>Maintain RCS and ruptured SG pressures equal</td> </tr> <tr> <td>GREATER THAN OR EQUAL TO [62%] 68%</td> <td>Reduce charging flow</td> <td>Turn on PZR heaters</td> <td>Maintain RCS and ruptured SG pressures equal</td> </tr> </tbody> </table> <p>b. Use normal PZR spray as necessary to depressurize RCS per table in <u>Step 30a</u>.</p> <p>RNO: IF letdown is in service THEN use auxiliary spray</p>	PZR LEVEL	RUPTURED SG LEVEL			RISING	LOWERING	OFF SCALE HIGH	LESS THAN OR EQUAL TO [44%] 24%	Raise charging flow Depressurize RCS using Step 29.b	Raise charging flow	Raise charging flow Maintain RCS and ruptured SG pressures equal	BETWEEN [44%] 24% AND 50%	Depressurize RCS using Step 29.b	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal	BETWEEN 50% AND [62%] 68%	Depressurize RCS using Step 29.b Reduce charging flow	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal	GREATER THAN OR EQUAL TO [62%] 68%	Reduce charging flow	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal
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BETWEEN [44%] 24% AND 50%	Depressurize RCS using Step 29.b	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal																							
BETWEEN 50% AND [62%] 68%	Depressurize RCS using Step 29.b Reduce charging flow	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal																							
GREATER THAN OR EQUAL TO [62%] 68%	Reduce charging flow	Turn on PZR heaters	Maintain RCS and ruptured SG pressures equal																							

*** END OF SCENARIO ***

QUANTITATIVE ATTRIBUTES

(Use this form for NRC/INPO Evaluations only as required to document associated quantitative information.)

Malfunctions:

Before EOP Entry:

- P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D
- 1HX-1A, SG tube leak
- 1RE-219, SG Blowdown Monitors fails high
 - 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close.
- 1P-11A, Component Cooling Water Pump mechanical seal leak
- Main Generator Lockout (Voltage Regulator Trouble)

After EOP Entry:

- Multiple stuck rods (4) post trip
- 1HX-1A SG steam generator tube rupture
- 1RC-431A and B, PZR Spray Valves fail closed

Abnormal Events:

- P-32A, Service Water Pump trips with reduced head capacity on P-32B and P-32D
- 1HX-1A, SG tube leak of approximately 10 gpm
- 1RE-219, SG Blowdown Monitors fails high off-scale
 - 1MS-2083, 1HX-1A SG Sample Isolation Control Valve fails to auto close
- 1P-11A, Component Cooling Water Pump mechanical seal leak

Major Transients:

- 1HX-1A SG steam generator tube rupture

Critical Tasks:

1. CT-18 Isolate ruptured SG
2. CT-21 Terminate SI/control RCS pressure and makeup

CT-18	Isolate ruptured SG
Applicable ERG Version	LP
Applicable ERG	E-3

Critical Task:

Isolate feedwater flow into and steam flow from ruptured SG before a transition to ECA-3.1

Plant Conditions:

- SGTR
- Reactor trip
- SI

Cues:

- Indication and/or annunciation of SGTR in one SG
 - Increasing SG water level
 - radiation

AND

- Indication and/or annunciation of reactor trip

AND

- Indication and/or annunciation of SI

Performance Indicator:

Manipulation of controls as required to isolate the ruptured SG

- Main steam isolation valve position lamps indicate closed
- Main steam isolation bypass valve position lamps indicate closed
- PORV setpoint adjusted to ERG Footnote O.03
- Blowdown isolation valve position lamps indicate closed
- Steam isolation valve to TDAFW pump position lamps indicate closed
- AFW valve position lamps and/or indicators indicate closed
- Feedwater isolation valve position lamps indicated closed

Feedback:

- Indication of stable or increasing pressure in the ruptured SG
- Indication of decreasing or zero feedwater flow rate in the ruptured SG

CT-21	Terminate SI/control RCS pressure and makeup
Applicable ERG Version	LP
Applicable ERG	E-3, ES-3.1, ES-3.2, ES-3.3, ECA-3.3

Critical Task:

CT-21 Terminate SI before the SG goes water solid (simulator out of limits alarm) and control RCS pressure and makeup flow so that primary and secondary inventory are stable before the end of the scenario.

Plant Conditions:

- SGTR
- SI
- Ruptured SG identified and isolated
- RCS cooldown to target temperature completed
- RCS depressurization completed
- SI termination criteria met

Cues:

- Indication and/or annunciation of SGTR in one SG
 - Increasing SG water level
 - Radiation

AND

- Indication and/or annunciation of reactor trip and SI

AND

- Indication that RCS is cooldown to the target temperature

AND

- Indication that RCS depressurization is completed

AND

- Indication that SI termination criteria met

Performance Indicator:

Manipulation of controls as required to

- Terminate SI
 - All high-head ECCS pumps breaker position lamps indicate open
- Control RCS pressure and makeup flow
 - Indication that the charging flow control valve is at the appropriate position (open, closed, or throttled)
- OR
 - Indication that charging pump speed is increasing or decreasing as appropriate
- OR
 - PRZR heater beaker position lamp(s) or current indicator shows appropriate position/current change (open or close/increase or decrease)
- OR
 - PRZR spray valve(s) position lamp(s)/indicator shows appropriate change (open or close)

Feedback:

- Indication of high-head ECCS flow rate decreasing or zero
- Indication of increasing or decreasing RCS pressure
- Indication of increasing or decreasing makeup flow to the RCS



TURNOVER INFORMATION

SEG

1.0 Plant Conditions:

	<u>Unit 1</u>	<u>Unit 2</u>
Time in Core Life (MWD/MTU):	9005	
Reactor Power:	75%	
Boron Concentration:	1179 ppm	
Rod Height:	CBD @ 175	

2.0 Equipment Out of Service:

- 1P-2B, Charging Pump, is out of service for mechanical seal replacement. Work is expected to take another 4 hours.
- 1PT-950, Loop B Containment Pressure has been removed from service. Repairs are expected to be complete during the upcoming refueling outage.
- 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.

3.0 Technical Specification LCOs NOT Met and Action Conditions in Effect:

<u>LCO NOT Met</u>	<u>TSAC</u>	<u>Required Actions</u>	<u>Completion Time</u>
3.3.2	A. One or more Functions with one or more channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
	D. One channel inoperable	D.1 Place channel in trip OR D.2.1 Be in MODE 3 AND D.2.2 Be in MODE 4	1 hour 7 hours 13 hours

4.0 Planned Evolutions:

- Unit 1 was lowered to approximately 74% (1339 MWT) at the request of MISO/ATC due to grid stability issues. Grid stability has been restored and the unit is ready to be returned to full power in accordance with OP 1C, Startup to Power Operations.
- Commence raising power to 100%.



TURNOVER INFORMATION

SEG

5.0 Common:

- Safety Monitor is Green
- Today is Sunday, clock time is real time and you have a normal shift complement.



SIMULATOR EXERCISE GUIDE

SEG

SITE: Point Beach

Revision #: 0

LMS ID: PBN LOI NRC 18E

LMS Rev. Date:

SEG TITLE: 2017 NRC Exam Scenario 4

SEG TYPE: Training

Evaluation

PROGRAM: LOCT LOIT Other:

DURATION: 90 minutes

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 (Line)

Date

Facility: Point Beach Scenario No.: 4 Op-Test No.: 2017

Examiners: _____ Operators: _____

Initial Conditions: Unit 1 is at approximately 100%. 1LT-112 VCT Level Transmitter has failed low, I&C expect repairs to be completed within the hour and returned to service by the end of shift. 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.

Turnover: Start 1P-27A, Heater Drain Tank Pump, and secure 1P-27C Heater Drain Tank Pump per OP 2A, Normal Power Operations, Attachment M, in preparations for maintenance. Lower power utilizing OP 3A, Power Operation to Hot Standby, in preparation for TS 3, Main Turbine Stop and Governor Valve with Turbine Trip (Biannual)

Event No.	Malf. No.	Event Type*	Event Description
1		N-BOP N-SRO	Shift Heater Drain Tank Pumps, start 1P-27A, secure 1P-27C
2		R-RO N-BOP R-SRO	Down Power for TS-3
3	MAL1NIS007C	I-RO I-SRO TS-SRO	NI-43, PR NI fails low fast enough to cause outward rod motion near 12-15 steps/min.
4	XMT1SGN012A	I-BOP I-SRO TS-SRO	1LT-471, SG Level fails low slowly (Manual SG level control)
5	XMT1CVC020A See SEG	I-RO I-SRO TS-SRO	1LT-141, VCT Level Transmitter fails low, causing an auto shift to the RWST. (Manual reactor trip required) The first set of Reactor Trip push buttons fails to cause a reactor trip, but the second set used is successful
6	MAL1SGN003B	M-ALL	Steam Generator Fault in Containment on Reactor Trip
7	PMP1AFW004 PMP1AFW002	C-BOP	1P-53, Motor Driven Auxiliary Feedwater Pump sheared shaft and 1P-29, Turbine Driven Auxiliary Feedwater Pump trips on over speed (CSP-H.1, Response to Loss of Secondary Heat Sink)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

SIMULATOR EXERCISE GUIDE REQUIREMENTS

Terminal Objective Given specific plant conditions, the students will be able to respond to plant evolution and failures listed below in accordance with plant procedures:

1. Shift Heater Drain Pumps
2. Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3, Main Turbine Stop and Governor Valves with Turbine Trip Test (Biannual) Unit 1
3. 1N-43, Power Range Nuclear Instrument fails low
4. 1LT-471, SG Level Transmitter fails low
5. 1LT-141, VCT Level Transmitter fails low
6. 1HX-1B SG faults to containment upon reactor trip
7. Reactor trip breakers fails to auto open; reactor trip push buttons on 1C04 do not work
8. Auxiliary Feedwater malfunctions
 - 1P-53, Motor-Driven AFW Pump – sheared shaft
 - 1P-29, Turbine-Driven AFW Pump – trips on overspeed

Embedded within these events is the expectation to properly utilize Technical Specifications.

Enabling Objectives: None

Prerequisites: 1. Simulator available
 2. Students enrolled in Initial License Program

Training Resources: 1. Floor Instructor as Shift Manager / Shift Technical Advisor
 2. Simulator Booth Operator
 3. Communicator
 4. NRC Evaluators

- References:**
1. 0-SOP-IC-001 Blue, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Blue Channels
 2. 0-SOP-IC-001 Yellow, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Yellow Channels
 3. 0-SOP-IC-002, Technical Specifications LCO – Instrument Cross Reference
 4. AOP-1D Unit 1, Chemical And Volume Control System Malfunction
 5. AOP-2B Unit 1, Feedwater System Malfunction
 6. AOP-6C, Uncontrolled Motion of RCCAs
 7. AOP-24, Response to Instrument Malfunctions
 8. CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink
 9. EOP-0 Unit 1, Reactor Trip Or Safety Injection
 10. EOP-1 Unit 1, Loss Of Reactor Or Secondary Coolant
 11. EOP-1.1 Unit 1, SI Termination
 12. EOP-2 Unit 1, Faulted Steam Generator Isolation
 13. OM 3.7, AOP And EOP Procedure Usage For Response To Plant Transients
 14. OP 2A UNIT 1, Normal Power Operation Unit 1
 15. OP 3A Unit 1, Power Operation to Hot Standby Unit 1
 16. Technical Specifications

Protected Content: None

Evaluation Method: Simulator performance will be evaluated in accordance with NUREG 1021

Operating Experience: N/A

Risk Significant Operator Actions: HEP-COG CSPH1, OPERATORS FAIL TO DIAGNOSE LOSS OF SECONDARY HEAT SINK. [Fv = 6.59E-02]



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	DATE
				REVIEWER	DATE
Rev. 0	Developed for 2017 NRC ILT Exam.				

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

Insert brief description of what will occur during this simulator exercise.

- Unit 1 is at approximately 100% EOL.
- 1W-3B, Control Rod Shroud Fan is OOS due to imminent motor failure.
- 1LT-112, VCT Level Transmitter has failed low
 - 1CV-112A is in “TO VCT” position and VCT level is being manually controlled between 17% and 78% per AOP-1D
 - I&C expect repairs to be completed within the hour and returned to service by the end of the shift.
- Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C, Heater Drain Tank Pump per OP-2A Attachment M, in preparation for maintenance.
- Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3, Main Turbine Stop and Governor Valves with Turbine Trip Test (Biannual) Unit 1
- Malfunctions
 - 1N-43, Power Range Nuclear Instrument fails low
 - 1LT-471, SG Level Transmitter fails low
 - 1LT-141, VCT Level Transmitter fails low
 - Reactor trip breakers fails to auto open; first set of reactor trip push buttons attempted do not work
 - 1HX-1B SG faults to containment upon reactor trip
 - Auxiliary Feedwater malfunctions
 - 1P-53, Motor-Driven AFW Pump – sheared shaft
 - 1P-29, Turbine-Driven AFW Pump – trips on overspeed

Termination criteria.

- Terminate the scenario when crew has completed Step 5 of EOP-1.1 Unit 1, SI Termination.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C, Heater Drain Tank Pump per OP-2A Attachment M, in preparation for maintenance
2.	Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3, Main Turbine Stop and Governor Valves with Turbine Trip Test (Biannual) Unit 1
3.	<p>1NI-43, Power Range Nuclear Instrument fails low (outward rod motion at or near 12-15 steps/min)</p> <ul style="list-style-type: none"> The crew should respond by taking rods to manual to stop unwanted outward rod motion. The crew should implement AOP-24, Response to Instrument Malfunctions and 0-SOP-IC-001 Blue, Routine Maintenance Procedure Removal of Safeguards or Protection Sensor from Service – Blue Channels to shift to a new controlling channel and take the nuclear instrument out of service.
4.	<p>1LT-471, SG Level Transmitter fails low</p> <ul style="list-style-type: none"> The crew should: <ul style="list-style-type: none"> Take 1FIC-476A to Manual or shift the controller to single element. Implement AOP-2B Unit 1, Feedwater System Malfunction, AOP-24, Response to Instrument Malfunction and 0-SOP-IC-001 Yellow, Routine Maintenance Procedure Removal of Safeguards or Protection Sensor from Service – Yellow Channels take the channel out of service. Refer to Technical Specifications for the failed channel
5.	<p>1LT-141, VCT Level Transmitter fails low</p> <ul style="list-style-type: none"> The crew should implement AOP-1D Unit 1, Chemical and Volume Control System Malfunctions, and trip the unit per the Foldout page criteria in response to the CVC system aligning the RWST and the charging pump suction source. When the manual reactor trip is attempted the first set of pushbuttons will not work, the reactor will trip when the second set of pushbuttons are depressed.
6.	<p>1HX-1B SG faults to containment upon reactor trip</p> <ul style="list-style-type: none"> The should I transition from EOP-0 Unit 1, Reactor Trip or Safety Injection to EOP-2 Unit 1, Faulted Steam Generator Isolation to isolate the faulted 1HX-1B Steam Generator.

<p>7.</p>	<p>Auxiliary Feedwater malfunctions</p> <ul style="list-style-type: none"> • 1P-53, Motor-Driven AFW Pump – sheared shaft • 1P-29, Turbine-Driven AFW Pump – trips on overspeed <ul style="list-style-type: none"> • The crew should respond to the loss of auxiliary feedwater by transitioning from EOP-0 Unit 1, Reactor Trip or Safety Injection to CSP-H.1 Unit 1, Response to Loss of Secondary Heat Sink. <ul style="list-style-type: none"> • Restoration of AFW will be from 2P-53, Motor-Driven AFW Pump through cross connects Unit 1 and Unit 2 AF-192 and by resetting the OS trip of 1P-29, Turbine Driven AFW Pump.
<p>STOP</p>	<p>Terminate the scenario when the crew has completed <u>Step 5</u> of EOP-1.1 Unit 1, SI Termination.</p>

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the site specific Simulator Setup Checklist.

General Instructions

Simulator Setup Instructions:

- Load **IC-2** and go to run
- Open the saved Event and Schedule files from the secure drive:
- Verify all commands listed in table below are contained in the Schedule File
- Insert the setup malfunction(s)
- Reposition bistable switches for:
- Make any necessary adjustments or corrections
- Freeze the simulator and save to scenario specific IC
- Re-initialize into saved IC and go to run
- Open and start the Event and Schedule files
- Open and start InSight and Alarm files for data collection
- Run the scenario real time
- Save InSight, Event, Alarm, Schedule Files to the secure drive and collect procedure markups for SBT
- Complete TR-AA-23001008-F01 Scenario Based Testing (SBT) Checklist

Multiple Use:

- Load saved IC and go to run
- Open the saved Event and Schedule files:
- Start the Schedule File
- Walk down the control boards to ensure plant conditions accurately reflect the scenario's initial conditions
- Make any necessary adjustments or corrections
- Update documentation if required
- Resave if required
- Turnover to the crew

SIMULATOR – SCENARIO SETUP:

Setup: 1LT-112, VCT Level Transmitter failed low								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1CVC019A	1-LT112 VCT LEVEL FIXED OUTPUT	00 :00 :00	00 :00 :00		00 :00 :00	-	0	SETUP
Simulator Setup: <ol style="list-style-type: none"> Place an OOS magnet at VCT level recorder Take auto makeup to STOP Position 1VC-112A to VCT Place 1W-3B CS in pull-out, install OOS magnet. Install an orange Guarded magnet at 1W-3A. 								

SIMULATOR MALFUNCTIONS:

Event 1: Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C, Heater Drain Tank Pump per OP-2A Attachment M, in preparation for maintenance								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
-	-	-	-	-	-	-	-	-
Expected field communications: <ol style="list-style-type: none"> IF asked about pre-start checks for 1P-27A, Heater Drain Tank Pump, THEN report that they were completed satisfactorily and the pump is ready for start. REPORT that 1P-27A, Heater Drain Tank Pump start was normal. REPORT that 1P-27C, Heater Drain Tank Pump coast down was normal, the pump is stopped and is not rotating backwards. 								

Event 2: Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3								
MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
LOA1CFW083	1-P99A SFP SEAL WATER INJECT PUMP C.S.	00 :00 :00	-	1	00 :00 :00	AUTO	ON	When directed by the crew
LOA1CFW084	1-P99B SGFP SEAL WATER INJECT PUMP C.S.	00 :00 :05	-	1	00 :00 :05	AUTO	ON	When directed by the crew
Expected field communications: <ol style="list-style-type: none"> WHEN directed to start 1P-99A and 1P-99B SGFP Seal Water Injection Pumps, insert Trigger 1 and THEN report when they are started. 								

Event 3: 1NI-43, Power Range Nuclear Instrument fails low (outward rod motion at or near 12-15 steps/min)

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1NIS007C	P.R. CHANNEL N43 HIGH VOLTAGE FAILURE	00 :00 :00	00 :00 :27	3	00 :00 :00	-	300	PLE

Expected field communications:

- None

Event 4: 1LT-471, SG Level fails low

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1SGN012A	1-LT471 STM GEN B NR LEVEL FIXED OUTPUT	00 :00 :00	00 :01 :30	5	00 :00 :00	64	19	PLE

Expected field communications:

- None

Event 5: 1LT-141, VCT Level Transmitter fails low, reactor trip with failed pushbuttons

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
XMT1CVC020A	1-LT141 VCT LEVEL FIXED OUTPUT	00 :00 :00	00 :00 :05	7	00 :00 :00	-	0	PLE
MAL1PPL001A	REACTOR TRIP BREAKER 52/RTA FAILURE	00 :00 :00	-	-	00 :00 :00	-	Fails_To_Open	PRELOAD
MAL1PPL001B	REACTOR TRIP BREAKER 52/RTB FAILURE	00 :00 :00	-	-	00 :00 :00	-	Fails_To_Open	PRELOAD
MAL1PPL001B	REACTOR TRIP BREAKER 52/RTB FAILURE			15 Cond			Trip	et_array(16) & et_array(17)
MAL1PPL001A	REACTOR TRIP BREAKER 52/RTA FAILURE			15 Cond			Trip	et_array(16) & et_array(17)
	1C04 REACTOR TRIP A <u>OR</u> B PUSHBUTTON			16 Cond				x14i057a == 1 x14i055a == 1
	C01 REACTOR TRIP A <u>OR</u> B PUSHBUTTON			17 Cond				x01i142a == 1 x01i141a == 1

Expected field communications:

- IF** an AO is dispatched to locally investigate LT-141, VCT Level Transmitter, wait two minutes and **THEN** report that locally there doesn't seem to anything out of normal.

Event 6: 1HX-1B SG faults to containment upon reactor trip

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1SGN003B	SG B MAIN STEAM LINE BREAK INSIDE CNMT	00 :00 :00	00 :01 :00	9 Cond.	00 :00 :00	-	5.0E5	PRELOAD Cond. = Reactor Trip
LOA1SGN025	1-MS-237 P-29 AFP & RADWASTE STEM ISOL	00:00:00	00 :00 :00	17	00 :00 :00	-	0	When directed by the crew

Expected field communications:

1. **WHEN** directed to locally check RW Service Water valves, LW-61 and 62, **THEN** report both valves are shut.
2. **WHEN** directed to locally check CW pump house temperature <105 °F, wait 3 minutes and **THEN** report the temperature is 72 °F and stable.
3. **WHEN** directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and **THEN** report the temperature is 75 °F and stable.
4. **IF** directed to periodically check the status of spent fuel cooling, wait 5 minutes and **THEN** report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable.
5. **WHEN** directed to locally shut 1MS-237, 1P-29 AFP/Radwaste Steam Isolation and 1MS-238, Main Steam Trap Isolation, insert **Trigger 17** and **THEN** report completed when the valve has repositioned.

Event 8: Auxiliary Feedwater malfunctions: 1P-53, Motor-Driven AFW Pump – sheared shaft and 1P-29, Turbine-Driven AFW Pump – trips on overspeed

MALFUNCTION No.	MALFUNCTION TITLE	DELAY	RAMP	ET	DELETE IN	INITIAL VALUE	FINAL VALUE	NOTES
MAL1AFW001	AUX FWP TURBINE OVERSPEED	00 :00 :00	-	9	00 :03 :00	-	-	PRELOAD
PMP1AFW004	1-P53 AUXILIARY FEEDWATER PUMP	00 :00 :00	-	-	00 :00 :00	-	Shaft Break	PRELOAD
BKR1AFW001	1-B5212C P-38A AUX SG FEED PUMP CKTBKR	00 :00 :00	-	-	00 :00 :00	-	Failasis	PRELOAD
PMP1AFW002	0-P38B AUXILIARY FEEDWATER PUMP	00 :00 :00	-	-	00 :00 :00	-	Shaft Seizure	PRELOAD
LOA1AFW051	1-AF-192 U1 AFW CROSS CONNECT	00 :00 :00	-	11	00 :00 :00	-	1.0	When directed by the crew
LOA2AFW016	2-AF-192 U2 AFW CROSS CONNECT	00 :00 :00	-	11	00 :00 :00	-	1.0	When directed by the crew
LOA1SGN033	1-TV-2082R 2082 OVERSPEED TRIP RESET	00 :00 :00	-	13	00 :00 :00	-	RESET	When directed by the crew

Expected field communications:

Note: The intended sequence for the restoration of feed is first from 2P-53 via unit cross-connect valves then second from 1P-29 by resetting the OS trip mechanism.

- IF** an AO is dispatched to locally investigate 1P-29, Turbine-Driven AFW Pump, wait two minutes and **THEN** report that the pump has tripped on overspeed and the overspeed trip mechanism is intact.
- WHEN directed by the crew to reset 1P-29 OS trip mechanism, THEN report that while attempting to reset the mechanism will not latch and that you are going to continue to try to get it reset.
- IF** an AO is dispatched to locally investigate 1P-53, Motor-Driven AFW Pump, wait two minutes and **THEN** report that the motor is turning, but is no longer connected to the pump (shaft break). He recommends securing the pump motor.
- WHEN** directed by the crew, insert **Trigger 11**, wait two minutes and **THEN** report that Unit 1 and Unit 2 AF-192, AFW Cross-connect Valves are open.
- AFTER** the crew has commenced feeding from U2 AFW, Insert **TRIGGER 13**, **THEN** report the OS trip reset. (verify MAL1AFW001 is deleted)

BRIEF / TURNOVER INFORMATION

- Conduct simulator crew pre-scenario brief using TR-AA-230-1007-F06, Simulator Instructor Pre-Exercise Checklist.
- Brief the scenario evaluators
- Brief surrogates using TR-AA-230-1007-F11, Surrogate Brief Checklist, if necessary.
- Crew Shift Turnover Information: See Attached

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 1:</p> <p>Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C</p> <p>Start: _____</p>	<p>Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C, Heater Drain Tank Pump per OP-2A Attachment M, in preparation for maintenance.</p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • IF asked about pre-start checks for 1P-27A, Heater Drain Tank Pump, THEN report that they were completed satisfactorily and the pump is ready for start. • REPORT that 1P-27A, Heater Drain Tank Pump start was normal. • REPORT that 1P-27C, Heater Drain Tank Pump coast down was normal, is stopped and is not rotating backwards. 	<p>OS1 BOP</p>	<p>Implements OP 2A Unit 1, Normal Operation, ATTACHMENT M,</p> <p>4.1 START a Heater Drain Tank Pump as follows:</p> <p>4.1.1 SELECT a HDT Pump to be STARTED and CHECK applicable box below.</p> <p>4.1.2 ENSURE the following Prestart Checks for Pump selected in Attachment M, Step 4.1.1 have been COMPLETED IN ACCORDANCE with OP 13A Unit 1, Secondary Systems Startup Unit 1:</p> <p>4.1.3 START Pump selected in Attachment M, Step 4.1.1 and CHECK applicable box below:</p> <p>4.2 STOP a Heater Drain Tank Pump as follows:</p> <p>4.2.1 SELECT HDT Pump to be SECURED and CHECK applicable box below.</p> <p>4.2.2 STOP HDT Pump selected in Attachment M Step 4.21.</p> <p>4.2.3 IF indications exist that HDT Pump is rotating backward, THEN SHUT the associated Pump Discharge Valve and CHECK applicable box below:</p>



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 2: Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3</p> <p>Start: _____</p>	<p>Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3</p> <p>Expected Communications: None</p> <p>Continuation Criteria: After the crew has reduced power 3% to 5%, or at the discretion of the Lead Examiner, continue to the next event.</p>	<p>OS1</p>	<p>Implements OP 3A Unit 1, Power Operation to Hot Standby Unit 1</p> <p>5.1.9 MAKE notification of load reduction in accordance with NP 2.1.5, Electrical Communications, Switchyard Access and Work Planning</p> <p>5.1.10 NOTIFY Auxiliary Operators (AOs) to monitor the following during load reduction...</p> <p>5.1.11 IF returning to full load THEN RECORD position of Valve Position Limiter (VPL AND Governor Valves for subsequent return to full load</p> <p>5.1.12 IF load reduction is to take turbine off line, THEN RUN a review of points "Scan Removed", "Alarm Check Removed", and "Limit Check Removed" on PPCS, AND MAINTAIN in Control Operator's notebook.</p> <p>5.1.13 SET PPCS trends as desired</p> <p>5.1.14 REDUCE PPCS constants for SG Blowdown Flow by 5 klb/hr</p> <p>5.1.15 IF desired, THEN PLACE an additional LETDOWN Orifice in service</p> <p>5.1.6 ENERGIZE backup heaters to recirc Pressurizer for born, as required.</p> <p>5.2 Beginning Load Reduction</p> <p>5.2.1 ESTIMATE amount of boron/rod motion needed for desired load change, and REFER to PPCS Xenon program for timing estimates</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> WHEN directed to start 1P-99A and 1P-99B SGFP Seal Water Injection Pumps, insert Trigger 1 and THEN report when they are started. 	<p>BOP</p>	<p>5.2.2 PERFORM the following to be being reducing load:</p> <ol style="list-style-type: none"> RECORD time in Narrative Log ENSURE EH Control in OPER AUTO IF Turbine control is on Valve Position Limiter (VPL), THEN TRANSFER turbine control from VPL as follows:... IF Turbine control is in 1st STG OUT mode, AND is required to go to 1st STG IN, AND Reactor power is less than 97%, THEN PRESS 1st STG IN pushbutton to shift Turbine control to 1st STG IN mode PRESS Reference Control (lower) pushbutton to set terminal load (SETTER) consistent with target load in accordance with Step 5.1.1 SET desired ramp rate (Consistent with Step 5.1.7), using thumbwheel PRESS GO pushbutton AND CHECK REFERENCE display indicates a controlled load reduction at selected rate <p>5.2.3 START SG Feed Pump Seal Water Pumps as required</p> <p>5.2.4 IF unit is to be shutdown or operated at less than or equal to 10% load for greater than 15 minutes, THEN THROTTLE SHUT MSR Control Valves using manual operation of controller 1HC-2085, AND INITIATE Crossover temperature reduction at a rate of less than or equal to 25°F per 30 minutes</p> <p>5.2.5 IF unit is to remain on line at greater than 10% load, THEN THROTTLE SHUT MSR Control valves using manual operation of controller 1HC-2085, MSR Steam Supply Controller (1C03) AND MAINTAIN crossover temperature less than 500°F</p>



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
		OATC/BOP	5.3 Performance Requirements During Load Reduction 5.3.1 MAINTAIN controls in auto as practicable 5.3.2 MAINTAIN Axial Flux Difference (AFD) within limits specified in COLR. 5.3.3 MAINTAIN Control banks within the insertion, sequence and overlap limit specified in the COLR 5.3.4 REFER to PPCS Xenon program for Xenon follow information 5.3.5 MAINTAIN Tavg within 1.5°F of Tref 5.3.6 ADJUST Power Range NIS as directed by 1-TS-RE-001, Power Level Determination Unit 1, if required 5.3.7 MAINTAIN 345 KV voltage in accordance with OP 2B, 345 KV Transmission System Impacts Upon PBNP Station Operations, section 345 KV Voltage Control 5.3.8 MAINTAIN controller setpoint for LP Feedwater Heater Bypass Valve (1CS-2273) at 25 psig below SG Feed Pump suction pressure (except when singling up feed trains in accordance with Step 5.5.2.b 5.3.9 MONITOR Ice Melt operations as necessary



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications: None</p> <p>Continuation Criteria: Once the crew has addressed Technical Specifications or at the discretion of the Lead Examiner, continue with the next event.</p>		<p>Prepares to implement 0-SOP-IC-001 Blue, Routine Maintenance Procedure Removal Of Safeguards Or Protection Sensor From Service – Blue Channels</p>



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE			
			Reference Technical Specifications Technical Specifications:			
			3.2.4 (SR 3.2.4.1, 3.2.4.2) Quad. Power Tilt Ratio	Verify QPTR is within limit by calculation Verify QPTR is within limit using the moveable incore detectors	In accordance with the Surveillance Frequency Program	
			Table 3.3.1-1 item 2a Power Range Neutron Flux-High Table 3.3.1-1 item 2b Power range Neutron Flux-Low Table 3.3.1-1 item 5 OverTemp Delta T	D. One channel inoperable	D.1 Place channel in trip <u>OR</u> D.2 Be in MODE 3	1 hour 7 hours
			Table 3.3.1-1 item 17b-1 PR Neutron Flux P-7 Table 3.3.1-1 item 17c PR Neutron Flux P-8	S. One or more channel(s) inoperable	S.1 Verify interlock is in required state for existing conditions. <u>OR</u> S.2 Be in MODE 2	1 hour 7 hours

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 4: 1LT-471, SG Level fails low</p> <p>Start: _____</p>	<p>Trigger 5 [XMT1SGN012A, 1-LT471 STM GEN B NR LEVEL FIXED OUTPUT, VALUE = 19, RAMP = 90 sec]</p> <p>Insert Trigger 5 to cause 1LT-471, 1HX-1B SG Narrow Range Level Transmitter to fail low.</p> <p>Plant Response: The controlling channel lowers to 19%. The SGWLC system responds by modulating open the affect SG's feedwater regulating valve to restore level to program. Actual level rises to the 78% lockout.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1C03 1E2 1-5, Steam Generator B Level Setpoint Deviation/Trouble • 1C03 1E2 4-4, Seam Generator B Low-Low Level Channel Alert • 1LI-471 SG B Level (controlling channel lowers to 19%) 	<p>BOP</p> <p>OS1</p> <p>BOP</p>	<p>Identifies the failing channel and takes 1FIC-476A, 1HX-1B SG Feedwater Regulating Valve Controller to manual, matches feed flow to steam flow and controls actual level at or near program.</p> <p>Implements AOP-2B Unit 1, Feedwater System Malfunction Monitor Foldout Page</p> <ol style="list-style-type: none"> 1. Maintain Reactor Power Less Than or Equal to 100% 2. Determine the Secondary System Malfunction <u>AND</u> go to the appropriate step (12) 12. Perform The Following For The Feed Regulating Valves: <ol style="list-style-type: none"> a. Check Feed Regulating Valve Response – NORMAL <ul style="list-style-type: none"> • 1FIC-476A RNO Perform the following: <ol style="list-style-type: none"> 1) Place affected feedwater regulating valve controller to manual or single element control <ul style="list-style-type: none"> ○ 1FIC-476A 2) Match feed flow to steam flow 3) Stabilize steam generator level at programmed level. 4) IF transient caused by instrument failure, THEN defeat failed instrument per AOP-24, RESPONSE TO INSTRUMENT MALFUNCTIONS 5) Direct I&C to identify and correct cause of failure b. Return to <u>Step 2</u> 3. Check Plant Conditions – STABLE 4. Check Secondary System Alignment – NORMAL 5. Check Change in Reactor Power – LESS THAN 15% IN ANY ONE HOUR 6. Notify the DSM 7. Return To Procedure And Step In Effect

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE																		
		CREW	<p>Reference Technical Specifications Technical Specifications:</p> <p>RPS LCO 3.3.1 is not met (3.3.1-1 item 13)</p> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One or more Functions with one or more required channels or trains inoperable.</td> <td>A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).</td> <td>Immediately</td> </tr> <tr> <td>D. One channel inoperable.</td> <td>D.1 Place channel in trip <u>OR</u> D.2 Be in MODE 3</td> <td>1 hour 7 hours</td> </tr> </tbody> </table> <p>RPS LCO 3.3.2 is not met (3.3.2-1 item 5b and 6b)</p> <table border="1"> <thead> <tr> <th>CONDITION</th> <th>REQUIRED ACTION</th> <th>COMPLETION TIME</th> </tr> </thead> <tbody> <tr> <td>A. One or more Functions with one or more required channels or trains inoperable.</td> <td>A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).</td> <td>Immediately</td> </tr> <tr> <td>D. One or more channel(s) inoperable.</td> <td>D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D.2.2 Be in MODE 4</td> <td>1 hour 7 hours 13 hours</td> </tr> </tbody> </table>	CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately	D. One channel inoperable.	D.1 Place channel in trip <u>OR</u> D.2 Be in MODE 3	1 hour 7 hours	CONDITION	REQUIRED ACTION	COMPLETION TIME	A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately	D. One or more channel(s) inoperable.	D.1 Place channel in trip <u>OR</u> D.2.1 Be in MODE 3 <u>AND</u> D.2.2 Be in MODE 4	1 hour 7 hours 13 hours
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SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 5: 1LT-141, VCT Level Transmitter fails low</p> <p>Reactor trip breakers fail to auto open; first reactor trip push buttons do not work, reactor manually trips on second pushbuttons</p> <p>Start: _____</p>	<p>Trigger 7 [XMT1CVC020A, 1-LT141 VCT LEVEL FIXED OUTPUT, VALUE = 0, RAMP = 5 sec]</p> <p>Insert Trigger 7 to cause 1LT-141, VCT Level Transmitter to fail low.</p> <p>Plant Response: Charging pump suction shifts from the VCT to the RWST.</p> <p>The reactor trip breakers will not open on an auto signal; the first set of reactor trip push buttons attempted do not work when depressed. The reactor can be tripped from the control room using the second set of reactor trip pushbuttons.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1C04 1C 1-7, 1T-4 Volume Control Tank Level High Or Low • 1LI-141 on 1LR-112 indicates 0% • 1CV-112C, 1T-4 VCT Outlet to Charging Pump Suction MOV indicates closed • 1CV-112B, 1T-13 RWST to Charging Pump Suction MOV indicates Open • Reactor remains at power until the reactor is tripped. • 52/RTB AND 52/RTB indicate closed until the reactor is tripped. <p>Expected Communications:</p> <ul style="list-style-type: none"> • IF an AO is dispatched to locally investigate LT- 141, VCT Level Transmitter, wait two minutes and THEN report that locally there doesn't seem to anything out of normal. 	<p>OATC</p> <p>OS1</p> <p>OS1</p> <p>OS1</p>	<p>Identifies failed channel and references ARB 1C04 1C 1-7, 1T-4 Volume Control Tank Level High Or Low</p> <p>Implements AOP-1D Unit 1, Chemical and Volume Control System Malfunctions</p> <ol style="list-style-type: none"> 1. Check RCS Leak – NOT IN PROGRESS <p>Monitor Foldout Page CHARGING PUMP SUCTION SUPPLY CRITERIA: IF charging pump suction is from VCT and VCT level can NOT be maintained greater than 8%, THEN shift charging pump suction to RWST:</p> <ol style="list-style-type: none"> a. Open RWST to Charging Pump Suction MOV <ul style="list-style-type: none"> • 1CV-112B b. Shut VCT Outlet to Charging Pump Suction MOV <ul style="list-style-type: none"> • 1CV-112C c. Manually trip reactor d. Stabilize plant using EOPs while continuing with this procedure <p>Orders a manual reactor trip.</p> <p>CT-1, Manually Trip The Reactor</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Continuation Criteria: If the crew decides to NOT manually trip the reactor, THEN with Lead Examiner concurrence, initiate the faulted SG event. (The faulted SG will result in an auto SI; the reactor will not automatically trip. A manual reactor trip will still be required, CT-1)</p>		
<p>Event 6: 1HX-1B SG faults to containment upon reactor trip</p> <p>Start: _____</p>	<p>Trigger 9 [MAL1SGN003B, SG B MAIN SEAM LINE BEAK INSIDE CNMT, VALUE 5.0E5, RAMP = 60 sec]</p> <p>Trigger 9 is conditional upon a reactor trip. 1HX-1B SG faults to containment. Reactor trip breakers fail to auto open; reactor trip push buttons on 1C04 do not work.</p> <p>Plant Response: Containment humidity, temperature, pressure and sump level will increase and alarm. Safety Injection and Containment Isolation actuate. Condensate, feedwater and Heater Drain Pumps trip. Main Steam Isolation valves close. Containment Spray actuates. The steam generator will blow dry. Operator action is necessary to secure feedwater to the faulted SG.</p> <p>Cues:</p> <ul style="list-style-type: none"> • Indicated steam flow on 1HX-1B Steam Generator • Degrading containment conditions; containment humidity, temperature, pressure and sump level will increase and alarm. 	<p>OS1</p> <p>OATC</p>	<p>Implements EOP-0 Unit 1, Reactor Trip or Safety Injection</p> <ol style="list-style-type: none"> 1. Verify Reactor Trip RNO Manually trip reactor 2. Verify Turbine Trip 3. Verify Power to AC Safeguards Buses 4. Check if SI is Actuated <p>Monitor Foldout Page Criteria: Faulted SG Isolation Criteria IF any SG pressure trending lower in an uncontrolled manner OR any SG completely depressurized, THEN the following may be performed:</p> <ol style="list-style-type: none"> a. Isolate feed flow to faulted SG b. Maintain total feed flow greater than or equal to 230 gpm until narrow range level in at least one SG is greater than [51%] 32%.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
<p>Event 7: Auxiliary Feedwater malfunctions: 1P-53, Motor-Driven AFW Pump – sheared shaft and 1P-29, Turbine-Driven AFW Pump – trips on overspeed</p>	<p>Plant Response: Loss of main and auxiliary feedwater results in lowering steam generator levels.</p> <p>Cues:</p> <ul style="list-style-type: none"> • 1MS-2082 1P-29 AFP LOW SU/OVRSPD TRIP VALVE POSITION – Amber Light – ON • 1FI-4002, 1P-29 AFP DISCHARGE FLOW indicates zero • 1PI-4005, 1P-29 AFP DISCH PRESS indicates zero • 1FI-4073, 1P-53 AFP TOTAL DISCHARGE FLOW indicates zero • 1PI-4071, 1P-53 AFP DISCH PRESSURE indicates zero 	<p>BOP</p>	<ol style="list-style-type: none"> 5. Perform ATTACHMENT A, Automatic Action Verification while continuing with the procedure 6. Verify AFW Pumps – RUNNING <ol style="list-style-type: none"> a. Motor-driven pump - RUNNING b. Turbine-driven pump - RUNNING <p>RNO: Manually open both steam supply valves to turbine-driven pump IF AFW flow NOT established, THEN perform the following:</p> <ol style="list-style-type: none"> 1) Place Stripping Logic Override Switch to the OVERRIDE position. 2) Start Standby Steam Generator feed pump (s): 3) Verify valve alignment: <ol style="list-style-type: none"> a) Open Unit 1 valve(s): AF-4023, train A AF-4021, train B b) Ensure Unit 2 valves - SHUT AF-4022, train A AF-4020, train B c) Manually align valve(s) as necessary to establish flow greater than or equal to 230 gpm. AF-4012, train A AF-4019, train B <p>c. Verify total AFW – GREATER THAN 230 gpm RNO IF SG level is less than [51%] 32% in both SGs, THEN perform the following:</p> <ol style="list-style-type: none"> 1) Manually align valve(s) as necessary to establish flow greater than or equal to 230 gpm. 2) IF AFW flow greater than or equal to 230 gpm can NOT be established, THEN go to <u>CSP-H.1 Unit 1, RESPONSE TO LOSS OF SECONDARY HEAT SINK.</u>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
		BOP	<p>7. Check S/G Blowdown And Sample Isolation: 8. Check Total Feed Flow to S/Gs – GREATER THAN OR EQUAL TO 230 gpm 9. Determine Procedure Transition: o IF Feed and Bleed is NOT in progress, THEN return to procedure and step in effect</p> <p>CT-43: Establish feedwater flow to at least one SGs before bleed and feed is required</p>
		<p>BOP</p> <p>OS1</p> <p>BOP</p>	<p>EOP-0 continued ... 7. Check RCP Seal Cooling 8. Check RCS Temperatures 9. Check PZR PORVs and Spray Valves 10. Check if RCPs should be stopped 11. Check if SGs are <u>NOT</u> Faulted RNO Go to <u>EOP-2 UNIT 1, FAULTED STEAM GENERATOR ISOLATION</u></p> <p>Implement EOP-2 Unit 1, Faulted Steam Generator Isolation</p> <p>CAUTIONS:</p> <ul style="list-style-type: none"> • One SG must be maintained available for RCS cooldown. • If any faulted SG is not needed for RCS cooldown, it should remain isolated during subsequent recovery actions. <p>1. Check Main Steam Isolation a. Any MSIV valve - OPEN b. Check Main Steamline Isolation Signal - NOT ACTUATED 2. Check If Any SG Is Not Faulted 3. Identify Faulted SG</p>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p>Expected Communications:</p> <ul style="list-style-type: none"> • WHEN directed to locally shut 1MS-237, 1P-29 AFP/Radwaste Steam Isolation and 1MS-238, Main Steam Trap Isolation, insert Trigger 17 and THEN report completed when the valve has repositioned. 	<p>BOP</p>	<ol style="list-style-type: none"> 4. Isolate Faulted SG <ol style="list-style-type: none"> a. Ensure feedwater isolation valves – SHUT <ul style="list-style-type: none"> ○ 1CS-3125 for SG B b. Ensure MDAFW valve – SHUT <ul style="list-style-type: none"> ○ SG B <ul style="list-style-type: none"> ● 1AF-4074B c. Ensure AUX FEEDWATER TURBINE-DRIVEN valve – SHUT <ul style="list-style-type: none"> ○ SG B <ul style="list-style-type: none"> ● 1AF-4000 d. SSG supply valve – SHUT <ul style="list-style-type: none"> ○ SG B <ul style="list-style-type: none"> ● AF-4021 e. Isolate flow from faulted SG: <ol style="list-style-type: none"> 1) Ensure atmospheric steam dump valve – SHUT <ul style="list-style-type: none"> ○ 1MS-2015 for SG B 2) Shut steam supply to turbine-driven AFW pump – SHUT <ul style="list-style-type: none"> ○ 1MS-2019 for SG B 3) Ensure SG blowdown isolation valves – SHUT <ul style="list-style-type: none"> ○ SG B <ul style="list-style-type: none"> ● 1MS-5959 ● 1MS-2045 4) Locally shut 1P-29 AFP/Radwaste Steam isolation <ul style="list-style-type: none"> ○ 1MS-237 for SG B 5) Locally shut main steam trap isolation <ul style="list-style-type: none"> ○ 1MS-238 for SG B



SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
		BOP	<ol style="list-style-type: none"> 5. Check CST Level - GREATER THAN 4 FEET 6. Check Secondary Radiation <ol style="list-style-type: none"> a. Request Chemistry to periodically sample both SGs for activity b. Request local surveys of main steam lines c. Secondary system radiation monitor levels - NORMAL <ul style="list-style-type: none"> ▪ Condenser Air Ejector <ul style="list-style-type: none"> ▪ 1RE-215 ▪ RE-225 ▪ SG Blowdown <ul style="list-style-type: none"> ▪ 1RE-219 ▪ 1RE-222 ▪ Main Steam Lines <ul style="list-style-type: none"> ▪ 1RE-232 for SG B d. Secondary activity samples and surveys – Normal (When available) 7. Go to <u>EOP-1 UNIT 1, LOSS OF REACTOR OR SECONDARY COOLANT</u>

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	POSITION	EXPECTED STUDENT RESPONSE
	<p><u>EOP-0 Unit 1, Attachment A</u></p> <p>Expected Communications:</p> <ul style="list-style-type: none"> • WHEN directed to locally check shut RW Service Water valves, LW-61 and 62, THEN report both valves are closed. • WHEN directed to locally check CW pump house temperature <105 °F, wait 3 minutes and THEN report the temperature is 72 °F and stable. • WHEN directed to locally check G03/G04 Switchgear Room temperature <95 °F, wait 3 minutes and THEN report the temperature is 75 °F and stable. • IF directed to periodically check the status of spent fuel cooling, wait 5 minutes and THEN report Spent Fuel Pool level is 63 feet, pool temperature is 67 °F and both are stable. 	<p>BOP</p>	<p>EOP-0 Unit 1, Attachment A, Automatic Action Verification</p> <p>A1 Verify Feedwater isolation A2 Verify Containment Isolation A3 Verify ECCS Pumps RUNNING A4 Verify Service Water Pumps RUNNING A5 Verify Containment Accident Cooling Units RUNNING A6 Verify Component Cooling Water Pumps – ONLY ONE RUNNING A7 Check If Main Steam Lines Can Remain Open A8 Verify Containment Spray Not required</p> <p>a. Containment pressure recorder – HAS REMAINED LESS THAN 25 psig RNO Perform the following: 1) Check containment spray actuated: • Annunciator {C01 B 2-6}, CONTAINMENT SPRAY, lit IF containment spray has NOT actuated, THEN manually actuate containment spray.</p> <p>A9 Verify ECCS Flow A10 Verify AFW valve alignment – PROPER EMERGENCY ALIGNMENT A11 Verify Proper ECCS Valve Alignment A12 Check Containment Spray NOT ACTUATED via the blender in progress A14 Ensure the Auxiliary Building Filter/Exhaust Fans – OPERATING A15 Verify Service Water System Alignment A16 Check Miscellaneous Valves – SHUT A17 Check Control Room Ventilation A18 Check Cable Spreading Room Ventilation System – OPERATING A19 Check Computer Room Ventilation System – OPERATING A20 Check AFW Recirc fans – ONE RUNNING A21 Check Circulating Water Pump House Temperature Less Than 105°F A22 Check G03/G04 Switchgear Room Temperature less than 95°F A23 Periodically check status of spent fuel cooling</p>

QUANTITATIVE ATTRIBUTES

(Use this form for NRC/INPO Evaluations only as required to document associated quantitative information.)

Malfunctions:

Before EOP Entry:

- 1N-43, Power Range Nuclear Instrument fails low
- 1LT-471, SG Level Transmitter fails low
- 1LT-141, VCT Level Transmitter fails low

After EOP Entry:

- 1HX-1B SG faults to containment upon reactor trip
- Reactor trip breakers fails to auto open; reactor trip push buttons on 1C04 or C01 do not work
- Auxiliary Feedwater malfunctions
 - 1P-53, Motor-Driven AFW Pump – sheared shaft
 - 1P-29, Turbine-Driven AFW Pump – trips on overspeed

Abnormal Events:

- 1N-43, Power Range Nuclear Instrument fails low
- 1LT-471, SG Level Transmitter fails low
- 1LT-141, VCT Level Transmitter fails low

Major Transients:

- 1HX-1B SG faults to containment upon reactor trip
- Auxiliary Feedwater malfunctions (Loss of Heat Sink)
 - 1P-53, Motor-Driven AFW Pump – sheared shaft
 - 1P-29, Turbine-Driven AFW Pump – trips on overspeed

Critical Tasks:

1.	CT-1	Manually trip the reactor
2.	CT-43	Establish feedwater flow to at least one SGs before bleed and feed is required

CT-1	Manually trip the reactor
Applicable ERG Version	LP
Applicable ERG	

Critical Task:

Manually trip the reactor from the control room before completing immediate actions in EOP-0

Plant Conditions:

- Reactor greater than 5% power
- Plant parameters exist that should result in automatic reactor trip but reactor does not automatically trip
 - RCPs tripped
- Reactor can be tripped manually from control room

Cues:

- Indication and/or annunciation that plant parameter exist that should result in automatic reactor trip but reactor does not automatically trip

Performance Indicator:

Manipulation of control room reactor trip switches as required to trip the reactor

- Reactor trip and bypass breakers indicate open

Feedback:

Indications of reactor trip

- Control rods at bottom of core
- Neutron flux decreasing

CT-43	Establish feedwater flow to SGs before bleed and feed is required
Applicable ERG Version	HP, LP
Applicable ERG	FR-H.1

Critical Task:

Establish feedwater flow to at least one SGs before bleed and feed is required.

Plant Conditions:

- Extreme (RED path) challenge to the heat sink CSF
- Plant conditions require SGs as heat sinks
- AFW flow is not sufficient and cannot be increased
- Feedwater flow is available but not established from any of the following:
 - Main feedwater pumps
 - Condensate pumps
 - Plant-specific alternate source (Unit 2 AFW)
- Indication that RCS bleed and feed is not required
- Reactor trip and SI

Cues:

Extreme (RED path) challenge to the heat sink CSF

AND

Indication that RCS pressure remains above the pressure of all SGs

AND

Indication that RCS temperature is above the temperature for placing the RHR system in service

AND

Indication and/or annunciation that no AFW flow is available after repeated attempts to establish

AND

Indication that RCS bleed and feed is not required

Performance Indicator:

Manipulation of controls as required to establish feedwater flow into at least one SG

Feedback:

- Indication of feedwater flow into at least one SG
- Indication of increasing water level in at least one SG



TURNOVER INFORMATION

SEG

1.0 Plant Conditions:

	<u>Unit 1</u>	<u>Unit 2</u>
Time in Core Life (MWD/MTU):	9005	
Reactor Power:	100%	
Boron Concentration:	1078 ppm	
Rod Height:	CBD @ 220	

2.0 Equipment Out of Service:

- 1LT-112 VCT Level Transmitter
- 1W-3B, Control Rod Shroud Fan

3.0 Technical Specification LCOs NOT Met and Action Conditions in Effect:

None

4.0 Planned Evolutions:

- Unit 1 is at approximately 100% EOL.
- 1LT-112, VCT Level Transmitter has failed low
 - 1CV-112A is in "TO VCT" position and VCT level is being manually controlled between 17% and 78% per AOP-1D
 - I&C expect repairs to be completed within the hour and returned to service by the end of the shift.
- Start 1P-27A, Heater Drain Tank Pump and secure 1P-27C, Heater Drain Tank Pump per OP-2A Attachment M, in preparation for maintenance.
- Lower Power utilizing OP 3A Unit 1, Power Operation to Hot Standby Unit 1 for TS-3, Main Turbine Stop and Governor Valves with Turbine Trip Test (Biannual) Unit 1

5.0 Common:

- Safety Monitor is Green
- Today is Sunday, clock time is real time and you have a normal shift complement.