Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 1 - ALL

Title:		
CORRECT RWL INDICATORS FOR HIGH DRYWELL TEMPERATURES		
Author: Anthony Ball	**Media Number:** 2015-301 ADMIN 1	**Time:** 11.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By:		**Date:**

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 1

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00		Modified from LR-JP-25101 for use on 2015-301 NRC Exam. After exam will be incorporated into JPM database and renumbered.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**CORRECT RWL INDICATORS FOR HIGH DRYWELL TEMPERATURES**
JPM NUMBER:	2015-301 ADMIN-1
TASK STANDARD:	The task shall be completed when the operator has determined the corrected RWL for the specified instrumentation per 34AB-B21-002.
TASK NUMBER:	201.099
OBJECTIVE NUMBER:	201.099.B

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.57

SRO 3.83

STA 4.00

K/A CATALOG NUMBER: G2.1.35

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.90

SRO 4.20

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	34AB-B21-002-1 (current version)	34AB-B21-002-2 (current version)

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	34AB-B21-002-1 (current version)	34AB-B21-002-2 (current version)

APPROXIMATE COMPLETION TIME: 11.0 Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. An event occurred resulting in a Reactor scram and then an Emergency Depressurization from high Drywell temperature.
2. The NPO has reported the following Reactor Water Levels (RWL):

   1B21-R606A, B and C (Narrow Range) is +8 inches

   1B21-R605, (Flood Up Range) is +28 inches
   1B21-R655, (Flood Up Range) is +28 inches

   1B21-R604A and 1B21-R623A (Wide Range) are +30 inches
   1B21-R604B and 1B21-R623B (Wide Range) are +35 inches

   1B21-R623A and 1B21-R623B (Fuel Zone) are indicating ****

3. NO erratic behavior for the specified instruments has been observed.

INITIATING CUES:

Determine which of these RWL indications are valid

And

Report the corrected RWL for EACH valid RWL instrument

And

Any recommendations concerning RWL.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation".

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	Operator has identified the correct procedure as 34AB-B21-002-1.	

NOTE: If the operator indicates that SPDS would be checked, give the operator Supplement 1.

PROMPT: **IF** the operator addresses Drywell temperature indications, **INDICATE** for the operator that temperature is greater than 150°F (Use Supplement 1 if SPDS is addressed).

2.	Determine if RWL corrections are required.	Using SPDS (or Drywell temp indications) the operator DETERMINES: Drywell temperature is greater than 150°F. RWL corrections **ARE** required.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
3.	Review Caution 1 and Caution 2 on Attachment 1 of 34AB-B21-002-1.	The operator has REVIEWED Caution 1 and Caution 2 on Attachment 1 of 34AB-B21-002-1.	
4.	Confirm there is no indication of erratic instrument behavior.	The operator has VERIFIED, by observation or by addressing the panel operator, that the following RWL instruments show NO erratic instrument behavior: 1B21-R604A 1B21-R604B 1B21-R605, (Flood Up Range) 1B21-R655, (Flood Up Range) 1B21-R623A (Wide Range) 1B21-R623B (Wide Range) 1B21-R623A (Fuel Zone)	

PROMPT: **WHEN** the operator indicates use of the Diagnostic screen of SPDS, **GIVE** the operator Supplement 2.

5.	Determine highest temperature for RTD Group 1 and 2 (Maximum Run Temperature).	At SPDS panel, the operator has DETERMINED the following Maximum Run Temperatures: RTD Group 1 - 293°F RTD Group 2 - 290°F	

PROMPT: **IF** the operator addresses temperature indications on Panels P654 and P657; indications can be **SIMULATED** using the values from Supplement 2.

6.	Determine highest temperature for RTD Group 5 (Maximum Run Temperature).	At SPDS panel, the operator has DETERMINED the following Maximum Run Temperatures: RTD Group 5 - 263°F	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
	PROMPT: **IF** the operator addresses temperature indications on Panels P654 and P657; indications can be **SIMULATED** using the values from Supplement 2.		
**6.	Determine if the RWL instrument may be used by comparing the Minimum Indicated Level for the associated Maximum Run Temperature.	The operator has DETERMINED the following RWL instruments are **VALID**: 1B21-R606A (Narrow Range) 1B21-R606B (Narrow Range) 1B21-R606C (Narrow Range)	
**7.	Determine if the RWL instrument may be used by comparing the Minimum Indicated Level for the associated Maximum Run Temperature.	The operator has DETERMINED the following RWL instruments are **INVALID**: 1B21-R604A 1B21-R604B 1B21-R605, (Flood Up Range) 1B21-R655, (Flood Up Range) 1B21-R623A (Wide Range) 1B21-R623B (Wide Range)	
**8.	Determine correct RWL from the following; 1B21-R606A 1B21-R606B 1B21-R606C.	Using 34AB-B21-002-1, the operator has DETERMINED **Correct RWL** for 1B21-R606A, B & C (narrow range) is +8 inches (accept ±1 inch).	

END TIME:_____

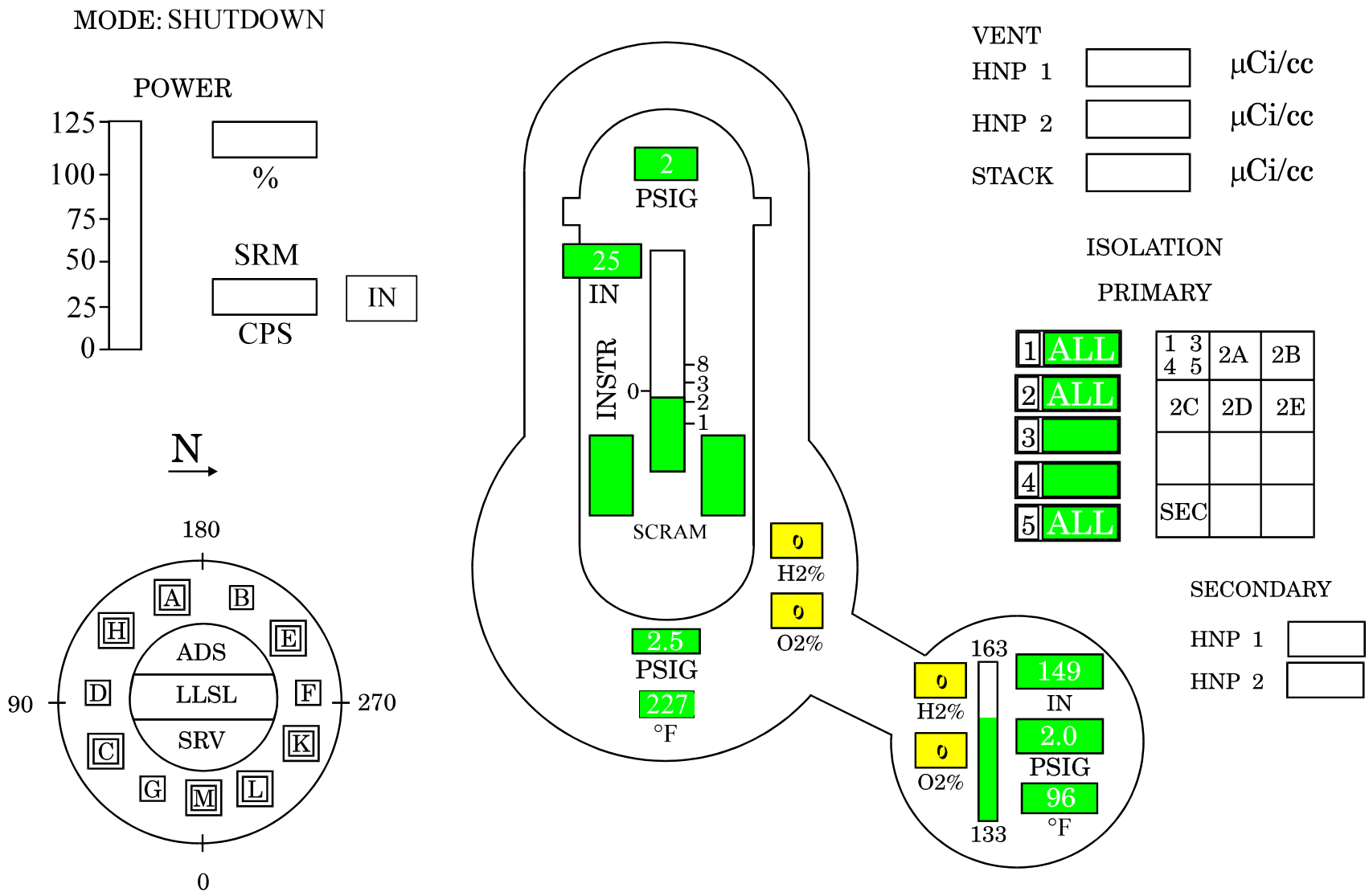
NOTE: The terminating cue shall be given to the Operator when:

- After JPM step #8 is complete.
- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

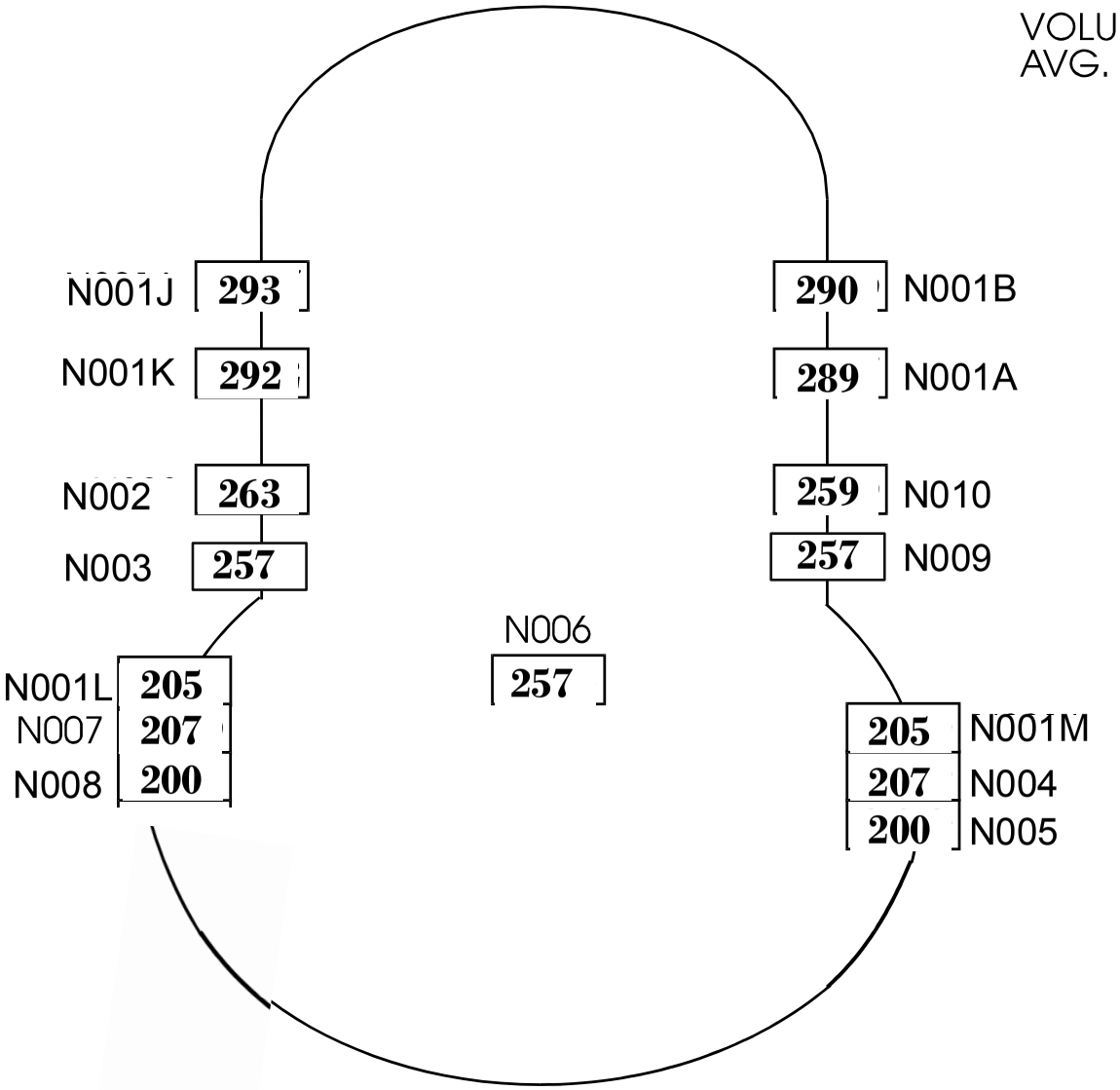
EVALUATOR – **PICK UP** the Initiating Cue sheet **AND** SUPPLEMENTAL 1 & 2.

(Indicates critical step)**



SUPPLEMENT 1

DRYWELL TEMPERATURE DIAGNOSTIC



SUPPLEMENT 2

Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 2 - ALL

Title:		
IRM Alternate Power Checks Prior To Taking The Mode Switch To Run (Admin)		
Author: ANTHONY BALL	**Media Number:** 2015-301 ADMIN 2	**Time:** 15 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date:**

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 2

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
01		Revised ILT-1 Admin JPM LR-JP-25047 to match updated 34GO-OPS-001. New IRM Multipliers are included. After 2015 NRC Exam will be re-numbered to LR-JP-25047.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**IRM Alternate Power Checks Prior To Taking The Mode Switch To Run (Admin)**
JPM NUMBER:	2015-301 ADMIN 2
TASK STANDARD:	The task is complete when the IRM alternate power checks are performed and the Operator determines that Average % power calculated is higher then current APRM power readings and an evaluation of power level indication is required.

TASK NUMBER: xxx.xxx

OBJECTIVE NUMBER: xxx.xxx.x

PLANT HATCH JTA IMPORTANCE RATING:

RO x.xx

SRO x.xx

K/A CATALOG NUMBER: xxxxxxxxxxxxxx

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.3

SRO x.xx

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	34GO-OPS-001-1 Rev.41.3	N/A

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	34GO-OPS-001-1 Rev.41.3 (Attachment 15 Rev. 41.3)	N/A

APPROXIMATE COMPLETION TIME: 15 Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Reactor Startup is in progress.
2. The crew is making preparations to startup the Steam Jet Air Ejector prior to securing the Mechanical Vacuum Pump.
3. All APRMs are currently reading 4% power.
4. Pre-Job Brief is NOT required.

INITIATING CUES:

IAW Step 7.3.24 of 34GO-OPS-001-1, perform Alternate Power Level check per Attachment 15.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences.

START TIME:_____

1.	Operator has DETERMINED the correct procedure section to use.	Operator has OBTAINS the correct procedure section to use starting at Attachment 15	

PROMPT: **AT** this time **GIVE** the operator **Attachment 1** (34GO-OPS-001-1, ATTACHMENT 15).

PROMPT: **AT** this time, **GIVE** the Operator **Attachment 2** of this JPM (IRM Data).

2.	The operator identifies where he will obtain IRM power and range information to record on Attachment 15.	The operator identifies where the IRM power information is obtained, At IH 11-P603.	

NOTE: ATTACHMENT 3 is the marked up answer key.

3.	The operator copies the IRM range and power level data onto the copy of 34GO-OPS-001-1 Attachment 15.	Using the copy of 34GO-OPS-001-1 Attachment 15 the data is recorded by operator.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**4.	The operator performs the calculation to the IRM data.	The operator uses the recorded IRM data and MULTIPLIES it by the correct constant of (0.212).	

PROMPT: **IF** the operator request that the Calculations be verified, **THEN** as another operator perform verification but **DO NOT** correct any errors.

**5.	The operator determines that Average % power is greater than APRM power settings.	Using the Average % power, the operator DETERMINES that APRMs readings are NOT greater than the Average IRM power.	

**6.	The operator determines an evaluation of power level is required.	The operator informs the Shift Supervisor that an evaluation of power level indication is required.	

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

- After JPM step #6 is complete.
- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

EVALUATOR – PICK UP the Initiating Cue sheet **AND ATTACHMENT 1& 2**.

(Indicates critical step)**

ATTACHENT 1

1.0 Record the IRM readings below AND estimate reactor power using one of the following formulas:

For IRM Ranges 7 AND 8:
% Power = (IRM Reading) x (.0212)

For IRM Ranges 9 AND 10:
% Power = (IRM Reading) x (.212)

IRM A RANGE _____ READING _____ % POWER _____

IRM C RANGE _____ READING _____ % POWER _____

IRM E RANGE _____ READING _____ % POWER _____

IRM G RANGE _____ READING _____ % POWER _____

IRM B RANGE _____ READING _____ % POWER _____

IRM D RANGE _____ READING _____ % POWER _____

IRM F RANGE _____ READING _____ % POWER _____

IRM H RANGE _____ READING _____ % POWER _____

AVERAGE % POWER = _____

Confirm that each APRM reading is greater than the average * IRM Reactor Power Value. _____

Calculations Verified _____

*IF any APRM reading is NOT greater than the average IRM power, perform an evaluation of power level indication to ensure that the APRM readings are conservative to actual reactor power.
The evaluation will be attached to this attachment.

ATTACHENT 2

IRM DATA

IRMS	RANGE	READING
A	9	18
C	9	20
E	9	20
G	10	20
B	9	18
D	9	22
F	10	20
H	9	18

ATTACHMENT 3
**** KEY ****
DO NOT give this to applicant

SNC PLANT E. I. HATCH		Pg 81 of 85
DOCUMENT TITLE: PLANT STARTUP	DOCUMENT NUMBER: 34GO-OPS-001-1	Ver No: 41.3
ATTACHMENT 15 TITLE: PRB RESTRAINTS FOR STARTUP		Attachment Page 1 of 1

1.0 Record the IRM readings below AND estimate reactor power using one of the following formulas:

For IRM Ranges 7 AND 8:
% Power = (IRM Reading) x (.0212)

For IRM Ranges 9 AND 10:
% Power = (IRM Reading) x (.212)

IRM A	RANGE	9	READING	18	% POWER	3.816
IRM C	RANGE	9	READING	20	% POWER	4.24
IRM E	RANGE	9	READING	20	% POWER	4.24
IRM G	RANGE	10	READING	20	% POWER	4.24
IRM B	RANGE	9	READING	18	% POWER	3.816
IRM D	RANGE	9	READING	22	% POWER	4.664
IRM F	RANGE	10	READING	20	% POWER	4.24
IRM H	RANGE	9	READING	18	% POWER	3.816

AVERAGE % POWER = 33.072 divided by 8 = 4.134

Confirm that each APRM reading is greater than the average * IRM Reactor Power Value. UNSAT

Calculations Verified LBJ

*IF any APRM reading is NOT greater than the average IRM power, perform an evaluation of power level indication to ensure that the APRM readings are conservative to actual reactor power.
The evaluation will be attached to this attachment.

Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 3 - ALL

Title:		
REVIEW OF RCIC PUMP OPERABILITY SURVEILLANCE		
Author: Anthony Ball	**Media Number:** 2015-301 ADMIN 3	**Time:** 15.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By:		**Date:**

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 3

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00		Initial development.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**REVIEW OF RCIC PUMP OPERABILITY SURVEILLANCE**
JPM NUMBER:	**2015-301 ADMIN-3**
TASK STANDARD:	The task shall be complete when the operator reviews the completed surveillance procedure, 34SV-E51-002-2, makes any required calculations and determines RCIC surveillance is unsat and RCIC is inoperable.
TASK NUMBER:	300.011
OBJECTIVE NUMBER:	300.011.O

K/A CATALOG NUMBER: Generic 2.2.12

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.7

SRO 4.1

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO) / Senior Reactor Operator (SRO)

GENERAL REFERENCES:	**Unit 2**
	34SV-E51-002-2 (current version)

REQUIRED MATERIALS:	**Unit 2**
	Completed surveillance package: 34SV-E51-002-2.

APPROXIMATE COMPLETION TIME: 15 Minutes

SIMULATOR SETUP: N/A

EVALUATOR COPY

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is at 100% power.
2. A Normal RCIC Pump Quarterly Inservice Test (IST) Data Test has just been completed for the RCIC pump IAW 34SV-E51-002-2, "RCIC Pump Operability".
3. Unit 2 reactor pressure is 1043 psig.

INITIATING CUES:

Review Attachment 1 of 34SV-E51-002-2, "RCIC Pump Operability".

Complete any calculations required by the surveillance data sheets.

Using Attachment 1 of 34SV-E51-002-2 data COMPLETE Section 7.5 TEST RESULTS, step 7.5.1 through step 7.5.6.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation".

START TIME:_____

PROMPT: **AT** this time, **GIVE** the Operator a complete copy of 34SV-E51-002-2, RCIC Pump Operability.

PROMPT: **AT** this time, **GIVE** the Operator **Attachment 2 of this JPM** (Data has been filled in for this JPM).

PROMPT: **IF** the Operator addresses the IST Book, **INFORM** the Operator that a supervisor has verified the reference data.

NOTE: JPM Steps 1 - 8 can be performed in any order.

1.	The Operator evaluates parameters on Attachment 1 and finds Turbine Speed N_r is acceptable.	On Attach. 1 of 34SV-E51-002-2, the Operator EVALUATES Turbine Speed N_r data is SATISFACTORY**. 3900 rpm** (Acceptable Range: 3861 (0.99) to 3939 (1.01) rpm)	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
2.	The Operator evaluates parameters on Attachment 1 and finds Inlet Pressure (Stopped) (P_i) is acceptable.	On Attach. 1 of 34SV-E51-002-2, the Operator EVALUATES Inlet Pressure (Still) (P_i) data is SATISFACTORY**. 34 psig** Acceptable Range: >7 psig.	
3.	The Operator evaluates parameters on Attachment 1 and finds Inlet Pressure (Running) (P_i) is acceptable.	On Attach. 1 of 34SV-E51-002-2, the Operator EVALUATES Inlet Pressure (Running) (P_i) data is SATISFACTORY**. 31 psig** Acceptable Range: >7 psig.	
4.	The Operator evaluates parameters on Attachment 1 and finds Outlet Pressure (Running) P_o is NOT acceptable.	At step 7.8.2.1.1 of 34SV-E51-002-2, the Operator EVALUATES Outlet Pressure data **IS NOT SATISFACTORY.** 1072 psig is NOT in the Acceptable Range of $\geq$ 1135 psig.	

NOTE: At this time, the Operator may elect to inform the Shift Supervisor that Outlet Pressure (Running) P_o is NOT acceptable and RCIC has failed the surveillance. This action **IS** acceptable.

It **IS** also acceptable for the Operator to complete the review before bringing this to the supervisor's attention.

PROMPT: **IF** the Operator addresses the out of spec. item(s), **DIRECT** the Operator to finish the data package review.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
5.	The Operator calculates and then evaluates on Attachment 1 and finds Differential Pressure (2) dPr is NOT acceptable.	On Attach. 1 of 34SV-E51-002-2, the Operator CALCULATES AND EVALUATES Differential Pressure (2) dP_r data **IS NOT SATISFACTORY. 0.88 dPr is NOT in the Acceptable Range of 0.90 to 1.10 dPr.**	

NOTE: Ratio Differential Pressure (2) dP_r is equal to the Test Value dP_r divided by the Reference Value dP_r. 1041/1183 = 0.88.

At this time, the Operator may elect to inform the Shift Supervisor that Differential Pressure (2) dPr is NOT acceptable and RCIC must be declared inoperable. This action **IS** acceptable.

It **IS** also acceptable for the Operator to complete the review before bringing this to the supervisor's attention.

PROMPT: **IF** the Operator addresses the out of spec. item(s), **DIRECT** the Operator to finish the data package review.

6.	The Operator evaluates parameters on Attachment 1 and finds Flowrate (4) (Q_r) is acceptable.	On Attach. 1 of 34SV-E51-002-2, the Operator EVALUATES Flowrate (4) (Q_r) data (**400 gpm**) is SATISFACTORY**.** Acceptable value is 400 gpm.	

PROMPT: **WHEN** the Operator addresses the Out of Spec readings, **INFORM** the Operator to finish the data package review.

7.	The Operator performs step 7.5.1 Reason for test:	The Operator places a check mark for "Norm. Surv." per the initial conditions.	
8.	The Operator performs step 7.5.2.1 RCIC pump delivers at least 400 gpm at a pump discharge pressure of greater than OR equal to 1135 psig with reactor pressure of > 920 psig AND < 1058 psig.	The Operator has determined RCIC pump Outlet Pressure (Running) P_o <1135 psig has failed to meet the acceptance criteria of step 7.5.2.1.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
9.	The Operator performs step 7.5.2.2 RCIC pump discharge lines up stream of valves 2E51-F013 AND F022 are filled.	The Operator has verified that RCIC pump discharge lines up stream of valves 2E51-F013 AND F022 are filled.	

PROMPT: **WHEN** the Operator addresses the RCIC pump discharge lines upstream of valves 2E51-F013 AND F022 are filled, **INFORM** the Operator that RCIC pump discharge lines up stream of valves 2E51-F013 AND F022 are filled.

10.	The Operator performs step 7.5.2.3 2T41-B004A AND 2T41-B004B, RCIC Pump Rm Cooling Fans, auto start, WHEN RCIC is started.	The Operator has verified that 2T41-B004A AND 2T41-B004B, RCIC Pump Rm Cooling Fans, auto start, WHEN RCIC started.	

PROMPT: **WHEN** the Operator addresses the 2T41-B004A AND 2T41-B004B, RCIC Pump Rm Cooling Fans, **INFORM** the Operator that 2T41-B004A AND 2T41-B004B, RCIC Pump Rm Cooling Fans, auto started.

11.	The Operator performs step 7.5.2.4 2P41-F040A AND 2P41-F040B, RCIC Pump Rm Cooler Valves, OPEN, WHEN cooler is running.	The Operator has verified that 2P41-F040A AND 2P41-F040B, RCIC Pump Rm Cooler Valves, OPEN, WHEN cooler is running.	

PROMPT: **WHEN** the Operator addresses the 2P41-F040A AND 2P41-F040B, RCIC Pump Rm Cooler Valves, open when RCIC is running, **INFORM** the Operator that 2P41-F040A AND 2P41-F040B, RCIC Pump Rm Cooler Valves, auto opened.

12.	The Operator performs step 7.5.2.5 Oil level AND pressure is observed.	The Operator has verified that Oil level AND pressure is observed.	

PROMPT: **WHEN** the Operator addresses the Oil level AND pressure is observed, **INFORM** the Operator that Oil level AND pressures were observed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
13.	The Operator evaluates step 7.5.2.6.1 RCIC pump Outlet Pressure (Running) P_o data.	The Operator has determined that RCIC pump Outlet Pressure (Running) P_o has **FAILED** to meet the acceptance criteria of step 7.5.2.1.	

NOTE: At this time, the Operator may elect to inform the Shift Supervisor that Outlet Pressure (Running) P_o is NOT acceptable and RCIC has failed the surveillance. This action **IS** acceptable.

It **IS** also acceptable for the Operator to complete the review before bringing this to the supervisor's attention.

14.	The Operator evaluates step 7.5.2.6.2 RCIC pump dPr data.	The Operator has determined that Differential Pressure dP_r has **FAILED** to meet the acceptance criteria of step 7.5.2.6.2.	

NOTE: At this time, the Operator may elect to inform the Shift Supervisor that Differential Pressure (2) dPr is NOT acceptable. This action **IS** acceptable.

It **IS** also acceptable for the Operator to complete the review before bringing this to the supervisor's attention.

15.	The Operator evaluates step 7.5.2.6.2 Flowrate (4) (Q_r) data.	The Operator has determined that Flowrate (Q_r) data meets the acceptance criteria of step 7.5.2.6.2.	

16.	The Operator evaluates step 7.5.2.7 if Response Time Test was performed.	The Operator evaluates if Response Time Test was performed.	

PROMPT: **WHEN** the Operator addresses Response Time Test, **INFORM** the Operator that Response Time Test was NOT performed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**17.	The Operator performs step 7.5.4 Test Result.	The Operator completes step 7.5.4 and marks the step **UNSAT**.	

NOTE: JPM Steps 26 - 28 can be performed in any order.

**18.	The Operator performs step 7.5.5 for RCIC pump Outlet Pressure (Running) P_o <1135 psig has failed to meet the acceptance criteria of step 7.5.2.6.1.	The Operator lists in step 7.5.5 that RCIC pump Outlet Pressure (Running) P_o has **FAILED** to meet the acceptance criteria of step 7.5.2.1 & 7.5.2.6.1 (<1135 psig).	

**19.	The Operator performs step 7.5.5 RCIC Differential Pressure dP_r.	The Operator also lists in step 7.5.5 that RCIC Differential Pressure dP_r has **FAILED** to meet the acceptance criteria of step 7.5.2.6.1 (dP_r < 0.90).	

NOTE: If the Operator addresses writing a Condition Report (CR) based on this surveillance, inform the Operator that another operator will write the CR.

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

- After JPM step #19 is complete.
- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

EVALUATOR – PICK UP the Initiating Cue sheet.

(Indicates critical step)**

ATTACHMENT 1
**** KEY ****
DO NOT give this to applicant

Reference Data Changes:

Is reference data being changed? ( ) Yes (✓) No

IF YES, list justification for so doing: _____

(2E51-C001)

PARAMETER	INSTRU MPL NO.	REFERENCE VALUE	DATE REF VALUE TAKEN	TEST VALUE	ACCEPT. RANGE	ALERT RANGE	REQ'D ACTION RANGE (1)	RATIO (3)
Turbine Speed (N_r)	2E51-R610 OR, Calibrated Handheld Tachometer	***3900****	***01/18/12****	***3900****	0.99 to 1.01 RPM	N/A	N/A	N/A
Pump Suction Pressure (Still)	2E51-R604	N/A	N/A	***34****	≥7 PSIG	N/A	< 7 PSIG	N/A
Pump Suction Pressure (Running) (P_i)	2E51-R604	***31****	***01/18/12****	***31****	≥7 PSIG	N/A	< 7 PSIG	N/A
Outlet Pressure (P_o)	2E51-R601	***1215****	***01/18/12****	***1072****	N/A	N/A	N/A	N/A
Differential Pressure (2) (DP_r)	N/A	***1183****	***01/18/12****	***1041****	0.90 to 1.10 dPr	N/A	<0.90 or >1.10 dPr	***0.88****
Flowrate (4) (Q_r)	2E51-R612	400	N/A	***400****	N/A	N/A	N/A	1.0

(1) Pump declared inoperable according to 31GO-INS-001-0.

(2) Differential pressure must be calculated as: dP = Outlet Pressure (pump running) - Inlet Pressure (Pump running)

(3) Ratio = Test Value divided by Reference Value

(4) Test value must equal reference value. Ratio for flowrate must equal 1.0.

(Indicates critical step)**

7.5 TEST RESULTS

7.5.1 Reason for test: ( ) Norm. Surv. ( ) WO # _____

( ) Other _____

7.5.2 Acceptance Criteria

7.5.2.1 RCIC pump delivers at least 400 gpm at a pump discharge pressure of ≥1135 psig with reactor pressure between 920 and 1058 psig. *

7.5.2.2 RCIC Pump discharge lines up stream of valves 2E51-F013 and 2E51-F022 are filled.

7.5.2.3 2T41-B004A and 2T41-B004B, RCIC Pump Rm Cooler Fans, AUTO START WHEN RCIC is started.

7.5.2.4 2P41-F040A and 2P41-F040B, RCIC Pump Rm Cooler Valves, OPEN, WHEN cooler is running.

7.5.2.5 Oil levels observed in the normal range, OR LOR written.

7.5.2.6 IF the 92 day test or CPT was performed:

7.5.2.6.1 Steps 7.5.2.1 through 7.5.2.5 are acceptable.

7.5.2.6.2 RCIC pump data matches the reference data WITHIN the limits stated on Attachment 1, 5 or 6. *

7.5.2.7 IF Response Time Test was performed, RCIC Pump obtained rated flow and pressure in less than OR equal to 45 seconds.

ATTACHMENT 1
**** KEY ****
DO NOT give this to applicant

7.5.4 Test Result:

( ) Satisfactory (✓) Unsatisfactory

7.5.5 Unsatisfactory Conditions: **(1)** RCIC pump Outlet Pressure (Running) Po has FAILED to meet the acceptance criteria of step 7.5.2.1 (<1135 psig)

(2) RCIC Differential Pressure dPr has FAILED to meet the acceptance criteria of step 7.5.2.6.2

7.5.6 Comments/Corrective Actions: _____

7.5.7 Test completed and/or verified by:

_____ / _____ / _____
Print Name / Initial / Date

_____ / _____ / _____
Print Name / Initial / Date

_____ / _____ / _____
Print Name / Initial / Date

_____ / _____ / _____
Print Name / Initial / Date

Reference Data Changes:

Is reference data being changed? ( ) Yes (✓) No

IF YES, list justification for so doing: _____

(2E51-C001)

PARAMETER	INSTRU MPL NO.	REFERENCE VALUE	DATE REF VALUE TAKEN	TEST VALUE	ACCEPT. RANGE	ALERT RANGE	REQ'D ACTION RANGE (1)	RATIO (3)
Turbine Speed (N_r)	2E51-R610 OR, Calibrated Handheld Tachometer	*3900**	*01/18/12**	*3900**	0.99 to 1.01 RPM	N/A	N/A	N/A
Pump Suction Pressure (Still)	2E51-R604	N/A	N/A	*34**	≥7 PSIG	N/A	< 7 PSIG	N/A
Pump Suction Pressure (Running) (P_i)	2E51-R604	*31**	*01/18/12**	*31**	≥7 PSIG	N/A	< 7 PSIG	N/A
Outlet Pressure (P_o)	2E51-R601	*1215**	*01/18/12**	*1072**	N/A	N/A	N/A	N/A
Differential Pressure (2) (DP_r)	N/A	*1183**	*01/18/12**	*1041**	0.90 to 1.10 dPr	N/A	<0.90 or >1.10 dPr	
Flowrate (4) (Q_r)	2E51-R612	400	N/A	*400**	N/A	N/A	N/A	1.0

(1) Pump declared inoperable according to 31GO-INS-001-0.

(2) Differential pressure must be calculated as: dP = Outlet Pressure (pump running) - Inlet Pressure (Pump running)

(3) Ratio = Test Value divided by Reference Value

(4) Test value must equal reference value. Ratio for flowrate must equal 1.0.

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is at 100% power.
2. A Normal RCIC Pump Quarterly Inservice Test (IST) Data Test has just been completed for the RCIC pump IAW 34SV-E51-002-2, "RCIC Pump Operability".
3. Unit 2 reactor pressure is 1043 psig.

INITIATING CUES:

Review Attachment 1 of 34SV-E51-002-2, "RCIC Pump Operability".

Complete any calculations required by the surveillance data sheets.

Using Attachment 1 of 34SV-E51-002-2 data COMPLETE Section 7.5 TEST RESULTS, step 7.5.1 through step 7.5.6.

Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 4 - RO ONLY

Title:		
DETERMINE THE EVACUATION ROUTE DURING AN EMERGENCY		
Author: **Anthony Ball**	**Media Number:** 2015-301 ADMIN 4	**Time:** 9.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By:		**Date:**

SOUTHERN COMPANY

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 4

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
17	5/26/11	Revise JPM LR-JP-20059, due to implementation of NMP-EP 110 and NMP-EP-111 and for NRC Exam 2011-3011.	ELJ	CME
17.1		Minor revision for procedure comparison and modified wind direction to obtain a different evacuation route. After 2015 NRC Exam will be incorporated into JPM Database with new media number.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**DETERMINE THE EVACUATION ROUTE DURING AN EMERGENCY**
JPM NUMBER:	**2015-301 ADMIN** 4
TASK STANDARD:	The task shall be satisfactorily completed when the wind direction has been checked and the operator has determined that the evacuation route is THE ROAD BEHIND THE LOW LEVEL RADWASTE BUILDING and then SOUTH on US Highway 1, IAW NMP-EP-111-002.
TASK NUMBER:	200.059
OBJECTIVE NUMBER:	200.059.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.86

SRO 3.96

K/A CATALOG NUMBER: G2.4.39

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.9

SRO 3.80

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1 & 2**
	NMP-EP-111-002 (current version)

REQUIRED MATERIALS:	**Unit 1 & 2**
	NMP-EP-111-002 (current version)

APPROXIMATE COMPLETION TIME: 9.0 Minutes

SIMULATOR SETUP: N/A

UNIT 1 & 2

READ TO THE CANDIDATE

INITIAL CONDITIONS:

1. A Reactor scram has occurred.
2. Plant conditions have resulted in an Elevated Radioactive release.
3. A Prompt Off-Site Dose Assessment calculation has been performed and an Offsite Release has been verified to be in progress.
4. Peak calculated TEDE is 100 mRem/hr.
5. The Emergency Director (ED) has declared a Site Area Emergency.
6. The ED has directed a PA announcement to be performed in accordance with NMP-EP-111.
7. SPDS is available.

INITIATING CUES:

Your task is to fill out the appropriate form required to make the PA announcement for this emergency IAW NMP-EP-111-002, "EMERGENCY NOTIFICATION NETWORK COMMUNICATOR INSTRUCTIONS – HATCH."

NOTE: Another operator will make the actual page announcement IAW NMP-EP-111 Checklist 1 "Page Announcements."

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation".

START TIME:_____

NOTE: The candidate may review NMP-EP-111 Checklist 1 "Page Announcements".

PROMPT: **AT THIS TIME PROVIDE** the candidate with the following:

- NMP-EP-111-002, "EMERGENCY NOTIFICATION NETWORK COMMUNICATOR INSTRUCTIONS – HATCH."
  AND
- Also **PROVIDE** the attached SPDS Attachments.

1.	Select correct section of NMP-EP-111-002.	The candidate uses NMP-EP-111-002, Table of Contents and determines that Instruction 5 - Emergency Page Announcement Selection Guidance is the required section.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**2.	Select the correct form to use for a Site-Area Emergency announcement.	The candidate uses NMP-EP-111-002, Instruction 5 to determine that "IV. Standard Announcement For Notification Of Site-Area Or General Emergency" (see page 14) is the required form.	

NOTE: The candidate may review the NOTES at the top of NMP-EP-111-002, "IV. Standard Announcement For Notification Of SAE Or GE"

3.	IV. a. Refer to "Selection Guidance" information on page 11 to determine the applicable rally point, exit route and evacuation route. Record the applicable information.	The candidate determines that wind direction is required in order to select the correct evacuation route.	

NOTE: Only one indication must be checked to satisfactorily complete Step 4.

PROMPT: **IF** the Candidate addresses wind direction at panel 1H11-P689, Y33-S/ZR R604 (WIND SPEED/DIRECTION 23 METER ELEVATION), **INDICATE** for the Candidate that this recorder is **INOPERABLE**.

**4.	Check wind direction.	At panel 1H11-P690, wind direction checked on one of the following: SPDS MIDAS screen OR SPDS MET Data screen	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	Determine the applicable rally point, exit route and evacuation route. Record the applicable information.	The candidate uses "Selection Guidance" information on page 11 to determine: Rally point: PESB Exit Route: Road behind Low Level Radwaste Building Evacuation Route: U.S. Highway 1 - South to Appling Co. High School/ Baxley The candidate then RECORDS the information in appropriate section of "IV. Standard Announcement For Notification Of Site-Area Or General Emergency."	

NOTE: If the operator uses the 10 Meter wind direction, the Site Exit route will (INCORRECTLY) state "Main Access Road."

NOTE: The candidate may select DRILL for item 1. This is ACCEPTABLE practice for the purpose of training evaluations at Hatch.

PROMPT: **IF** the Candidate addresses contacting Security to activate the PA system in the Simulator and Skills Buildings **INFORM** the Candidate that Security has been directed to activate the PA system in the Simulator and Skills Buildings

PROMPT: **IF** the Candidate addresses NMP-EP-111 Checklist 1 "Page Announcements," as the Shift Supervisor, **INFORM** the Candidate that this will performed by another Operator.

END TIME:_____

NOTE: The terminating cue shall be given to the Candidate when:

- With NO reasonable progress, the Candidate exceeds double the allotted time.
- Candidate states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

EVALUATOR ANSWER KEY

IV. STANDARD ANNOUNCEMENT INSTRUCTIONS FOR SITE-AREA OR GENERAL EMERGENCY

NOTES:

- The appropriate emergency tone and announcement must be made as soon as possible, but not to exceed **15** minutes after the initial emergency declaration
- The person making this announcement is expected to announce all applicable information.

a. Refer to "Selection Guidance" information on page 11 to determine the applicable rally point, exit route and evacuation route. Record the applicable information below needed for this announcement.
b. Contact Security to direct activation of the Public Address system in the Simulator and Skills Buildings PRIOR to beginning the announcement.
c. Perform IAW NMP-EP-111 Checklist 1 "Page Announcements".

(Select one) ☒ **Site-Area Emergency** or ☐ **General Emergency**

1. **ATTENTION ALL PERSONNEL. THIS (☒ IS / ☐ IS NOT) A DRILL. A/AN** Site-Area Emergency **HAS BEEN DECLARED.**

2. (Select one): **A RADIOLOGICAL RELEASE (☒ IS / ☐ IS NOT) IN PROGRESS.**

3. **ALL EMERGENCY RESPONSE PERSONNEL ARE TO REPORT TO YOUR EMERGENCY RESPONSE FACILITY AND INITIATE EMERGENCY IMPLEMENTING PROCEDURES.**

NOTE:	Announcement of items 4 or 5 may be discontinued upon verification that non-essential personnel have left the plant site.

4. Use if a radiological release **is not** in progress

   ALL NON-ESSENTIAL PERSONNEL ARE TO EXIT THE PLANT SITE USING THE MAIN ACCESS ROAD. THE EVACUATION ROUTE IS EITHER DIRECTION ON U. S. HIGHWAY 1.

5. Use if a radiological release **is** in progress

   ALL NON-ESSENTIAL PERSONNEL ARE TO EXIT THE PLANT SITE USING (select one):

   ☐ **THE MAIN ACCESS ROAD,** ☒ **THE ROAD BEHIND THE LOW LEVEL RADWASTE BUILDING,** ☐ **OTHER** (specify another exit route) _____.

   AND

   THE EVACUATION ROUTE IS (Select one):

   ☐ **EITHER DIRECTION ON U.S. HIGHWAY 1. REPORT TO THE STATE RECEPTION CENTER AT EITHER TOOMBS CO. HIGH SCHOOL IN LYONS OR APPLING CO. HIGH SCHOOL IN BAXLEY.**

   ☒ **SOUTH ON U. S. HIGHWAY 1. REPORT TO THE STATE RECEPTION CENTER AT APPLING CO. HIGH SCHOOL IN BAXLEY.**

   ☐ **NORTH ON U. S. HIGHWAY 1. REPORT TO THE STATE RECEPTION CENTER AT TOOMBS CO. HIGH SCHOOL IN LYONS.**

EVALUATOR ANSWER KEY

SELECTION GUIDANCE FOR STANDARD ANNOUNCEMENT
RALLY POINT/SITE EXIT ROUTE/ EVACUATION ROUTE

Is a radiological release in progress? ☒ Yes ☐ No

IF **a. A radiological release Is Not in progress:**

THEN **b. The following rally point, site exit route, and evacuation route will be used:**

- Rally Point – Plant Entry & Security Building (PESB)
- Site Exit Route – Main Access Road
- Evacuation Route – Either direction on U. S. Hwy 1.

IF **c. A radiological release Is in progress:**

THEN Use the chart below to determine the rally point, site exit route, evacuation route and State Reception Center, based on wind direction.

Consult with Security to determine alternative(s) IF designated rally point and/or site exit route cannot be used. The use of an alternate rally point requires notifying Security and HP prior to making the announcement.

NOTE:	The 15 minute average wind direction information should be read using the meteorological instrumentation that corresponds to the primary release point.

Wind Direction From:	**Rally Point:**	**Site Exit Route:**	**Evacuation Route/State Reception Center**
340º - 60º	Gate 17	Main Access Road	U.S. Highway 1 - North to Toombs Co. High School/Lyons
61º - 110º	PESB	Road behind Low Level Radwaste Building	U.S. Highway 1 - South to Appling Co. High School/ Baxley
111º - 225º	PESB	Main Access Road	U.S. Highway 1 - South to Appling Co. High School/ Baxley
226º - 339º	PESB	Main Access Road	Either direction on U.S. Highway 1 to Toombs Co. High School/Lyons or Appling Co. High School/Baxley

MIDAS INFORMATION

METEOROLOGICAL

10M WIND SPD 1Y33-R601	100M WIND SPD 1Y33-R603	10M WIND DIR 1Y33-R601	100M WIND DIR 1Y33-R603
5.0	**4.0**	**115**	**65**

AMBIENT TEMP **(F) 10M**	DELTA T **60-10**	DELTA T **100-10**	RAINFALL **15 MIN. AVG**
55	**-0.5**	**-1.0**	**.000**

RADIOLOGICAL

MAIN STACK

NORMAL RANGE 1D11-K600A	KAMAN 1D11-R631
2.00E 01	5.02E-03

1D11-K600B
1.96E 01

STABILITY CLASS
D

U1 RX. BLDG. VENT

NORMAL RANGE 1D11-K619A	KAMAN 1D11-R631
6.70E 01	5.04E-03

1D11-K619B
6.67E 01

U2 RX. BLDG. VENT

NORMAL RANGE 2D11-K636A	KAMAN 2D11-R631
1.02E 06	5.00E-02

2D11-K636B
1.04E 06

METEROLOGICAL DATA

WIND	(DIRECTION FROM)	15-MIN. AVERAGE	STD-DEV	SPEED	15-MIN. AVERAGE
10 M ELEVATION	115 DEG	115 DEG	12 DEG	1 MPH	0 MPH
60 M ELEVATION	90 DEG	91 DEG	6 DEG	2 MPH	2 MPH
100 M ELEVATION	65 DEG	64 DEG	4 DEG	4 MPH	4 MPH
23 M ELEVATION - BACKUP	65 DEG	64 DEG	4 DEG	2 MPH	2 MPH

TEMPERATURE			15-MIN AVERAGE
10 M ELEVATION AMBIENT	-30 DEG F	FLOW*	----
10 M ELEVATION AMBIENT - BACKUP	74 DEG F	FLOW	----
10 M DEWPOINT	73 DEG F		----
60 M - 10 M DELTA TEMP.	-10 DEG F	FLOW	-4.1 DEG F
100 M - 10 M DELTA TEMP.	-10 DEG F	FLOW	-2.4 DEG F
45 M - 10 M DELTA TEMP. - BACKUP	1.5 DEG F	FLOW	2.4 DEG F

PERCIPITATION .00 INCHES SINCE MIDNIGHT

Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 5 (SRO ONLY)
DO NOT GIVE AS A GROUP

Title:		
CONTROL HYDROGEN AND OXYGEN CONCENTRATIONS IN PRIMARY CONTAINMENT WHEN PRIMARY CONTAINMENT GAS CONTROL FLOWCHART IS ENTERED		
Author: Anthony Ball	**Media Number:** 2015-301 ADMIN 5	**Time:** 20.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By:		**Date:**

SOUTHERN COMPANY

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 5

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00		Modified 2011-301 Admin 4 to use on ILT-9 NRC Exam 2015-301. After exam both JPMs will be renumbered and incorporated into JPM bank.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**CONTROL HYDROGEN AND OXYGEN CONCENTRATIONS IN PRIMARY CONTAINMENT WHEN PRIMARY CONTAINMENT GAS CONTROL FLOWCHART IS ENTERED**
JPM NUMBER:	**2015-301 ADMIN-5**
TASK STANDARD:	The task shall be complete when the operator has directed the required actions per 31EO-PCG-001-2, Primary Containment Gas Control.

TASK NUMBER: 201.072

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.57

SRO 3.88

K/A CATALOG NUMBER: G2.3.11

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.80

SRO 3.70

OPERATOR APPLICABILITY: Senior Reactor Operator (SRO)

GENERAL REFERENCES:	**Unit 2**
	31EO-PCG-001-2

REQUIRED MATERIALS:	**Unit 2**
	31EO-PCG-001-2

APPROXIMATE COMPLETION TIME: 20 Minutes

SIMULATOR SETUP: N/A

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. You are the SS on Unit 2
2. A reactor scram occurred due to a LOCA
3. An Emergency Depressurization has been performed
4. RWL is stable at -150 inches, using all available Core Spray and RHR pumps
5. Torus water level is stable at 250 inches
6. NO Primary Containment Venting is in progress
7. NO Primary Containment Purging is in progress
8. Estimated Offsite Dose has been calculated at 300 mR/hr
9. A Projected Offsite Dose has been calculated at 400 mR/hr

INITIATING CUES:

Evaluate the **PCG** EOP flowchart, "31EO-PCG-001-2" **ONLY**.

IAW the PCG flowchart, address and state **ALL** steps, actions, and orders that are to be directed, due to these plant conditions.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation".

START TIME:_____

PROMPT: At this time **PROVIDE ALL ATTACHMENTS** to the student.

**1.	Enters the PCG flowchart.	The operator ENTERS 31EO-PCG-001 flowchart.	
2.	Confirm the H_2O_2 analyzers are in service.	The operator DETEMINES that the the H_2O_2 analyzers are in service by checking 2H11-P700 or SPDS.	
**3.	Evaluate the override at C-5.	The operator DETERMINES that path G-2 Point "S" is to be entered.	
4.	At D-6 on path G-2, determine if Projected TEDE is >1000 mr/hr.	The operator DETERMINES Projected TEDE is <1000 mr/hr based on Initial conditions.	
5.	At D-6 on path G-2, determine if there is detectable Hydrogen in drywell or torus.	The operator DETERMINES there is Hydrogen in drywell or torus based on Initial conditions.	
6.	Determines Estimated Offsite Dose.	The operator DETERMINES and RECORDS at E-7 the Estimated Offsite Dose to be 300 mr/hr based on Initial conditions.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
7.	Determines Projected Offsite Dose.	The operator DETERMINES and RECORDS at E-7 the Projected Offsite Dose to be 400 mr/hr based on Initial conditions.	
8.	Determines the TOTAL Estimated and Projected Peak TEDE.	The operator DETERMINES and RECORDS at F-7 the TOTAL Estimated and Projected Peak TEDE to be 700 mr/hr (300 + 400 = 700).	
****9.**	Uses step at J-5 on path G-2, to direct an NPO to start Drywell Cooling Fans and Return Fans.	The operator DIRECTS an NPO to start Drywell Cooling Fans and Return Fans.	

PROMPT: **WHEN** the operator directs the starting of DW Cooling Fans and Return Fans, **INFORM** the operator that DW Cooling Fans and Return Fans are running.

10.	Evaluates decision step at G-7, on path G-2, to determine whether Torus Water level is below 300 inches.	The operator DETERMINES that Torus level is below 300 inches. (Chooses YES, proceeds to the right to vent the Torus).	
****11.**	Using step at H-7, on path G-2, directs Vent torus per 31EO-EOP-104-2. If necessary, defeat isolation interlocks.	The operator DIRECTS an NPO to Vent torus per 31EO-EOP-104-2. If necessary, defeat isolation interlocks.	

PROMPT: **WHEN** directed to initiate venting of the Torus, **INFORM** the operator that, using Time Compression, Torus venting is in progress.

PROMPT: **IF ASKED** whether the DW is being vented throught the Torus, **INFORM** the operator the indications are DW pressure and Torus pressure are both slowly decreasing.

****12.**	Using step at J-7, on path G-2, directs Initiate and maximize drywell nitrogen purge flow per 31EO-EOP-104-2.	The operator DIRECTS an NPO to Initiate and maximize primary containment purge flow per 31EO-EOP-104-2.	

PROMPT: **WHEN** directed to initiate Primary Containment Purge flow, **INFORM** the operator that, using Time Compression, Primary Containment purge flow has been initiated and maximized.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: **AFTER** operator is informed that Primary Containment purge flow has been initiated and maximized, **INFORMS** the operator that Projected Offsite Dose is now 1100 mr/hr.

**13.	Evaluates the override at D-6 on path G-2, to determine if Projected TEDE is >1000 mr/hr.	The operator DETERMINES Projected TEDE is >1000 mr/hr (1100 mr/hr).	
14.	Evaluates the override at D-6 on path G-2, to determine if adequate core cooling is assured.	The operator DETERMINES adequate core cooling is assured based on Initial conditions.	

PROMPT: **WHEN** the operator addresses RWL, **INFORM** the operator that RWL is stable at -150 inches, using all available Core Spray and RHR pumps.

**15.	Using step at D-6, on path G-2, directs torus venting secured.	The operator DIRECTS an NPO to secure torus venting.	

PROMPT: **WHEN** the operator addresses securing torus venting, **INFORM** the operator that torus venting has been secured.

**16.	Using step at D-6, on path G-2, directs nitrogen purge flow secured.	The operator DIRECTS an NPO to secure nitrogen purge flow.	

PROMPT: **WHEN** the operator addresses securing torus venting, **INFORM** the operator that nitrogen purge flow has been secured.

END TIME:_____

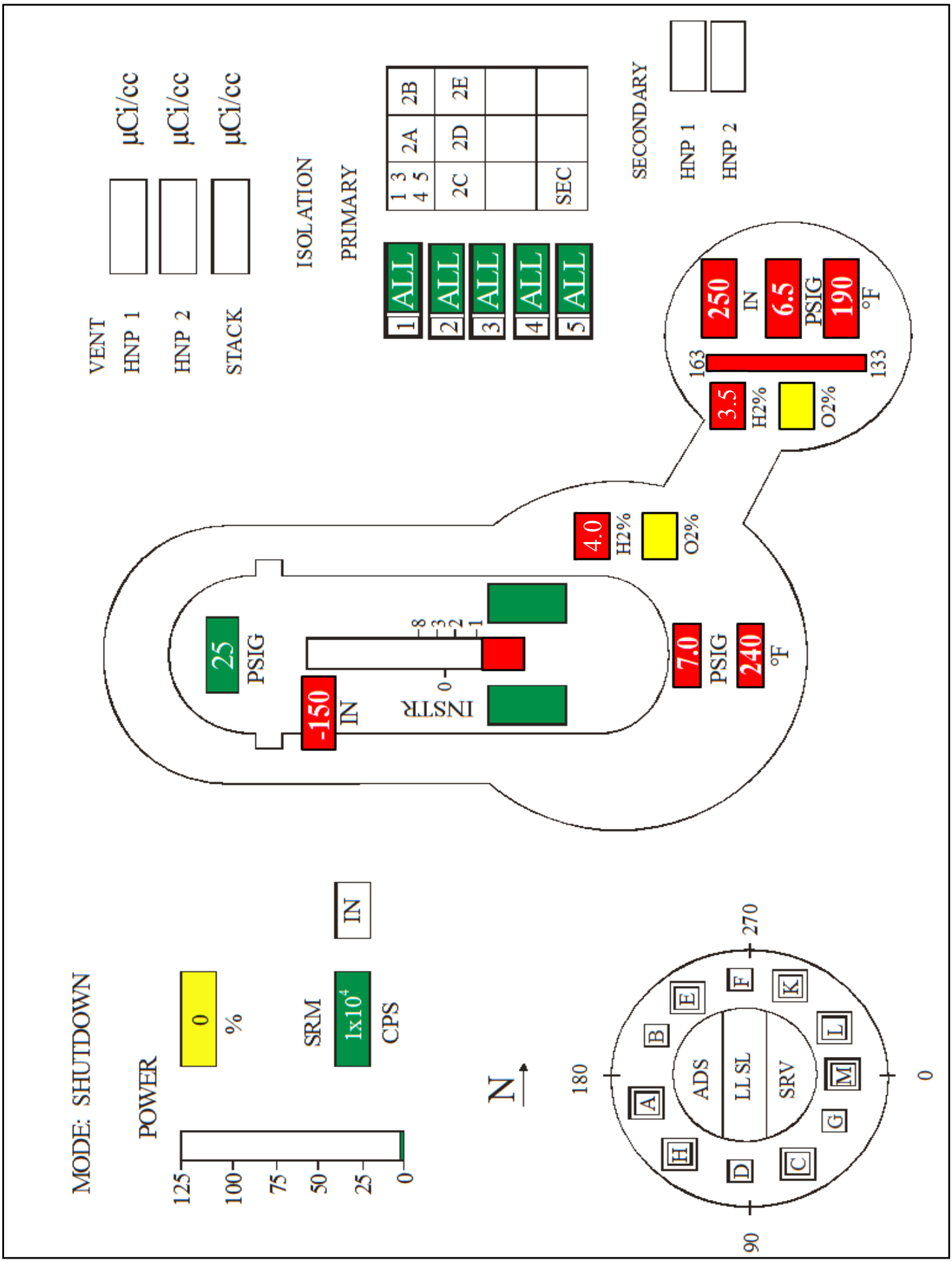
NOTE: The terminating cue shall be given to the operator when:

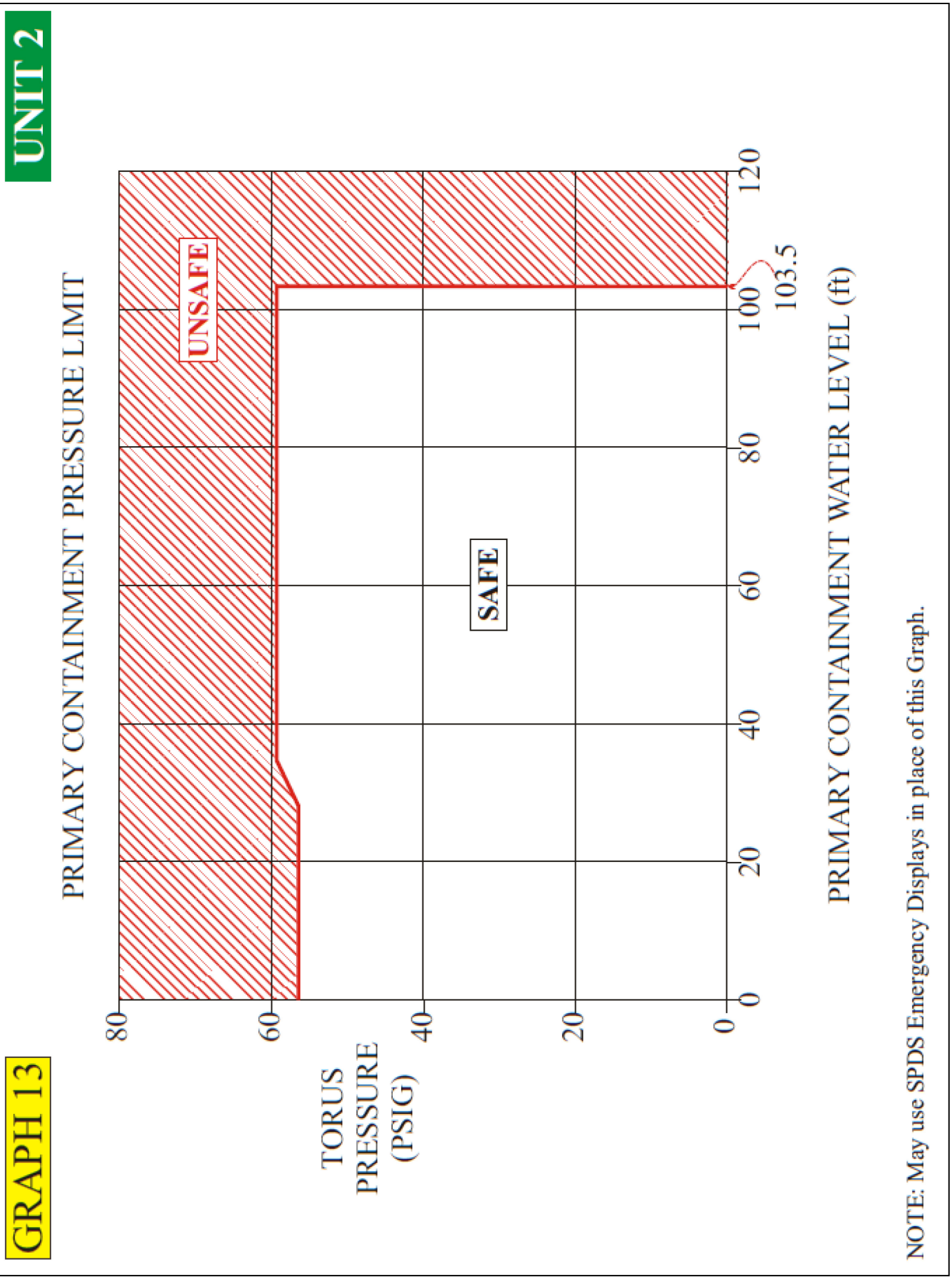
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

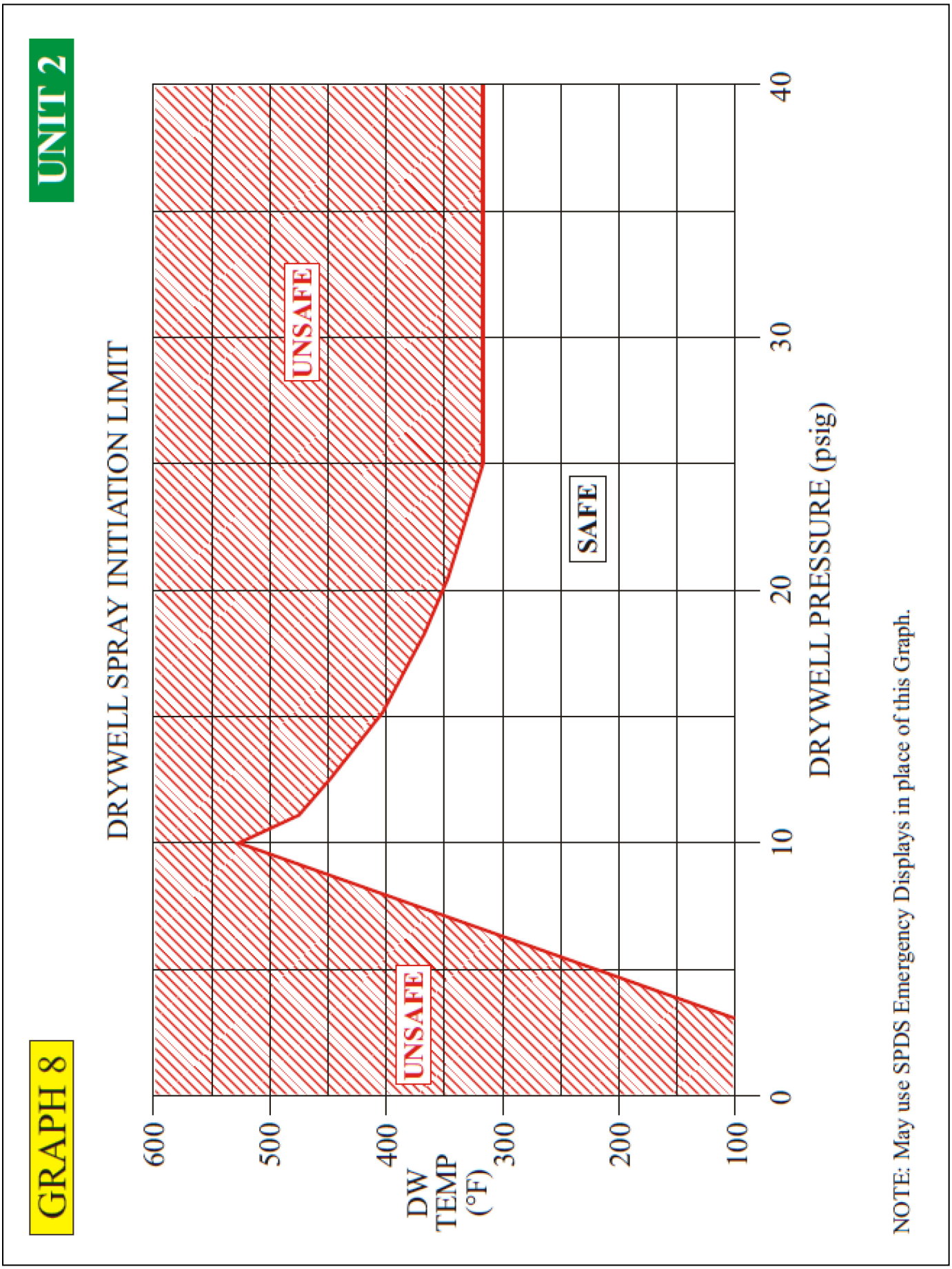
TERMINATING CUE: We will stop here.

(Indicates critical step)**

Attachment 1




UNIT 2
GRAPH 13
PRIMARY CONTAINMENT PRESSURE LIMIT
UNSAFE
SAFE
TORUS PRESSURE (PSIG)
80
60
40
20
0
0
20
40
60
80
100
120
103.5
PRIMARY CONTAINMENT WATER LEVEL (ft)
NOTE: May use SPDS Emergency Displays in place of this Graph.


UNIT 2
GRAPH 8
DRYWELL SPRAY INITIATION LIMIT
UNSAFE
UNSAFE
SAFE
DW TEMP (°F)
600
500
400
300
200
100
0
10
20
30
40
DRYWELL PRESSURE (psig)
NOTE: May use SPDS Emergency Displays in place of this Graph.

Southern Nuclear Company

Operations Training
Job Performance Measure (JPM)

DRAFT
ADMIN 6 SRO ONLY

Title:		
Emergency Classification - Complete NMP-EP-110 Checklist 1		
Author: Anthony Ball	**Media Number:** 2015-301 ADMIN 6	**Time Critical:** 15 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee:		**Date:**
Approved By:		**Date:**

SOUTHERN COMPANY

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Course Number	Program Name	Media Number
N/A	OPERATIONS TRAINING	2015-301 ADMIN 6

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	8/23/11	Initial Development	SDH	DNM
01	10/15/13	Made left hand column match procedure steps. Ensured each critical step only has one action. ADDED Checklist 1 answer key.	MMG	ALS
1.1		Updated to latest procedure revision and will be used on ILT-9 NRC Exam. After exam will be renamed back to original JPM Title (LR-JP-25071-01).	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**Emergency Classification - Complete NMP-EP-110 Checklist 1**
JPM NUMBER:	2015-301 ADMIN 6
TASK STANDARD:	The task shall be completed when the event has been classified and NMP-EP-110 Checklist 1 is completed through step 6.

TASK NUMBER: 200.052

OBJECTIVE NUMBER: 200.052.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.67

SRO 4.04

K/A CATALOG NUMBER: Generic 2.4.41

K/A CATALOG JTA IMPORTANCE RATING:

RO 2.30

SRO 4.1

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1 & 2**
	NMP-EP-110 (current version)

REQUIRED MATERIALS:	**Unit 1 & 2**
	NMP-EP-110 (current version)

APPROXIMATE COMPLETION TIME: 15 Minutes

SIMULATOR SETUP: NA

UNIT 1 & 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. You are the On Shift Shift Manager.
2. **Units 1** and **2** are operating at 100% power. The FAA Atlanta calls Plant Hatch control room on the telephone. A NPO answers the phone. The following information is rapidly confirmed with the NRC Operations Center using the Emergency Notification System (ENS) phone.
3. The NRC Operations Center confirms:
   - One (1) hour ago, a DC 10, Delta Flight D-1492, took off from Atlanta, headed for Houston Texas.
   - The plane has inexplicably changed course, is now headed east, and is 20 miles west of Macon, Georgia.
   - Atlanta Flight Control has tried all available methods to communicate with the flights' crew, but has been unsuccessful.
   - Based on the planes flight path and rate of descent, it appears that Plant Hatch is in the flight path of a Track of Interest (TOI).

   The flight will reach Plant Hatch, by best estimate, in 29 minutes.
4. The Control Room has contacted the NRC and NRC has confirmed the information.
5. NO Peer Check is available.

INITIATING CUES:

Classify the Event by Completing NMP-EP-110 Checklist 1,

Steps 1 through 6.

AND

Communicate the **Emergency Classification AND** the **IC#** the

Emergency Classification is based on to the Operating Crew

(Crew Update)

This JPM is **TIME CRITICAL.**

Current time is: _____

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

NOTE: The **CLASSIFICATION** must be made within 15 minutes of the initial prompt and the Student states they understand the initial conditions.

NOTE: The Student is expected to obtain a copy of Checklist 1 if the Initiating Cue is given in the Simulator or Control Room.

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	The operator has OBTAINED Check List 1, which is contained in NMP-EP-110.	
2.	Checklist 1, Step 1. **Determine** the appropriate Initiating Condition Matrix for classification of the event based on the current operating mode: HOT IC/EAL Matrix Eval Chart COLD IC/EAL Matrix Eval Chart Both HOT & COLD IC/EAL Matrix	On Checklist 1, Step 1, The operator has selected **HOT IC/EAL** Matrix Evaluation Chart	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
3.	Checklist 1, Step 2. **Evaluate** the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation. **Select** the condition of each fission product barrier: Fuel Cladding Integrity ********** **********	On Checklist 1, Step 2.a, The operator has selected **INTACT** for Fuel Cladding Integrity.	
4.	Checklist 1, Step 2. **Evaluate** the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation. **Select** the condition of each fission product barrier: ********** Reactor Coolant System **********	On Checklist 1, Step 2.a, The operator has selected **INTACT** for Reactor Cooling System.	
5.	Checklist 1, Step 2. **Evaluate** the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation. **Select** the condition of each fission product barrier: ********** ********** Containment Integrity	On Checklist 1, Step 2.a, The operator has selected **INTACT** for Containment Integrity.	
6.	Checklist 1, Step 2.b. **Determine** the highest applicable fission product barrier Initiating Condition (IC).	On Checklist 1, Step 2.b, The operator has selected **NONE**	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
7.	Checklist 1, Step 3. **Evaluate** AND **determine** the highest applicable IC/EAL using the Matrix Evaluation Chart(s) identified in step 1 THEN **Go To** step **4**.	On Checklist 1, Step 3. The operator has identified **HA4**	
8.	Checklist 1, Step 4. **Check** the highest emergency classification level identified from either step 2b or 3: **Classification** **********	On Checklist 1, Step 4. The operator has selected **ALERT** as the Classification.	
****9.**	Checklist 1, Step 4. **Check** the highest emergency classification level identified from either step 2b or 3: ********** **Based on IC #**	On Checklist 1, Step 4. The operator has selected **HA4** for the Based on IC#.	

NOTE: **It is expected that the IC# be filled in on Checklist 1 (in the above step). Credit for this step will be given if the proper IC# is announced during the Crew Update announcing the classification to the crew.**

10.	Checklist 1, Step 4. Remarks (**Identify** the specific EAL, as needed).	On Checklist 1, Step 4. The operator has written **A validated notification from NRC of an airliner attack threat less than 30 minutes away** in the space provided.	

NOTE: If follow-up questioning reveals that a classification was declared and based on another IC #, the classification should be evaluated for validity.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
11.	Checklist 1, Step 5. **Declare** the event by approving the Emergency Classification.	On Checklist 1, Step 5. The operator has **signed their name** as the Emergency Director in the space provided.	
12.	Checklist 1, Step 5. Fill in the Date in the space provided.	On Checklist 1, Step 5. The operator has entered the **current Date** in the space provided.	
13.	Checklist 1, Step 5. Fill in the Time in the space provided.	On Checklist 1, Step 5. The operator has entered the **current Time** in the space provided. **Time Critical Stop Time:** _____. NOTE: For this step to be completed considered SAT, the time entered must be within 15 minutes of the time recorded on the Initial Conditions sheet provided to the operator.	

PROMPT: **WHEN** the operator enquires about meteorological conditions, **GIVE** the operator the MIDAS Information Sheet if not given earlier when performing a Group JPM.

14.	On Checklist 1, Step 6. **Obtain** Meteorological Data (not required prior to event declaration).	The operator has obtained Meteorological Data (i.e. MIDAS Information Sheet).	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**15.	On Checklist 1, Step 6. Record the following: Wind Direction (from) ********** ********** *********	On Checklist 1, Step 6. The operator has entered **130** in the space provided for **Wind Direction (from).**	
**16.	On Checklist 1, Step 6. Record the following: ********** Wind Speed ********** **********	On Checklist 1, Step 6. The operator has entered **5** in the space provided for **Wind Speed**.	
17.	On Checklist 1, Step 6. Record the following: ********** ********** Stability Class **********	On Checklist 1, Step 6. The operator has entered **D** in the space provided for **Stability Class**.	
18.	On Checklist 1, Step 6. Record the following: ********** ********** ********** Precipitation	On Checklist 1, Step 6. The operator has entered **0** in the space provided for **Precipitation**.	
19.	Classification is announced to the crew.	Operator performs a "Crew Update" and announces what the Classification is and the IC# the classification is based on.	

PROMPT: If the IC# is NOT filled in on Checklist 1 or announced during a Crew Update, **TELL** the operator to review the Initiating Cue.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: If the operator addresses performance of Checklist 1 Step 7 Initiate Checklist 2, Emergency Plan Initiation, **INFORM** the operator that another operator will Initiate Checklist 2.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

INSTRUCTOR ANSWER KEY

Checklist 1 - Classification Determination

NOTE

Key Parameters should be allowed to stabilize to accurately represent plant conditions prior to classifying an event

Initial Actions Completed by

1. **Determine** the appropriate Initiating Condition Matrix for classification of the event based on the current operating mode: Student
   - ✹ HOT IC/EAL Matrix Evaluation Chart (**Go To** Step **2)** to evaluate the Barriers)
   - ☐ COLD IC/EAL Matrix Evaluation Chart (**Go To** Step **3**)
   - ☐ Both HOT & COLD IC/EAL Matrix Evaluation Chart apply (**Go To** Step **2)**
2. **Evaluate** the status of the fission product barrier using Figure 1, Fission Product Barrier Evaluation.
   a. **Select** the condition of each fission product barrier: Student

	LOSS	POTENTIAL LOSS	INTACT
Fuel Cladding Integrity	☐	☐	✹
Reactor Coolant System	☐	☐	✹
Containment Integrity	☐	☐	✹

   b. **Determine** the highest applicable fission product barrier Initiating Condition (IC): Student

   (select one) ☐ FG1 ☐ FS1 ☐ FA1 ☐ FU1 ✹None
3. **Evaluate** AND **determine** the highest applicable IC/EAL using the Matrix Evaluation Chart(s) identified in step 1 THEN **Go To** step **4**.

   Hot IC# **HA4** Unit **1/2** and/or Cold IC# _____ Unit___ or ☐ None Student
4. **Check** the highest emergency classification level identified from either step 2b or 3: Student

Classification	Based on IC#	Classification	Based on IC#
☐ General		✹ Alert	HA4
☐ Site-Area		☐ NOUE	
		☐ None	N/A

Remarks (**Identify** the specific EAL, as needed): **A validated notification from NRC of an airliner attack threat less than 30 minutes away**

5. **Declare** the event by approving the Emergency Classification.

   _____Student_____Date: __***** / ***** / ****_Time: __******__ Student
   Emergency Director
6. **Obtain** Meteorological Data (not required prior to event declaration):

Wind Direction (from) **130** Wind Speed **5** Stability Class **D** Precipitation **0** Student

7. **Initiate** Attachment 2, Checklist 2 - Emergency Plan Initiation. _____

(Indicates critical step)**

MIDAS INFORMATION

METEOROLOGICAL

10M WIND SPD	100M WIND SPD	10M WIND DIR	100M WIND DIR
1Y33-R601	1Y33-R603	1Y33-R601	1Y33-R603
5.0	5.0	130	130

AMBIENT TEMP	DELTA T	DELTA T	RAINFALL
(F) 10M	60-10	100-10	15 MIN. AVG
54	-1.6	-2.9	.000

RADIOLOGICAL

MAIN STACK		U1 RX. BLDG. VENT		U2 RX. BLDG. VENT	
NORMAL RANGE	KAMAN	NORMAL RANGE	KAMAN	NORMAL RANGE	KAMAN
1D11-K600A	1D11-R631	1D11-K619A	1D11-R631	2D11-K636A	2D11-R631
2.00E 01		5.04E 01		4.00E 01	
1D11-K600B		1D11-K619B		2D11-K636B	
2.00E 01				4.00E 01	

STABILITY CLASS
D

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 1 (ALL)

Title **START A RECIRC ADJUSTABLE SPEED DRIVE (ASD) FROM THE CONTROL ROOM**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 1 2015-301	**Time** 15.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 1 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
16	02/22/02	Include initial Operator statement	RAB	RAB
17	05/03/02	Revise Simulator Setup	DNM	DHG
18	03/01/05	Deleted "S" from procedure numbers, changed Revision and Rev. numbers to "Current Version," changed "Reactor Operator" to "Nuclear Plant Operator," changed IC 121 to IC 127 for Simulator Setup, added new prompts, changed location of some steps and prompts.	BEB	DHG
19	05/27/05	Revised Initial License statement for successful completion	RAB	RAB
20	03/30/06	Remove Response Cues	RAB	RAB
21	01/06/09	This revision is meant for initial training prior to implementation of ASDs on U2 during the 2009 U2 outage. It is the intent of Training & Operations to perform the best training possible gathering feedback from Operators during the process & feeding this information back to Operations prior to implementation to improve procedures prior to final implementation. (Note: originally a new JPM 04.20 was written, however this JPM was revised to modify the task and TO for the equipment and JPM 04.20 not retained). Section for Unit One will be "simulate" in Main Control Room due to modification on simulator to reflect changes to Unit 2.	DNM CEB	RAB
21.1	10/11/09	Revised for use on 2009-302 Exam	FNF	CME
21.2		Minor revision to match procedure and use on ILT-09 NRC Exam. Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to CR-Sim 1 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-13.53-14.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
14.1	MMG

UNIT 1 () UNIT 2 (X)

TASK TITLE:	**START A RECIRC ADJUSTABLE SPEED DRIVE (ASD) FROM THE CONTROL ROOM**
JPM NUMBER:	**CR-SIM 1 2015-301**
TASK STANDARD:	The task shall be completed when the Adjustable Speed Drive (ASD) has been started and then secured.
TASK NUMBER:	004.002
OBJECTIVE NUMBER:	004.002.A, 004.002.E

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.50

SRO 3.22

K/A CATALOG NUMBER: 202001K6.02

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.1

SRO 3.2

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:		**Unit 2**
		34SO-B31-001-2 (current version) 34AB-B31-001-2 (current version)

REQUIRED MATERIALS:		**Unit 2**
		34SO-B31-001-2 (current version) marked up to step 7.1.3.1.11

APPROXIMATE COMPLETION TIME: 15.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **IC #102** and leave in **FREEZE**.

2. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Secure both Recirc Pumps and Close their Discharge valves
   B. Raise RWL to >47 inches as indicated on GEMAC.
   C. Use rfB31_29 and open Seal purge valve B31-F016A.
   D. Open Reactor Recirc Pump Suction Valves, 2B31-F023A and 2B31-F023B.
   E. Start up the "2A" Recirc ASD up to step 7.1.3.1.10, with the breaker closed for the ASD, the ASD START pushbutton lit, and RWL > 32".
   F. Have a Marked up copy of 34SO-B31-001-2, Recirc system, marked up to step 7.1.3.1.10,
   G. Turn OFF the SPDS screens.
   H. Acknowledge/Reset annunciators

3. **INSERT** the following **Event Trigger:**

ET #	Description
EGB31-1	Inserts the following alarms when F031A is fully open (Green light goes out): • ASD A – Cooling Normal (White Light Off) • ASD A Cooling Trouble (Annunciator On) • + 2 seconds - ASD A Cooling Fault (Annunciator On) • + 10 seconds - ASD A Fatal Fault (Annunciator On) Event Trigger Contents: (ET portion of ET) ;Activate ET B31-1 when 2A Recirc pump discharge valve is full open (green light out) loB31-F031AG1.algToPanel =0 ;THEN (SCN Portion of ET) IOR loB31-DS42AW1 f:0 d:0; ASD A – Cooling Normal (White Light Off) IMF mf60211169 f:1 d:0; ASD A Cooling Trouble (Annunciator On) +2IMF mf60211170 f:1 d:0; ASD A Cooling Fault (Annunciator On) +10IMF mf60211146 f:1 d:0; ASD A Fatal Fault (Annunciator On)

4. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

5. **ESTIMATED** Simulator **SETUP TIME**: **15 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is in cold shutdown
2. SPDS is Out of Service and being worked.
3. "A" Recirc Pump is required for forced circulation.
4. CRD seal purge is in service with 1.9 gpm flow to the "A" seals.
5. Maintenance has performed all applicable sections for venting/purging of the "A" Recirc Pump seals IAW 52CM-B31-003-0.
6. 34SO-B31-001-2, Recirc system, is complete up to step 7.1.3.1.10.
7. 34SO-B31-001-2 Attachment 5 "Recirc Pump Startup Prerequisites" was just completed and is SAT for a start of the "A" Recirc Pump.

INITIATING CUES:

Start 2A Recirc Pump IAW 34SO-B31-001-2, Reactor Recirculation System, Section 7.1.3., starting at step 7.1.3.1.10.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

NOTE: Unless otherwise indicated, all actions are carried out at panel 2H11-P601.

PROMPT: Once the applicant has identified the correct procedure, **PROVIDE** the applicant with a copy of 34SO-B31-001-2, Recirc system, marked up to step 7.1.3.1.10,

1.	Operator obtains procedure and reviews the procedure's precautions and limitations.	Operator has obtained 34SO-B31-001-2 and reviewed the precautions and limitations.	

NOTE: RWL indication on 2H11-P603 is not corrected. The operator must subtract 15 inches from the indicated RWL. Therefore RWL is required to be above 47 inches (32 + 15 = 47).

2.	Confirm RWL is greater than +32 inches.	At panel 2H11-P603, the Operator VERIFIES that RWL is greater than +32 inches actual level (> 47 inches indicated).	

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator that Attachment 5 was complete and acceptable within the last 15 minutes.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
3.	Confirm/Close Reactor Recirc Pump Discharge Valve, 2B31-F031A.	Operator confirms PUMP DISCH VLV 2B31-F031A is CLOSED, green light illuminated.	
4.	Confirm ASD A START pushbutton indicating lamp is illuminated.	Operator confirms ASD A START pushbutton indicating lamp is illuminated	
5.	Visually Confirm the ASD "A" startup temperature limits are still acceptable.	Operator confirms the ASD "A" startup temperature limits are still acceptable by observing temperatures on 2B31-R601 at Panel 2H11-P614.	

NOTE: The above step may not be performed, since the Initiating Cue states that Attachment 5 (checking startup temperatures) has just been performed and all temperatures are acceptable.

PROMPT: Once the applicant has identified the 2B31-R601 recorder, **INFORM** the applicant that all temperatures are acceptable.

****6.**	DEPRESS the ASD A START pushbutton.	Operator depresses ASD A START PUSH BUTTON.	
7.	Confirm the following:	Operator confirms the following:	
	• The ASD A STARTING light illuminates	• The ASD A STARTING light illuminates.	
	• The ASD A START light extinguishes.	• The ASD A START light extinguishes.	
	• 2B31-F031A, Recirc Pump A Disch Vlv, starts to JOG OPEN 2 seconds after the ASD A STARTING light illuminates.	• 2B31-F031A, Recirc Pump A Disch Vlv, starts to JOG OPEN 2 seconds after the ASD A STARTING light illuminates.	
	• The ASD A speed increases to ~370 RPM on 2B31-R660A and ~22% on 2B31-R661A in about 4 seconds.	• The ASD A speed increases to ~370 RPM on 2B31-R660A and ~22% on 2B31-R661A in about 4 seconds.	
	• The ASD A RUNNING light illuminates.	• The ASD A RUNNING light illuminates.	
	• The ASD A STARTING light	• The ASD A STARTING light	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
	extinguishes.	extinguishes.	
	• 2B31-F031A, Recirc Pump A Disch Vlv, is FULL OPEN <96 seconds after the Recirc ASD A STARTING light illuminates.	• 2B31-F031A, Recirc Pump A Disch Vlv, is FULL OPEN <96 seconds after the Recirc ASD A STARTING light illuminates.	
	• Recirc A Flow, indicates 11,000 - 13,000 GPM on 2B31-R617.	• Recirc A Flow, indicates 11,000 - 13,000 GPM on 2B31-R617.	
	• Acknowledge expected alarms	• Acknowledges expected alarm 602-227, "Recirc Loop B Out Of Service"	

PROMPT: **WHEN** the operator addresses Attachment 5, **INFORM** the operator that another operator will complete Attachment 5.

NOTE: This step may not be done due to the cooling and fault alarms coming in on the ASD.)

8.	Complete remainder of Attachment 5.	Operator has verified Attachment 5 will be completed.	

NOTE This is where the ALTERNATE PATH starts.

Simulator Operator Confirm Event Trigger **EGB31-1** ACTIVATES when the green light extinguishes on 2B31-F031A.

NOTE: The following cooling fault automatically occurs based on 2B31-F031A being full open.

****9.**	Respond to annunciators: • 602-125 "ASD A Cooling Trouble" • 602-126 "ASD A Cooling Fault" • 602-102 ASD A FATAL FAULT	Operator places the ASD A control switch to the STOP position OR DEPRESSES the ASD A Shutdown pushbutton within 5 minutes of receiving the alarms.	

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

– With NO reasonable progress, the Operator exceeds double the allotted time.

– Operator has tripped or shutdown ASD A.

TERMINATING CUE: We will stop here.

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 2 (ALL)

Title **LOWER RWL USING THE RHR SYSTEM**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 2 2015-301	**Time** 18.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 2 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
01	07/31/90	General revision and format change	JEM	DHG
02	06/04/91	Procedure revision	JEM	DHG
03	08/26/92	General revision and format change	WMM	SCB
04	08/01/96	General revision, format change, change simulator setup, word processor change	RAB	DHG
05	01/18/99	Revised malfunction numbers due to new simulator computer.	SCB	DHG
06	02/03/00	Format modification, modify title, change time allowance based on running average	RAB	DHG
07	10/31/00	Include objective number	RAB	DHG
08	01/03/02	Minor correction (shift from PEO to SO)	RLS	DHG
09	02/26/02	Include initial opertor statement	RAB	RAB
10	02/24/05	Deleted "S" from procedure numbers, changed Revision and Rev. numbers to "Current Version," changed "Reactor Operator" to "Nuclear Plant Operator," changed IC #131 for Simulator Setup, added 1E11-F028A(B) and 2E11-F028A(B) to step #2 for U1 and U2 JPM's due to valves listed in procedure.	BEB	DHG
11	05/31/05	Revised Initial License statement for successful completion	RAB	RAB
12	04/05/06	Remove Response Cues	RAB	RAB
12.1		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Sim 5 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-06.11 (New Media Number) after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**LOWER RWL USING THE RHR SYSTEM**
JPM NUMBER:	**CR-SIM 2 2015-301**
TASK STANDARD:	This task shall be completed when the lineup to lower RWL using the RHR System is per 31EO-EOP-106.
TASK NUMBER:	006.011
OBJECTIVE NUMBER:	006.011.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.22

SRO 3.00

K/A CATALOG NUMBER: 295031EA101

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.40

SRO 4.40

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	31EO-EOP-106-1 (current version) 31EO-EOP-016-1 (current version) EOP Graph 4 (Maximum Core Uncovery Time Limit)	31EO-EOP-106-2 (current version) 31EO-EOP-016-2 (current version) EOP Graph 4 (Maximum Core Uncovery Time Limit)

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	31EO-EOP-106-1 (current version) EOP Graph Book	31EO-EOP-106-2 (current version) EOP Graph Book

APPROXIMATE COMPLETION TIME: 18.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **IC #131 or SNAP 612** and leave in **FREEZE**.

2. **ACTIVATE THE FOLLOWING EVENT TRIGGERS:**

Trigger #	DESCRIPTION	CONDITIONS
E11-?		

3. **INSERT** the following **MALFUNCTIONS:**

Key #	MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME

4. **INSERT** the following **OVERRIDES:**

OR #	DESCRIPTION	FINAL	KEY

5. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfE11282	2E11-F028A/B Intk with F006A/C	ORIDE

6. INSERT the following **ORS OVERRIDES:**

TAG #	P/L	DESCRIPTION	STATUS	ACT. TIME
aoB21-R605	P	Reactor Level (0 - 400)	0	0
aoC32-R655	L	Reactor Level (0 - 200)	200	0

7. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

A. Take RHR out of shutdown cooling and close 2E11-F008 and 2E11-F009.
B. Close MSIVs, HPCI, RCIC isolations and open seven ADS valves. Start CS and RHR to flood the Reactor.
C. When R655 is UPSCALE, stop all ECCS.
D. Acknowledge all annunciators.

8. PLACE the Simulator in **FREEZE** until the crew assumes the shift.

9. ESTIMATED Simulator **SETUP TIME**: **20 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. An event has occurred on Unit 2 and Reactor flooding has been performed.
2. Conditions have been satisfied for terminating injection and restoring RWL indication.
3. 31EO-EOP-016-2, (CP-2), is in progress.

INITIATING CUES:

Lower RWL with Loop "B," of RHR System using 31EO-EOP-106-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

NOTE: If the operator starts first with the RHR pump 2B, perform Steps 1 – 18.

If the operator starts first with the RHR pump 2D, perform Steps 19 – 35.

PROMPT: **IF** the operator addresses which RHR loop is to be used, as the Shift Supervisor, **INFORM** the operator that the RHR Loop B should be used.

1.	Confirm Stopped RHR Loop B pumps.	At panel 2H11-P601, RHR PUMP, 2E11-C002B and D are stopped, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
2.	Confirm/Close the following valves: 2E11-F004B 2E11-F017B 2E11-F075B 2E11-F016B 2E11-F024B 2E11-F027B 2E11-F028B 2E11-F010	At panel 2H11-P601, the following valves are closed, green light illuminated: TORUS SUCTION VLV, 2E11-F004B RHR OUTBD INJ VLV, 2E11-F017B RHRSW VLV, 2E11-F075B CNMT SPRAY OUTBD VLV, 2E11-F016B FULL FLOW TEST LINE VLV, 2E11-F024B TORUS SPRAY VLV, 2E11-F027B TORUS SPRAY OR TEST VLV, TORUS SPRAY OR TEST VLV, 1E11-F028B RHR CROSSTIE VLV, 2E11-F010	

NOTE: 2E11-F010 is normally closed and de-energized. If the operator indicates that this is the condition of 2E11-F010, that portion of Step 2 is acceptable.

PROMPT: **IF** the operator requests the SO to verify the valve position, **INFORM** the operator the valve is closed.

IF the operator wants the valve energized, the Simulator operator **TOGGLE RB-2 RFE11135**, "E11-F010 Breaker Rackout," to **IN.**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
****3.**	Reset valve isolations.	GR ISOL RESET Switch has been momentarily placed in GR 2/5 RESET at the following panels: Panel 2H11-P601 Panel 2H11-P602	

NOTE: If the Group II isolation signal is not reset, then the 2E11-F008 and 2E11-F009 valves will not open.

(** **Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**4.	Open SDC Suction Valve 2E11-F008.	At panel 2H11-P601, SDC SUCTION VLV, 2E11-F008 is OPEN, red light illuminated.	
**5.	Open SDC Suction Valve 2E11-F009.	At panel 2H11-P602, SDC SUCTION VLV, 2E11-F009 is OPEN, red light illuminated.	
6.	Confirm open: 2E11-F003B 2E11-F047B	At panel 2H11-P601, the following valves are OPEN, red light illuminated: HX OUTLET VLV, 2E11-F003B HX INLET VLV, 2E11-F047B	
**7.	Open valve 2E11-F006B.	At panel 2H11-P601, SHUTDOWN COOLING VLV, 2E11-F006B is OPEN, red light illuminated.	

NOTE: Although it will not be necessary for the operator to override the LOCA signal or the 2/3 Core Height Interlock after RPV flooding, it is acceptable for the operator to override these logics.

**8.	Place the Keylock Control Switch for 2E11-F028B to open.	At panel 2H11-P601, the Keylock Control Switch for TORUS SPRAY OR TEST VLV, 2E11-F028B, is OPEN.	
9.	By placing jumpers, open Torus Spray Or Test Vlv, 2E11-F028B.	Operator has CALLED the Shift Support Supervisor to INSTALL jumper NN77-NN78 at panel 2H11-P601C.	

NOTE: The operator must successfully complete Steps 8 and 9 to open the valve.

NOTE: If Steps 8 and 9 were successful, have the Simulator operator **TOGGLE RB-1 rfE11282**, "2E11-F028A/B Intk With F006A/C," to **ORIDE** to open F028B.

PROMPT: **WHEN** the operator addresses the jumpers to allow opening of 2E11-F028B, as the Shift Support Supervisor, **INFORM** the operator that they are installed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
10.	Confirm open 2E11-F028B.	At panel 2H11-P601, the operator has verified TORUS SPRAY OR TEST VLV, 2E11-F028B is OPEN, red light illuminated.	

THE ALTERNATE PATH WILL START HERE

NOTE: The first 2E11-C002B or D switch selected is failed.
Event Triggers **EGE11-24** OR **EGE11-25** will remove the other 2E11-C002B or D switch failure.

11.	Start RHR pump 2B.	At panel 2H11-P601, Recognizes the RHR PUMP, 2E11-C002B is NOT running, green light illuminated.	

NOTE: The operator may inform the Shift Supervisor of the pump failure at this time or may continue with placing the other RHR pump in service and then notify the Shift Supervisor. (EITHER is acceptable)

12.	May confirm Open the following: 2E11-F008, SDC Suction Valve 2E11-F009, SDC Suction Valve 2E11-F003B, HX Outlet 2E11-F047B, HX Inlet	These valves were previously confirmed at steps 4, 5, & 6.	

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
13.	Confirm/close the following valves: 2E11-F004D 2E11-F017B 2E11-F075B 2E11-F016B 2E11-F024B 2E11-F027B 2E11-F028B 2E11-F010	At panel 2H11-P601, the following valves are closed, green light illuminated: TORUS SUCTION VLV, 2E11-F004D RHR OUTBD INJ VLV, 2E11-F017B RHRSW VLV, 2E11-F075B CNMT SPRAY OUTBD VLV, 2E11-F016B FULL FLOW TEST LINE VLV, 2E11-F024B TORUS SPRAY VLV, 2E11-F027B TORUS SPRAY OR TEST VLV, TORUS SPRAY OR TEST VLV, 1E11-F028B RHR CROSSTIE VLV, 2E11-F010	
14.	Open valve 2E11-F006D.	At panel 2H11-P601, SHUTDOWN COOLING VLV, 2E11-F006D is OPEN, red light illuminated.	
15.	Start RHR pump 2D.	At panel 2H11-P601, RHR PUMP, 2E11-C002D is running, red light illuminated.	
16.	Open/throttle open valve 2E11-F024B.	At panel 2H11-P601, the FULL FLOW TEST LINE VLV, 2E11-F024B is OPEN, red light illuminated.	

PROMPT: **AT** this time, as Shift Supervisor, **INFORM** the operator that the Maximum Core Uncovery Time Limit has been reached and to secure pump down.

17.	Close 2E11-F024B.	At panel 2H11-P601, FULL FLOW TEST VLV, 2E11-F024B is CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**18.	Stop RHR pump 2E11-C002D.	At panel 2H11-P601, RHR PUMP, 2E11-C002D is STOPPED, green light illuminated.	

NOTE: GO to **PROMPT** after Step 35 to complete the JPM.

19.	Confirm Stopped RHR Loop B pumps.	At panel 2H11-P601, RHR PUMP, 2E11-C002B and D) are stopped, green light illuminated.	
20.	Confirm/close the following valves: 2E11-F004D 2E11-F017B 2E11-F075B 2E11-F016B 2E11-F024B 2E11-F027B 2E11-F028B 2E11-F010	At panel 2H11-P601, the following valves are closed, green light illuminated: TORUS SUCTION VLV, 2E11-F004D RHR OUTBD INJ VLV, 2E11-F017(B) RHRSW VLV, 2E11-F075B CNMT SPRAY OUTBD VLV, 2E11-F016B FULL FLOW TEST LINE VLV, 2E11-F024B TORUS SPRAY VLV, 2E11-F027B TORUS SPRAY OR TEST VLV, TORUS SPRAY OR TEST VLV, 1E11-F028B RHR CROSSTIE VLV, 2E11-F010	

NOTE: 2E11-F010 is normally closed and de-energized. If the operator indicates that this is the condition of 2E11-F010, that portion of Step 2 is acceptable.

PROMPT: **IF** the operator requests the SO to verify the valve position, **INFORM** the operator the valve is closed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
	IF the operator wants the valve energized, the Simulator operator **TOGGLE RB-2 RFE11135**, "E11-F010 Breaker Rackout," to **IN.**		
**21.	Reset valve isolations.	GR ISOL RESET Switch has been momentarily placed in GR 2/5 RESET at the following panels: Panel 2H11-P601 Panel 2H11-P602	
	NOTE: If the Group II isolation signal is not reset, then the 2E11-F008 and 2E11-F009 valves will NOT open.		
**22.	Open SDC Suction Valve 2E11-F008.	At panel 2H11-P601, SDC SUCTION VLV, 2E11-F008 is OPEN, red light illuminated.	
**23.	Open SDC Suction Valve 2E11-F009.	At panel 2H11-P602, SDC SUCTION VLV, 2E11-F009 is OPEN, red light illuminated.	
24.	Confirm open: 2E11-F003B 2E11-F047B	At panel 2H11-P601, the following valves are OPEN, red light illuminated: HX OUTLET VLV, 2E11-F003B HX INLET VLV, 2E11-F047B	
**25.	Open valve 2E11-F006D.	At panel 2H11-P601, SHUTDOWN COOLING VLV, 2E11-F006D is OPEN, red light illuminated.	
	NOTE: Although it will not be necessary for the operator to override the LOCA signal or the 2/3 Core Height Interlock after RPV flooding, it is acceptable for the operator to override these logics.		
**26.	Place the Keylock Control Switch for 2E11-F028B to open.	At panel 2H11-P601, the Keylock Control Switch for TORUS SPRAY OR TEST VLV, 2E11-F028B, is OPEN.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**27.	By placing jumpers, open Torus Spray Or Test Vlv, 2E11-F028B.	Operator has CALLED the Shift Support Supervisor to INSTALL jumper NN77-NN78 at panel 2H11-P601C.	

NOTE: The operator must successfully complete Steps 8 and 9 to open the valve.

NOTE: If Steps 8 and 9 were successful, have the Simulator operator **TOGGLE RB-1 RFE11282**, "2E11-F028A/B Intk With F006A/C," to **ORIDE** to open F028B.

PROMPT: **WHEN** the operator addresses the jumpers to allow opening of 2E11-F028B, as the Shift Support Supervisor, **INFORM** the operator that they are installed.

28.	Confirm open 2E11-F028B.	At panel 2H11-P601, the operator has verified TORUS SPRAY OR TEST VLV, 2E11-F028B is OPEN, red light illuminated.	

THE ALTERNATE PATH WILL START HERE

NOTE: The first 2E11-C002B or D switch selected is failed.
Event Triggers **EGE11-24** OR **EGE11-25** will remove the other 2E11-C002B or D switch failure.

29.	Start RHR pump 2D.	At panel 2H11-P601, Recognizes the RHR PUMP, 2E11-C002D is NOT running, green light illuminated.	

NOTE: The operator may inform the Shift Supervisor of the pump failure at this time or may continue with placing the other RHR pump in service and then notify the Shift Supervisor. (EITHER is acceptable)

30.	May confirm Open the following: 2E11-F008, SDC Suction Valve 2E11-F009, SDC Suction Valve 2E11-F003B, HX Outlet 2E11-F047B, HX Inlet	These valves were previously confirmed at steps 22, 23, & 24.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
31.	Confirm/close the following valves: 2E11-F004B 2E11-F017B 2E11-F075B 2E11-F016B 2E11-F024B 2E11-F027B 2E11-F028B 2E11-F010	At panel 2H11-P601, the following valves are closed, green light illuminated: TORUS SUCTION VLV, 2E11-F004B RHR OUTBD INJ VLV, 2E11-F017B RHRSW VLV, 2E11-F075B CNMT SPRAY OUTBD VLV, 2E11-F016B FULL FLOW TEST LINE VLV, 2E11-F024B TORUS SPRAY VLV, 2E11-F027B TORUS SPRAY OR TEST VLV, TORUS SPRAY OR TEST VLV, 1E11-F028B RHR CROSSTIE VLV, 2E11-F010	
****32.**	Open valve 2E11-F006D.	At panel 2H11-P601, SHUTDOWN COOLING VLV, 2E11-F006D is OPEN, red light illuminated.	
****33.**	Start RHR pump 2B.	At panel 2H11-P601, RHR PUMP, 2E11-C002D is running, red light illuminated.	
****33.**	Open/throttle open valve 2E11-F024B.	At panel 2H11-P601, the FULL FLOW TEST LINE VLV, 2E11-F024B is OPEN, red light illuminated.	

PROMPT: **AT** this time, as Shift Supervisor, **INFORM** the operator that the Maximum Core Uncovery Time Limit has been reached and to secure pump down.

****34.**	Close 2E11-F024B.	At panel 2H11-P601, FULL FLOW TEST VLV, 2E11-F024B is CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**35.	Stop RHR pump 2E11-C002B.	At panel 2H11-P601, RHR PUMP, 2E11-C002B is STOPPED, green light illuminated.	

PROMPT: **WHEN** the operator addresses removing the jumpers to close the 2E11-F028B valve, as the Shift Support Supervisor, **INFORM** the operator that you will have some one else remove the jumpers and close the valve.

PROMPT: **IF** the operator addresses System Restoration to the standby lineup, as the Shift Supervisor, **INFORM** the operator that it is not desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 3 (ALL)

Title **ROLL THE MAIN TURBINE FROM 0 TO 1800 RPM**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 3 2015-301	**Time** 20.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 3 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	07/05/96	Initial development	RAB	SMC
01	03/05/99	Revised due to new simulator computer.	SCB	DHG
02	02/07/00	Format modification	RAB	DHG
03	11/02/00	Include objective number, TLB comment, changed required oil temperature for Step 33	RAB	DHG
04	01/03/02	Procedure changes	RLS	DHG
05	03/11/02	Include initial operator statement	RAB	RAB
06	03/08/05	Changed RO to NPO, added statement ensuring the procedure is the current version, changed procedure designations from -2S to -2, changed setup from IC 106 to IC 108.	ELJ	RAB
07	06/13/05	Revised Initial License statement for successful completion	RAB	RAB
08	04/18/06	Remove Response Cues	RAB	RAB
8.1	10/11/09	Revised for use on 2009-302 Exam	FNF	CME
8.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to CR-Sim 3 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-17.15-8.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**ROLL THE MAIN TURBINE FROM 0 TO 1800 RPM**
JPM NUMBER:	**CR-SIM 3 2015-301**
TASK STANDARD:	The task shall be completed when the Main Turbine has been rolled from 800 to 1800 rpm per 34SO-N30-001-2.
TASK NUMBER:	017.015
OBJECTIVE NUMBER:	017.015.A

PLANT HATCH JTA IMPORTANCE RATING:

NPO 2.25

SRO 2.83

K/A CATALOG NUMBER: 245000A4.06

K/A CATALOG JTA IMPORTANCE RATING:

NPO 2.7

SRO 2.6

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	34GO-OPS-001-2 (current version) 34SO-N30-001-2 (current version)

REQUIRED MATERIALS:	**Unit 2**
	34SO-N30-001-2 (current version)

APPROXIMATE COMPLETION TIME: 20.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **IC #108** and place in **RUN**.

2. **INSERT** the following **OVERRIDES:**

OR #	DESCRIPTION	FINAL	KEY
loN34-C003G1	MOTOR SUCT PMP	ON	1
loN34-C003R2	MOTOR SUCT PMP	OFF	1
loN34-C005G1	TURN GEAR OIL PMP	ON	1
loN34-C005R2	TURN GEAR OIL PMP	OFF	1

3. **INSERT** the following **MALFUNCTION:**

MALF #	DESCRIPTION	FINAL	RAMP	DELAY	KEY
mfN34_140	Main Turbine Quill Shaft Oil Pump Fail			9999	2
mfN34_153	Loss of Turbine Bearing Oil Pres (Var)	100	10,000	9999	2

4. **Create** the following **EVENT TRIGGERS** with the following information:
(**NOTE:** Use Windows "Notepad" to create blank *.scn and *.et files with the indicated names below. Copy the "ET INFORMATION" and "SCN INFORMATION" into the appropriate files. Copy the 4 files into the simulators "Hatch/Instr/ET" directory).

SCN/ET NAME	ET INFORMATION	SCN INFORMATION
EGN34-01.scn EGN34-01.et	;TG Oil Pump to RUN Deletes MF and OR diN34-C005.aivToPanel=2	DMF mfN34_153; DOR loN34-C005G1; DOR loN34-C005R2;
EGN34-02.scn EGN34-02.et	;Motor Suction Pump to RUN Deletes MF and OR diN34-C003.aivToPanel=2	DMF mfN34_153; DOR loN34-C003G1; DOR loN34-C003R2;

5. **ACTIVATE** event triggers **EGN34-01** and **EGN34-02**.

6. **INCREASE** Turbine Oil setpoint to 115 deg F.

7. **START** Motor Suction Pump.

   NOTE: The Turbine will trip at 1300 RPM if the Motor Suction Pump is **NOT** running.

8. **SELECT** a Turbine Speed of **800** RPM, Acceleration **FAST**.

9. **AFTER** Turbine is at 800 RPM select Acceleration **MED**.

10. SELECT the EX2100 screen and place “Regulator Control” in “Auto”.

11. SELECT the “Control” “Speed” screen (the normal Turbine Speed/Acceleration Screen).

12. **WITH** the Turbine at 800 RPM, **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

13. Markup 34SO-N30-001-2 up to, but not including, step 7.1.5.41. Ensure proper marking techniques are used for completed steps.

14. **ESTIMATED** Simulator **SETUP TIME**: **15 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A plant startup is in progress.
2. The Turbine Vibration Trip Bypass switch is in NORMAL
3. The Main Turbine is rolling at 800 RPM to increase lube oil temperatures.
4. Lube Oil temperatures have increased sufficiently.
5. 34SO-N30-001-2, "Main Turbine Operations," is complete up to Step 7.1.5.40
6. It is not desired to perform any checks of the turbine at 800 rpm or 1500 rpm.

INITIATING CUES:

Increase the Main Turbine speed to 1800 RPM and continue turbine startup IAW 34SO-N30-001-2, starting at Step 7.1.5.43

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

NOTE: All manipulations are performed at 2H11-P650 unless otherwise indicated.

1.	Operator obtains the procedure needed to perform the task	Operator has obtained 34SO-N30-001-2 and refers to section 7.1.5.40 and then to 7.1.5.43.	

PROMPT: **IF** the operator asks about selection of an acceleration rate, **THEN** inform him to select MED.

****2.**	SELECT Speed of 1800 RPM.	SELECT Speed Cmd RPM **Rated (1800)**	
3.	Once 900 rpm is reached STOP the Shaft Lift Pumps.	Operator, at 900 rpm, stops the Shaft Lift Pumps by placing the control switch in OFF PULL TO LOCK.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: it is desired to maintain the regulator in MANUAL and prevent autostart of the EX 2100 , **THEN** inform him to select MED.

**4.	SELECT **Manual** for Regulator Control on the EX2100 screen.	Operator selects **Manual** for Regulator Control on the EX2100 screen.	
5.	At 1000 rpm, select Acceleration RPM/min Fast (180)	Operator, at 1000 RPM, selects Speed Control, Acceleration RPM/min Fast (180)	
6.	At 1200 rpm, SELECT Speed Control, Acceleration rpm/min desired rate: Med (90) OR Fast (180).	Operator leaves Speed Control, Acceleration RPM/min selected to Fast (180).	

PROMPT: **IF** Operator inquires as to desired acceleration rate at 1200 rpm, **THEN** inform the operator that FAST (180) is the correct rate.

7.	OBSERVE Turbine Speed increase and levels at approximately 1800 rpm	Operator observes Turbine Speed increase and stabilize at approximately 1800 rpm on the DEHC screen.	
8.	CONFIRM annunciator 650-150, TURB SUPV TRIP BYPASS TURB VIB TRIP BYPASS, is clear.	Operator confirms annunciator 650-150, TURB SUPV TRIP BYPASS TURB VIB TRIP BYPASS, is clear.	

NOTE: May receive TURB SHAFT PUMP DISCH PRESS LOW, 651-104, alarm as the Main Turbine increases speed. It is acceptable AFTER the operator reviews the ARP to continue with the Main Turbine startup, if asked.

9.	CONFIRM Main Shaft Pump Discharge pressure is between 210 and 250 PSIG	Operator confirms Main Shaft Pump Discharge pressure is between 210 and 250 PSIG on the **Monitor** → **lube oil** screen.	
10.	Stop 2N34-C003, Motor Suction Pump	Operator stops 2N34-C003, Motor Suction Pump by placing its control switch to OFF.	
11.	PLACE 2N34-C003 in the AUTO START position	Operator places control switch for 2N34-C003 in the AUTO START position	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
12.	STOP 2N34-C005, Turbine Turning Gear Oil Pump	Operator stops 2N34-C005, Turbine Turning Gear Oil Pump by placing its control switch to OFF.	
13.	PLACE 2N34-C005 in the AUTO START position.	Operator places control switch for 2N34-C005 in the AUTO START position.	
14.	CONFIRM 2N39-C001, Turbine Turning Gear Motor control switch, is in the AUTO PULL position.	Operator confirms the control switch for 2N39-C001, Turbine Turning Gear Motor control switch, is in the AUTO PULL position.	
15.	PLACE the Shaft Lift Pumps control switch in the AUTO START Position.	Operator places the Shaft Lift Pumps control switch in the AUTO START Position.	
16.	CONFIRM 2P41-R610, Main Turbine Lube Oil Temp, is between 110°F and 120°F	Operator confirms on 2P41-R610, that Main Turbine Lube Oil Temp is between 110°F and 120°F.	

THE ALTERNATE PATH STARTS HERE:

Simulator Instructor NOTE:

FIRST: **Ensure** oil pumps have been manually turned off by the operator, INCLUDING the lift pumps being OFF and Placed in AUTO, then **ACTIVATE** overrides (**RB 1**)/Event Triggers for the lube oil pumps are already activated.

SECOND: **ACTIVATE** Quill Shaft Failure malfunction (**RB 2**)

17.	Respond to Quill Shaft Failure annunciator.	Operator refers to annunciator procedure 650-152 for Quill Shaft Failure.	
18.	Confirm Turbine 200 psig oil pressure is below 60 psig.	Operator observes that Turbine 200 psig oil pressure is below 60 psig as indicated by 2N34-R601C.	
****19.**	Start TGOP.	Operator starts the TGOP by placing its control switch to RUN.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The TGOP is required for lift pump operation. IAW 34SO-N30-001-2 precaution 5.2.8, "No more than two shaft lift pumps may be OFF WHEN turbine speed is < 900 RPM.

****20.**	Start MSP.	Operator starts the MSP by placing it's control switch to RUN	
21.	If Turbine Trips, enter 34SO-N30-001-2.	Operator refers to 34SO-N30-001-2.	

PROMPT: WHEN operator refers to 34SO-N30-001-2, THEN inform the operator that another operator will carry out the actions for a Turbine Trip.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator has started lube oil pumps and has entered 34SO-N30-001-2 for a Turbine Trip.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 4 (ALL)

Title **PLACE HPCI IN PRESSURE CONTROL MODE**		
Author: Anthony Ball	**Media Number:** CR-SIM 4 2015-301	**Time** 10.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 4 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
01		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to CR-Sim 4 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-05.15-01 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 () UNIT 2 (X)

TASK TITLE:	**PLACE HPCI IN PRESSURE CONTROL MODE**
JPM NUMBER:	**CR-SIM 4 2015-301**
TASK STANDARD:	The task will be met when HPCI has been placed in pressure control mode.
TASK NUMBER:	005.015
OBJECTIVE NUMBER:	005.015.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.8

SRO 3.8

K/A CATALOG NUMBER: 206000A4.06

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.3

SRO 4.3

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	31EO-EOP-107-2

REQUIRED MATERIALS:	**Unit 2**
	31EO-EOP-107-2

APPROXIMATE COMPLETION TIME: 10.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to a 100% IC or **SNAP 614** and leave in **FREEZE**.

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
NONE				

3. **INSERT** the following **SIMULATOR VALUE OVERRIDES (SVO):**

SVO #	DESCRIPTION	FINAL VALUE	RAMP RATE	ACT. TIME
NONE				

4. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
NONE		

5. **INSERT** the following **ORS OVERRIDES:**

TAG #	P/L	DESCRIPTION	STATUS	ACT. TIME
RFE41_153		HPCI TORUS SUCTION BYPASS	OVRD	0000

6. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. From 100% power insert a manual scram.
   B. Perform RC-1 and RC-2.
   C. Allow the plant to stabilize with turbine bypass valves controlling reactor pressure and RFPTs controlling water level.
   D. Ensure HPCI is in standby with NO initiation signal present.
   E. RESET Scram.

7. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

8. **PLACE DANGER TAGS** on the following equipment:

MPL #	COMPONENT	TAGGED POSITION
NONE		

9. **ESTIMATED** Simulator **SETUP TIME**: **15**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. The unit has been scrammed to allow work on an EHC system leak
2. RFPTs are controlling reactor water level.
3. The HPCI High Torus Level Suction Swap has been over-ridden per 31EO-EOP-100-2.

INITIATING CUES:

Place HPCI in Pressure Control Mode per 31EO-EOP-107-2, "ALTERNATE RPV PRESSURE CONTROL" and control reactor pressure between 500 and 800 psig.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1,	Reset the HPCI initiation signal, IF the HPCI initiation cannot be reset, THEN do NOT perform this section.	Confirm a HPCI initiation signal does not exist by verifying the HPCI auto initiation light is not illuminated On 2H11-P601.	
2.	IF HPCI system isolation has occurred and the isolation signal has cleared, THEN take HPCI Auto Isolation Signal A (B) switches to RESET. OR IF HPCI system isolation has occurred and CANNOT be reset, DO NOT continue with this subsection.	Confirm a HPCI isolation does not exist by verifying the HPCI isolation alarms are not illuminated and that 2E41-F002 and 2E41-F003 are open, red lights illuminated On 2H11-P601	
3.	To maintian HPCI suction source aligned to the CST, override the HPCI high torus level suction swap per 31EO-EOP-100-2, section 3.5.	Student is informed in the turnover that this function has been overridden.	

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
4.	Confirm OPEN/ 2E41-F029, Steam Line Drain 2E41-F003, Outbd Steam Isol 2E41-F028, Steam Line Drain	Verify the red light is illuminated for the following valves; 2E41-F029, panel 2H11-P601 2E41-F003, panel 2H11-P601 2E41-F028, panel 2H11-P602.	
5.	Confirm OPEN 2E41-F002, Inboard Steam Isolation Valve.	On 2H11-P601, verify 2E41-F002 is open, red light illuminated.	
****6.**	OPEN 2E41-F059, Lube Oil Cooling Wtr Valve.	On 2H11-P601, the operator places the switch 2E41-F059 to open, red light illuminates.	
7.	START HPCI Vacuum Pump.	On 2H11-P601, the operator places the switch for the HPCI vacuum pump to start.	
8.	Confirm CLOSED 2E41-F006, Pump Discharge Valve.	On 2H11-P601, the operator verifies 2E41-F006 is closed, green light illuminated.	
****9.**	OPEN 2E41-F008, Test to CST Valve.	On 2H11-P601, the operator places the switch for 2E41-F008 to the open position, red light illuminates.	
****10.**	OPEN 2E41-F011, Test to CST Valve.	On 2H11-P601, the operator places the switch for 2E41-F011 to the open position, red light illuminates.	
****11.**	OPEN 2E41-F001, Turbine Steam Supply Valve.	On 2H11-P601, the operator places the switch for 2E41-F001 to the open position, red light illuminates.	

NOTE: If the Aux Oil Pump is not started until after the 2E41-F001 is full open the following annunciators will be received:

- 601-103, HPCI TURBINE TRIP.
- 601-112, HPCI TURBINE BRG OIL PRESS LOW.
- 601-231, HPCI PUMP DISCHARGE FLOW LOW.

****12.**	START the HPCI Auxiliary Oil Pump.	On 2H11-P601, the operator places the switch for the HPCI Auxiliary Pump to start position, red light illuminates.	

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**13.	Control HPCI turbine speed/system flow, and IF necessary throttle 2E41-F008, Test to CST Vlv, to control Reactor pressure.	On 2H11-P601, the operator adjust HPCI flow controller 2E41-R612 and/or throttles 2E41-F008 to control reactor pressure.	

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- Reactor pressure is being controlled between 500 psig and 800 psig.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 5 (ALL)

Title **INITIATE EMERGENCY TORUS VENTING USING THE EMERGENCY VENT PATH**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 5 2015-301	**Time** 12.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 5 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
01	08/01/90	General revision and format change	JEM	DHG
02	05/24/91	General/procedure revision	JLA	DHG
03	08/18/92	General revision and format change	WMM	SCB
04	06/23/93	Task change, rename, procedure change, word processor change	RAB	RSG
05	12/02/93	Change initiating cue to a command, change valve naming to match the plant	RAB	SMC
06	06/17/96	Format change, modify time allowance	RAB	RSG
07	02/04/00	Format modification, title change, change time allowance based on running average	RAB	DHG
08	11/02/00	Include objective number	RAB	DHG
09	01/03/02	Change Unit 2 control pressure to 56 psig.	RLS	DHG
10	03/07/02	Include initial operator statement	RAB	RAB
11	03/01/05	Update procedure numbers and operator applicability	TFP	DHG
12	06/02/05	Revised Initial License statement for successful completion	RAB	RAB
13	04/07/06	Remove Response Cues	RAB	RAB
14	09/21/09	Added HU steps, changed to add and identify critical steps to match procedure.	CLN/ADY	ALD
14.1	08/02/11	Reviewed JPM against current procedure. Changed prompt for Unit 1 to "pressure is 54 psig and decreasing" which would require additional venting. Changed prompt for Unit 2 to "pressure is 56 psig and decreasing" which would require additional venting.	MMG	ALS
14.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Sim 5, removed Unit 1 section and deleted Fundamental Review Question. ALL will be added back to become new LR-JP-13.53-14.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
14.1	MMG

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**INITIATE EMERGENCY TORUS VENTING USING THE EMERGENCY VENT PATH**
JPM NUMBER:	**CR-SIM 5 2015-301**
TASK STANDARD:	This task shall be completed when the Torus is lined up to vent via the Emergency Vent per 31EO-EOP-101.
TASK NUMBER:	013.053
OBJECTIVE NUMBER:	013.053.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.14

SRO 4.50

K/A CATALOG NUMBER: 223001A207

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.20

SRO 4.30

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	34SO-T48-002-1 31EO-EOP-101-1 31EO-EOP-012-1	34SO-T48-002-2 31EO-EOP-101-2 31EO-EOP-012-2

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	31EO-EOP-101-1 (current version) Designated jumpers(2) in EOP jumper book Screwdriver or nutdriver	31EO-EOP-101-2 (current version) Designated jumpers(2) in EOP jumper book Screwdriver or nutdriver

APPROXIMATE COMPLETION TIME: 12.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **100% RTP IC** or **SNAP 615** and leave in **FREEZE**.

2. **INSERT** the following **Event Triggers:**

ET #	Description
EGT48-2	Modifies & increases Containment pressures when CAD B started and inserts **EGT48-3**
EGT48-3	Modifies & decreases Containment pressures when F082 is opened

3. **INSERT** the following **OVERRIDES:**

Activator	TAG #	S/M/L	DESCRIPTION	Final Value	Ramp Rate	Delay
ST-0	aoB21-R623AP2	M	Post-Accident Mon Sys A – Rx Press	15	100	
ST-0	aoB21-R623BP2	M	Post-Accident Mon Sys B – Rx Press	15	100	
ST-0	aoT48-R601AP1	M	DW Press (Wide Range)	51	100	
ST-0	aoT48-R601BP1	M	DW Press (Wide Range)	51	100	
ST-0	aoT48-R607AP2	M	DW Press (Normal)	5	100	
ST-0	aoT48-R607BP2	M	DW Press (Normal)	5	100	
ST-0	aoT48-R608P1	M	DW Press Abnormal	58	100	
ST-0	aoT48-R608P2	M	Torus Press Abnormal	56	100	
ST-0	aoT48-R609P1	M	DW Press Abnormal	51	100	
ST-0	aoT48-R609P2	M	Torus Press Abnormal	49	100	
ST-0	aoT48-R631A	M	DW Press	51	100	
ST-0	aoT48-R631B	M	DW Press	51	100	
ST-0	aoT48-R632A	M	Torus Press	49	100	
ST-0	aoT48-R632B	M	Torus Press	49	100	

3. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfT48_278	T48- F307, F308, F309, F324, F318, F319, F320, & F326	ORIDE

4. **INSERT** the following **Malfunctions:**

Activator	MALF #	TITLE	FINAL VALUE	RAMP RATE	DELAY
ST-0	mfB21_123A	MSL A Break (before restrictor)	0.15	1000	0000

5. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Perform RC-1, 2, & 3
   B. Start SBGT System "2A" with suction from the Reactor Building.
   C. Allow the Simulator to run until the plant is in the UNSAFE Region of the DSIL Curve.
   D. When in the UNSAFE Region of the DSIL Curve, close the MSIVs and open the ADS valves.
   E. Maintain RWL around "0" inches with Condensate.
   F. TURN OFF THE SPDS SCREENS.
   G. Acknowledge/Reset annunciators.

6. **RUN SCENARIO FILE** and **EVENT TRIGGER** (current rev) **2015-301-615**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 Torus pressure is above the Pressure Suppression Pressure.
2. 31EO-EOP-012-2 (PC) is in progress.
3. Standby Gas Treatment is in operation, taking suction from the Reactor Building and Refueling Floor.
4. Normal AC Power has just been restored.
5. Torus Venting with CAD is desired and Torus pressure is 48 psig and increasing slowly.
6. CAD Loop A is unavailable and can NOT be used.

INITIATING CUES:

Perform Torus venting with CAD Loop B using 31EO-EOP-101-2, Emergency Containment Venting, Step 3.1.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the materials that are required.	Operator identifies the required materials and where to obtain them.	
**2.	Defeat the High Drywell Pressure Isolation signal.	At panel 2H11-P654, the operator PLACES the keylock PCIS Override Switches to OVERRIDE for: High Drywell Press, 2T48-F332B High Drywell Press, 2T48-F333B	
**3.	Defeat the Low RPV Level Isolation signal.	At panel 2H11-P654, the operator PLACES the keylock PCIS Override Switches to OVERRIDE for: Low RPV Level, 2T48-F332B Low RPV Level, 2T48-F333B	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**4.	Defeat the Reactor Building High Radiation Isolation signal.	At panel 2H11-P654, the operator PLACES the keylock PCIS Override Switches to OVERRIDE for: Rx Bldg High Radn, 2T48-F332B Rx Bldg High Radn, 2T48-F333B	
**5.	Defeat the Refuel Floor High Radiation Isolation signal.	At panel 2H11-P654, the operator PLACES the keylock PCIS Override Switches to OVERRIDE for: Refuel Flr High Radn, 2T48-F332B Refuel Flr High Radn, 2T48-F333B	
**6.	Open Torus 2" Vent valve, 2T48-F332B.	At panel 2H11-P654: TORUS VENT ISOL VLV, 2T48-F332B is OPEN, red light illuminated.	
**7.	Open Torus 2" Vent valve, 2T48-F333B.	At panel 2H11-P654: TORUS VENT ISOL VLV, 2T48-F333B is OPEN, red light illuminated.	
**8.	Using Torus Flow Controller, 2T48-R616B, Open Torus Vent Flow Control Valve, 2T48-F337B.	At panel 2H11-P654, the operator Operates 2T48-R616B, Torus Vent Flow Cntl Vlv 2T48-F337B, as required to maintain Suppression Chamber pressure below 56 psig.	
9.	Monitor Torus Pressure indication	At panel 2H11-P657 (P654), Torus pressure is being monitored by the operator.	

THE ALTERNATE PATH STARTS HERE:

PROMPT: **WHEN** the operator addresses Torus pressure, **INDICATE** for the operator that Torus pressure is 57 psig and slowly increasing.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
10.	Operator evaluates the need to transition to step 3.2 to use the Torus emergency vent path.	Operator transitions to step 3.2 to use the Torus emergency vent path	

PROMPT: **IF** addressed by the operator, as the Shift Supervisor, **INFORM** the operator that another operator is monitoring the NPSH curves for RHR and Core Spray.

PROMPT: **IF** addressed by the operator, **INFORM** the operator that normal AC power and Non-interruptible air are available.

****11.**	Close SBGT Inlet Isolation Valve, 2T48-F081.	At panel 2H11-P654, the operator CLOSES 2T48-F081, SBGT INLET ISOL VLV, green light illuminated.	
****12.**	Close or verify closed SBGT Inlet Isolation Bypass Valve, 2T48-F083.	At panel 2H11-P654, the operator CLOSES or verifies closed 2T48-F083, SBGT INLET ISOL BYP VLV, green light illuminated.	
****13.**	Place 2T46-D001A, SBGT A Fan to OFF and verify that 2T46-F002A, SBGT A Filter Discharge closes.	At panel 2H11-P657, the operator PLACES 2T46-D001A, SBGT A FAN/FILTER to OFF, green light illuminated and VERIFIES that 2T46-F002A, FLTR DISCH CLOSES, green light illuminated.	
****14.**	Place 2T46-D001B, SBGT B Fan to OFF and verify that 2T46-F002B, SBGT B Filter Discharge closes.	At panel 2H11-P654, the operator PLACES 2T46-D001B, SBGT B FAN/FILTER to OFF, green light illuminated and VERIFIES that 2T46-F002B, FLTR DISCH CLOSES, green light illuminated.	

NOTE: Jumpers were inserted at the beginning of the JPM setup.

PROMPT: **WHEN** the operator addresses installing jumpers for valves 2T48-F326 & 2T48-F318, **INDICATE** for the operator that the jumpers are installed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
15.	Install jumper from UU-45 to UU-61 in panel 2H11-P601D for valve 2T48-F326.	Operator has CALLED the Shift Support Supervisor to INSTALL jumper from UU-45 to UU-61at Panel 2H11-P601D, for valve 2T48-F326.	
16.	Install jumper from AA-70 to AA-73 in panel 2H11-P602A for valve 2T48-F318.	Operator has CALLED the Shift Support Supervisor to INSTALL jumper from AA-70 to AA-73, at Panel 2H11-P602A, for valve 2T48-F318.	
****17.**	Open Torus Vent Valve, 2T48-F326.	At panel 2H11-P601, the operator OPENS 2T48-F326, TORUS VENT VLV, red light illuminated.	
****18.**	Open Torus Vent Valve, 2T48-F318.	At panel 2H11-P602, the operator OPENS 2T48-F318, TORUS VENT VLV, red light illuminated.	
19.	Close or confirm closed Torus Emergency Vent Path Drain Valve, 2T48-F085.	At panel 2H11-P654, the operator VERIFIES that 2T48-F085, SUPP CHMBR EMERG VENT Path DRN VLV, is CLOSED.	
****20.**	Open Torus Emergency Vent Valve, 2T48-F082.	At panel 2H11-P654, the operator OPENS 2T48-F082, SUPP CHMBR EMERG VENT VLV, red light illuminated.	

PROMPT: **IF** the operator addresses Torus pressure, **INDICATE** for the operator that Torus pressure is 50 psig and decreasing.

PROMPT: **IF** the operator addresses System Restoration, as the Shift Supervisor, **INFORM** the operator that it is NOT desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 6 (ALL)

Title **POWER A DEENERGIZED BUS FROM A DIESEL GENERATOR, ALTERNATE PATH**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 6 2015-301	**Time** 10.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 6 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	06/01/07	Initial development	DHG	BKW
01	6/26/07	Modify The Malfunction Numbers	DHG	RAB
02	10/23/08	Removed critical step requirement from step to lower voltage to 57 Hz; Clarified action required to complete critical task to match procedure step.	ADY	RSG
02.1	10/09/09	Modified to use for 2009-302	FNF	CME
2.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Sim 5 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-28.06A-2.2 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 () UNIT 2 (X)

TASK TITLE:	**POWER A DEENERGIZED BUS FROM A DIESEL GENERATOR, ALTERNATE PATH**
JPM NUMBER:	**CR-SIM 6 2015-301**
TASK STANDARD:	The task shall be completed when the Operator has powered the 4160 VAC Emergency Bus "2E" successfully from the 2A Emergency Diesel per 34AB-R43-001-2.
TASK NUMBER:	028.006 AND 028.023
OBJECTIVE NUMBER:	028.006.C

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.14

SRO 3.30

K/A CATALOG NUMBER: 262001A2.07

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.2

SRO 4.3

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	34AR-652-102-2 34SO-R43-001-2 34AB-R43-001-2 (current versions)

REQUIRED MATERIALS:	**Unit 2**
	34AB-R43-001-2 (current version)

APPROXIMATE COMPLETION TIME: 10.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **100% Power** and leave in **FREEZE**.

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	KEY	DELAY TIME
mfR22_182	4KV Bus 2E Fault		1	99999
mfR43_62A	DIESEL GEN FAILURE TO Auto START 2A			0000
mfR43_239A	DG A Output Brk One Shot Fail to Auto Tie			

2. **INSERT** the following **OVERRIDES:**

MALF #	TITLE	FINAL VALUE	KEY	ACT. TIME
loR43-S251	Diesel 2A Mode Sel SW (note: this is the System Operative Light)	OFF		

3. **Create** the following **EVENT TRIGGERS** with the following information:
(**NOTE:** Use Windows "Notepad" to create blank *.scn and *.et files with the indicated names below. Copy the "ET INFORMATION" and "SCN INFORMATION" into the appropriate files. Copy the 2 files into the simulators "Hatch/Instr/ET" directory).

SCN/ET NAME	ET INFORMATION	SCN INFORMATION
EGR43-01.scn EGR43-01.et	;DIESEL 2A SHUTDOWN RELAY ACTIVATES SYS OP LIGHT diR43-S57.aivToPanel=1	DOR loR43-S251;

4. **ACTIVATE** event triggers **EGR43-01.**

5. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Activate malfunction mfR22_182 with Key 1.
   B. Hold the "A" EDG speed switch to slower for approximately 5 seconds.
   C. Remove malfunction mfR22_182.

4. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

5. **ESTIMATED** Simulator **SETUP TIME**: **10 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. The 4160 VAC 2E Bus is de-energized.
2. The 2A Emergency Diesel Generator has failed to start.
3. Normal AC power is available to all other electrical distribution switchgear.
4. 34AR-652-102, LOSS OF OFFSITE POWER, is in progress.
5. Conditions are met to energize 4160 VAC 2E Bus.

INITIATING CUES:

Start the 2A Emergency Diesel Generator and Energize the 2E 4160 VAC Bus, per 34AB-R43-001-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

NOTE: The JPM uses the steps from 34AB-R43-001-2, PLACARD, manual Startup and Tying of Emergency diesel generator." The student may select to use the procedure steps from the body of the procedure which is allowable.

NOTE: All actions are performed on panel 2H11-P652.

1.	Confirms EDG 2A is NOT running.	The operator verifies CLEAR Diesel Auto Start Sys Operative light is illuminated and the Red Diesel Start light is extinguished.	
2.	Verify the Auto Start System Operative Light is lit.	The operator determines the Auto Start System Operative Light is NOT lit.	
****3.**	Depress the Diesel Shutdown Relay pushbutton	The operator depresses the Diesel Shutdown Relay pushbutton.	

(** **Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: When the Diesel Shutdown Relay pushbutton is depressed, the Diesel 2A Mode Sel SW WHITE light will illuminate after 110 seconds has passed.

**4.	Place the EDG START/STOP switch to START.	The operator momentarily places the 2A EDG START/STOP switch to start.	

NOTE: This begins the **ALTERNATE PATH** portion of this JPM.

5.	Verify the EDG has started.	The operator verifies the "CLEAR Diesel Auto Start Sys Operative" light extinguishes and the "Red Diesel Start" light illuminates.	
6.	Verify the "E" 4160 VAC bus is energized.	The operator observes voltage on the "E" 4160 VAC bus equals "0" VAC and answers procedure step with "NO".	
**7.	Using Diesel Gen 2A(C) Speed Adjust, lower frequency to 57 Hz.	At panel 2H11-P652, the Diesel Gen 2A SPEED ADJUST switch has been taken to LOWER until frequency is 57 Hz (+ or - 1 hz).	
**8.	Using Diesel Gen 2A(C) Speed Adjust, raise frequency to 60 Hz.	At panel 2H11-P652, the Diesel Gen 2A SPEED ADJUST switch has been taken to RAISE until frequency is 60 Hz (+ or - 1 hz). (Critical action is EDG output breaker closing)	
9.	Verify the "E" bus is energized.	The operator observes voltage on the "E" 4160 VAC bus equals "4160" VAC and answers procedure step with "Yes".	

PROMPT: **IF** the opeator used the placard for energizing 2E Bus, when the operator goes to get to 34AB-R43-001-2, **INFORM** the operator that another operator will verify actions IAW 34AB-R43-001-2.

END TIME:_____

(** **Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The terminating cue shall be given to the Operator when:

- With NO reasonable progress, the Operator exceeds double the allotted time.
- 4160 Bus 2E is energized with frequency at 59 – 61 Hz.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 7 (ALL)

Title **LOSS OF AIR ACTIONS FOR RX BLDG VENTILATION**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 7 2015-301	**Time** 20.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 7 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	05/18/09	Initial development	FNF	CME
0.1		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Sim 7 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-13.53-14.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 () UNIT 2 (X)

TASK TITLE:	**LOSS OF AIR ACTIONS FOR RX BLDG VENTILATION**
JPM NUMBER:	**CR-SIM 7 2015-301**
TASK STANDARD:	The task shall be complete when the operator has completed 34AB-P51-001-2 "Loss Of Instrument And Service Air System Or Water Intrusion Into The Service Air .
TASK NUMBER:	H-OPR0200.025
OBJECTIVE NUMBER:	200.025.C from SG50273

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.93

SRO 3.61

K/A CATALOG NUMBER: 295019AK2.08

K/A CATALOG JTA IMPORTANCE RATING:

RO 2.8

SRO 2.9

OPERATOR APPLICABILITY: RO

GENERAL REFERENCES:	**Unit 1 & 2**
	34AB-P51-001-2 "Loss Of Instrument And Service Air System Or Water Intrusion Into The Service Air System"

REQUIRED MATERIALS:	**Unit 1 & 2**
	34AB-P51-001-2 "Loss Of Instrument And Service Air System Or Water Intrusion Into The Service Air System" completed through step 4.13.

APPROXIMATE COMPLETION TIME: 20 Minutes

SIMULATOR SETUP: See the next sheet.

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **IC #113** and place in RUN.

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
mfP51_222A	Service Air Compressor 2A Trip			
mfP51_222B	Service Air Compressor 2B Trip			
mfP51_222C	Service Air Compressor 2C Trip			
mfP52_191	Instrument Air Leakage			
mfC71_59	Spurious Reactor Scram			

3. **INSERT** the following **OVERRIDES**:

OVERIDE #	TITLE	FINAL VALUE
diT46-D001A-1	SBGTS A Fan/Filter	AUTO
diT46-D001B-1	SBGTS B Fan/Filter	AUTO
diP52-F565	Rx Bldg Inst. N2 to Noninter. Ser. Vlv.	CLOSED

4. **Create** the following **EVENT TRIGGERS** with the following information:
(**NOTE:** Use Windows "Notepad" to create blank *.scn and *.et files with the indicated names below. Copy the "ET INFORMATION" and "SCN INFORMATION" into the appropriate files. Copy the 4 files into the simulators "Hatch/Instr/ET" directory).

SCN/ET NAME	ET INFORMATION	SCN INFORMATION
EGT46-11.scn EGT46-11.et	;SBGT A in RUN doesn't work, B works diT46-D001A-1.iivPanel=3	DOR diT46-D001B-1; CET EGT46-12;
EGT46-12.scn EGT46-12.et	;SBGT B in RUN doesn't work, A works diT46-D001B-1.iivPanel=3	DOR diT46-D001A-1; CET EGT46-11;

5. **ACTIVATE** event triggers **EGT46-11** and **EGT46-12**.

6. Place Rx Mode Switch to Shutdown.

7. Place RCIC in service, injecting into the vessel, with level slowly rising (this is to prevent the auto start of SBGT).

8. Allow the simulator to run until the SBGT air operated valves (F001/2/3) fail open (~4 minutes)

9. Mark up 34AB-P51-001-2 up to, but not including, step 4.14.

10. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

11. **ESTIMATED** Simulator **SETUP TIME**: **10 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 has lost all Service Air Compressors and they can not be restarted.
2. Electrical Maintenance and I&C are checking all air system electrical circuits.
3. The reactor has been scrammed and 34AB-C71-001-2, “Scram Procedure” is being carried out.
4. 34AB-P51-001-2 “Loss Of Instrument And Service Air System Or Water Intrusion Into The Service Air System” has been partially completed.

INITIATING CUES:

Complete procedure 34AB-P51-001-2 starting at step 4.14.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: Provide the operator with 34AB-P51-001-2 completed up to section 4.13.

START TIME:_____

1.	The operator starts at the correct step.	Operator refers to 34AB-P51-001-2 and starts at step 4.14.	
2.	Determine if Control Air header Pressure is below 45 PSIG AND NOT increasing.	On panel 2H11-P650, Control Air Pressure, 2P52-R600, the operator observes pressure is less then 45 psig and not increasing.	

NOTES:

- If the operator attempts to first start the "A" SBGT, complete steps 3-9 and skip steps 10-16
- If the operator attempts to first start the "B" SBGT, complete steps 10-16 and skip steps 3-9.
- All "A" controls are located on 2H11-P657.
- All "B" controls are located on 2H22-P654.
- SBGT air operated valves F001/2/3 fail in the OPEN position.

3.	OPEN 2T46-F003A, Fltr Inlet from Refuel Flr. AND/OR Open 2T46-F001A, Fltr Inlet from Rx Bldg.	The operator places the keylock switch for 2T46-F003A, Fltr Inlet from Refuel Flr, to OPEN.	
		The operator places the keylock switch for 2T46-F001A, Fltr Inlet from Rx Bldg, to OPEN.	
4.	PLACE SBGT A in RUN position	The operator places the control switch for SBGT A to RUN.	

NOTE: The operator should note that SBGT "A" does not start and continue with SBGT "B" start.

5.	OPEN 2T46-F003B, Fltr Inlet from Refuel Flr. AND/OR Open 2T46-F001B, Fltr Inlet from Rx Bldg.	The operator places the keylock switch for 2T46-F003B, Fltr Inlet from Refuel Flr, to OPEN.	
		The operator places the keylock switch for 2T46-F001B, Fltr Inlet from Rx Bldg, to OPEN.	
**6.	PLACE SBGT B in RUN position	The operator places the control switch for SBGT B in RUN.	
7.	CONFIRM 2T46-F002B OPENS.	The operator observes 2T46-F002B red light ILLUMINATED.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
8.	CONFIRM SBGT B HTR Red Light ILLUMINATES	The operator observes SBGT B HTR Red Light ILLUMINATED.	
9.	CONFIRM SBGT Flow increases to 1500-4000 SCFM.	The operator observes SBGT flow between 1500-4000 scfm on 2U41-R600.	

NOTES:

- If the operator attempts to first start the "A" SBGT, complete steps 3-9 and skip steps 10-16
- If the operator attempts to first start the "B" SBGT, complete steps 10-16 and skip steps 3-9.
- All "A" controls are located on 2H11-P657.
- All "B" controls are located on 2H22-P654.
- SBGT air operated valves F001/2/3 fail in the OPEN position.

10.	OPEN 2T46-F003B, Fltr Inlet from Refuel Flr. AND/OR Open 2T46-F001B, Fltr Inlet from Rx Bldg.	The operator places the keylock switch for 2T46-F003B, Fltr Inlet from Refuel Flr, to OPEN.	
		The operator places the keylock switch for 2T46-F001B, Fltr Inlet from Rx Bldg, to OPEN.	
11.	PLACE SBGT B in RUN position	The operator places the control switch for SBGT B in RUN.	

NOTE: The operator should note that SBGT "B" does not start and continue with SBGT "A" start.

12.	OPEN 2T46-F003A, Fltr Inlet from Refuel Flr. AND/OR Open 2T46-F001A, Fltr Inlet from Rx Bldg.	The operator places the keylock switch for 2T46-F003A, Fltr Inlet from Refuel Flr, to OPEN.	
		The operator places the keylock switch for 2T46-F001A, Fltr Inlet from Rx Bldg, to OPEN.	
****13.**	PLACE SBGT A in RUN position	The operator places the control switch for SBGT A to RUN.	
14.	CONFIRM 2T46-F002A OPENS.	The operator observes 2T46-F002A red light LLUMINATED.	
15.	CONFIRM SBGT A HTR Red Light ILLUMINATES	The operator observes SBGT A HTR Red Light ILLUMINATED.	
16.	CONFIRM SBGT Flow increases to 1500-4000 SCFM.	The operator observes SBGT flow between 1500-4000 scfm on 2T41-R618.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The operator may NOT check the next step until after all are other steps of this JPM are complete.

17.	Checks the Rx bldg and RF Floor Diff pressures are negative.	On panel 2H11-P700 the operator checks the RF Floor to Outside Air dp and the Rx Bldg to Outside Air dp on recorders 2T46-R604A and 2T46-R604B. The dp will be approximately (negative) -0.25 inches.	

NOTE: For the fans listed below, if a fan is **NOT** running and does **NOT** auto start, then the step is **NOT** critical. The step is to be marked **SAT** if, after the operator is done, the fan is **NOT** running (green light illuminated).

****18.**	TRIP 2U41-C001A, Turb Bldg Vent Supply Fan	On panel 2H11-P654 the operator places control switch for 2U41-C001A, Turb Bldg Vent Supply Fan, to the OFF position, green light illuminated.	
****19.**	TRIP 2U41-C001B, Turb Bldg Vent Supply Fan	On panel 2H11-P654 the operator places control switch for 2U41-C001B, Turb Bldg Vent Supply Fan, to the OFF position, green light illuminated.	
****20.**	TRIP 2U41-C002A, Turb Bldg Vent Exhaust Fan	On panel 2H11-P654 the operator places control switch for 2U41-C002A, Turb Bldg Vent Exhaust Fan, to the OFF position, green light illuminated.	
****21.**	TRIP 2U41-C002B, Turb Bldg Vent Exhaust Fan	On panel 2H11-P654 the operator places control switch for 2U41-C002B, Turb Bldg Vent Exhaust Fan, to the OFF position, green light illuminated.	
****22.**	TRIP 2T41-C001A, Rx Bldg Vent Supply Fan	On panel 2H11-P657 the operator places control switch for 2T41-C001A, Rx Bldg Vent Supply Fan, to the OFF position, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**23.	TRIP 2T41-C001B, Rx Bldg Vent Supply Fan	On panel 2H11-P657 the operator places control switch for to the OFF position, green light illuminated.	
**24.	TRIP 2T41-C007A, Rx Bldg Vent Exhaust Fan	On panel 2H11-P657 the operator places control switch for 2T41-C001B, Rx Bldg Vent Supply Fan, to the OFF position, green light illuminated.	
**25.	TRIP 2T41-C007B, Rx Bldg Vent Exhaust Fan	On panel 2H11-P657 the operator places control switch for 2T41-C007B, Rx Bldg Vent Exhaust Fan, to the OFF position, green light illuminated.	
**26.	TRIP 2T41-B017 Fan 1, Rx Bldg Recirc Fan	On panel 2H11-P657 the operator places control switch for 2T41-B017 Fan 1, Rx Bldg Recirc Fan, to the OFF position, green light illuminated.	
**27.	TRIP 2T41-B017 Fan 2, Rx Bldg Recirc Fan	On panel 2H11-P657 the operator places control switch for 2T41-B017 Fan 2, Rx Bldg Recirc Fan, to the OFF position, green light illuminated.	
**28.	TRIP 2T41-C002A, Refuel Flr Vent Supply Fan	On panel 2H11-P657 the operator places control switch for 2T41-C002A, Refuel Flr Vent Supply Fan, to the OFF position, green light illuminated.	
**29.	TRIP 2T41-C002B, Refuel Flr Vent Supply Fan	On panel 2H11-P657 the operator places control switch for 2T41-C002B, Refuel Flr Vent Supply Fan, to the OFF position, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**30.	TRIP 2T41-C005A, Refuel Flr Vent Exh Fan	On panel 2H11-P657 the operator places control switch for 2T41-C005A, Refuel Flr Vent Exh Fan, to the OFF position, green light illuminated.	
**31.	TRIP 2T41-C005B, Refuel Flr Vent Exh Fan	On panel 2H11-P657 the operator places control switch for 2T41-C005B, Refuel Flr Vent Exh Fan, to the OFF position, green light illuminated.	
32.	Confirm OPEN/OPEN 2N21-F014, Condensate Demineralizer Bypass Valve.	The operator sends an SO to confirm OPEN/OPEN 2N21-F014, Condensate Demineralizer Bypass Valve, at panel 2N21-P001.	

PROMPT: **WHEN** the operator sends an SO to confirm the valve is open, **INFORM** the operator that another operator will complete the remainder of 34AB-P51-001-2.

END TIME:_____

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NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator is prompted that another operator will complete 34AB-P51-001-2.
- Operator states the task is complete.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
CR-SIM 8 (RO ONLY)

Title **PLACE THE CONTROL ROOM HVAC SYSTEM IN THE PURGE MODE**		
Author: **Anthony Ball**	**Media Number:** CR-SIM 8 2015-301	**Time** 15.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	CR-SIM 8 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	11/20/97	Initial Development based on needs indicated from the PRA analysis.	SCB	DHG
01	03/20/00	Format modification, change time allowance based on running average, update K/As, correct typos	RAB	DHG
02	11/03/00	Include objective number	RAB	DHG
03	03/19/02	Include initial Operator statement	RAB	RAB
04	06/25/05	Revised Initial License statement for successful completion	RAB	RAB
05	06/23/06	Remove Response Cues	RAB	RAB
06	05/19/07	Correct Step 10 to start instead of stop.	DHG	RAB
07	10/14/08	Added 1Z41-B003C to fans secured in step 3 to match procedure.	JWP	RAB
07.1	10/17/11	Reviewed JPM against current procedure. Added pass / fail criteria. Added Fundamental question to new Attachment 1.	MMG	ALS
7.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to CR-Sim 8 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-25026-7.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
07.1	MMG

UNIT 1 (X) UNIT 2 ( )

TASK TITLE:	**PLACE THE CONTROL ROOM HVAC SYSTEM IN THE PURGE MODE**
JPM NUMBER:	CR-SIM 8 2015-301
TASK STANDARD:	The task shall be completed when the Control Room Ventilation System has been placed in the Purge Mode per 34SO-Z41-001-1.
TASK NUMBER:	037.010
OBJECTIVE NUMBER:	037.010.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.00

SRO 2.63

K/A CATALOG NUMBER: 290003G2.1.30

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.90

SRO 3.40

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**
	34SO-Z41-001-1 (current version) 34AR-603-214-2 (current version) 34AR-603-215-2 (current version)

REQUIRED MATERIALS:	**Unit 1**
	34SO-Z41-001-1 (current version)

APPROXIMATE COMPLETION TIME: 15.0 Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 1 and Unit 2 have both been scrammed due to a loss of Plant Service Water.
2. The Main Control Room Ventilation System has been operating in a Normal Ventilation configuration for several days.
3. No cooling water is available for the Main Control Room Air Handling Units.
4. 34AB-T41-001-1, “Loss of Area Ventilation”, is in progress.

INITIATING CUES:

Purge the **Unit 1** Main Control Room with the Main Control Room Ventilation System per 34SO-Z41-001-1, Step 7.1.4.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	Operator has obtained the correct procedure, 34SO-Z41-001-1.	
2.	Operator reviews the procedure's precautions and limitations.	Operator has REVIEWED the precautions and limitations.	

PROMPT: **IF** the Operator asks the status of Main Control Room Ventilation, per the initial conditions, **INFORM** the Operator that it is operating in the normal configuration.

3.	Confirm STOPPED or STOP the following HVAC units: 1Z41-B003B 1Z41-B003A And 1Z41-B003C	On 1H11-P654, CONFIRM 1Z41-B00A, B, and C control switch in STOP (OFF), GREEN light illuminated.	

NOTE: The 1Z41-B003C should remain running when purging Unit 1. If the Operator stops it, flow will still exist, if the exhaust fan is started. It is not critical to have 1Z41-B003C running; but, if it is secured the Operator will have committed a procedure violation.

(** **Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
4.	Confirm CLOSED the following dampers: 1Z41-F009A 1Z41-F030A	On 1H11-P657, CONFIRM 1Z41-F009A & 1Z41-F030A, green light illuminated.	

NOTE: 1Z41-F009A & 1Z41-F030A will close when AHU 1Z41-B003A is stopped.

****5.**	Close the following dampers: 1Z41-F028A 1Z41-F028B	On 1H11-P654, PLACE control switch for 1Z41-F028A & 1Z41-F028B in CLOSE, green light illuminated.	

NOTE: It is only critical to close ONE of the two valves.

****6.**	Close the following dampers: 1Z41-F010A 1Z41-F010B	On 1H11-P654, PLACE control switch for 1Z41-F010A & 1Z41-F010B in CLOSE, green light illuminated.	

NOTE: It is only critical to close ONE of the two valves.

7.	Open Roll Filter Bypass, 1Z41-F015.	At MCR Door C70, ROLL FILTER BYPASS, 1Z41-F015 control switch is in OPEN, red light illuminated.	
8.	Confirm Open Outside Air Intake Damper, 1Z41-F016.	At panel 1H11-P657, FILTER INLET control switch, 1Z41-F016, is in OPEN position, red light illuminated.	
****9.**	Open inlet control vane, 1Z41-F017A.	Have SSS send a SO to the 180' elevation of the Control Building to OPEN inlet control damper 1Z41-F017A.	

PROMPT: **WHEN** asked to send someone to open 1Z41-F017A, **INFORM** the Operator that 1Z41-F017A is open.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**10.	Start Exhaust Fan, 1Z41-C011A and confirm suction damper 1Z41-F018A opens.	At panel 1H11-P657, PLACE the control switch for 1Z41-C011A in START, red light illuminated and confirm 1Z41-F018A opens, red light illuminated.	

NOTE: It is only critical to start exhaust fan 1Z41-C011A because damper 1Z41-F018A automatically opens when the fan is started.

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
PLANT 1 (ALL)

Title **ACTUATE THE DIESEL GENERATOR ROOM CO2 SYSTEM**		
Author: **Anthony Ball**	**Media Number:** Plant 1 2015-301	**Time** 10.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	**Plant 1 2015-301**

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	10/28/99	Initial development	RAB	DHG
01	11/03/00	Include objective number	RAB	DHG
02	03/19/02	Include initial operator statement	RAB	RAB
03	06/16/05	Revised Initial License statement for successful completion	RAB	RAB
04	05/05/06	Remove Response Cues	RAB	RAB
05	08/05/10	Added HU tools. Added procedure number to Initiating Cue.	ELJ	CME
05.1	10/17/11	Reviewed JPM against current procedure. Added Fundamental question to new Attachment 1.	MMG	ALS
5.2		Reviewed JPM against current procedure, changed "Media Number" to Plant 1, and removed "Fundamental Question. Both will be added back to become new LR-JP-20024-5.3 after NRC Exam restored after ILT-9 NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
05.1	MMG

UNIT 1 (X) UNIT 2 ( )

TASK TITLE:	**ACTUATE THE DIESEL GENERATOR ROOM CO2 SYSTEM**
JPM NUMBER:	**Plant 1 2015-301**
TASK STANDARD:	The task will be complete when the operator has actuated the Diesel Generator CO_2 System per 34SO-X43-005-0.
TASK NUMBER:	200.024
OBJECTIVE NUMBER:	200.024.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.15

SRO 3.90

K/A CATALOG NUMBER: 286000A208

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.20

SRO 3.30

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**
	34SO-X43-005-0 (current version)

REQUIRED MATERIALS:	**Unit 1**
	34SO-X43-005-0 (current version)

APPROXIMATE COMPLETION TIME: **10.0** Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A fire is burning in the "1C" D/G Room.
2. The "1C" D/G Room CO_2 System did **NOT** automatically actuate.

INITIATING CUES:

Actuate the "1C" D/G Room CO_2 fire protection system per 34SO-X43-005-0, "Diesel Generator Building Carbon Dioxide System."

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

PROMPT: **WHEN** addressed, **INFORM** the operator the RED light is **ILLUMINATED**.

1.	Depress and hold the START pushbutton switch.	In the hallway outside the "1C" Diesel Generator Room, the operator DEPRESSES and HOLDS the START pushbutton	

PROMPT: **AFTER** the pushbutton is depressed, **INFORM** the operator that the RED light remained **ILLUMINATED** and there was NO response.

****2.**	PLACE the "1C" Diesel Generator Room CARDOX Pilot Control Valve in OPEN.	In the hallway outside the "1C" Diesel Generator Room, the operator OPENS the "1C" Diesel Generator Room CARDOX Pilot Control Valve.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**3.	PLACE the Master Pilot for the Diesel Generator Building in OPEN.	On the Diesel Generator Building West Wall, the operator OPENS 1X43-P007, Master Pilot for Diesel Generator Bldg.	

PROMPT: **AFTER** the system is actuated, **INFORM** the operator that another person will shut down the system after 1 minute.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
PLANT 2 (ALL)

Title **Align Emergency Nitrogen To Drywell Pneumatics**		
Author: Anthony Ball	**Media Number:** Plant 2 2015-301	**Time** 16.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	**Plant 2 2015-301**

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	11/20/97	Initial development as a result of PRA vs training analysis.	SCB	RSG
01	02/11/98	Revised typographical errors.	SCB	DHG
02	01/20/99	Revised based on evaluator comments.	SCB	DHG
03	03/20/00	Format modification, change time allowance based on running average	RAB	DHG
04	11/03/00	Include objective number	RAB	DHG
05	03/19/02	Incorporate ADY comment, correct Nitrogen pressure readings to agree with procedural requirement, add step to review the procedure, include initial operator statement	RAB	RAB
06	02/24/05	Changed procedure numbers and corrected step reference in initial conditions section of page 2 and 5.	TFP	DHG
07	06/27/05	Revised Initial License statement for successful completion	RAB	RAB
08	06/23/06	Remove Response Cues	RAB	RAB
09	09/29/10	Added HU Pass/Fail criteria. Updated Southern Company logo. Added an evaluator note to move to a low dose rate area after the operator identifies the components locations.	ELJ	CME
09.1	10/17/11	Reviewed JPM against current procedure. Added Fundamental question to new Attachment 1.	MMG	ALS
09.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Plant 2 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-25028-09.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Ver. No.	List of Contributors
09.1	MMG

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**Align Emergency Nitrogen To Drywell Pneumatics**
JPM NUMBER:	Plant 2 2015-301
TASK STANDARD:	The task shall be complete when the operator aligns the Emergency Nitrogen Bottles in the Reactor Building to the Drywell Pneumatic System.
TASK NUMBER:	042.005
OBJECTIVE NUMBER:	042.005.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 2.86

SRO Not Available

K/A CATALOG NUMBER: 223001A411

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.10

SRO 3.00

OPERATOR APPLICABILITY: Systems Operator (SO)

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	34AB-X43-001-1 34SO-P70-001-1 (current versions)	34AB-X43-001-2 34SO-P70-001-2 (current version)

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	34SO-P70-001-1 (current version)	34SO-P70-001-1 (current version)

APPROXIMATE COMPLETION TIME: **16.0** Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A fire has occurred on Unit 1
2. Unit 1 has been scrammed and all rods are inserted
3. The crew is addressing 34AB-X43-001-1, “Fire Procedure” Attachment 1, step 8.4.7

INITIATING CUES:

Align Nitrogen to SRVs from emergency temporary Nitrogen bottles per 34SO-P70-001-1, “Drywell Pneumatics System.”

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation"

START TIME:_____

1.	Operator reviews the procedure.	The Operator REVIEWS the procedure.	

PROMPT: **WHEN** addressed by the operator, as the Shift Supervisor, **INFORM** the operator that 1P70-F004 and 1P70-F066 have been verified in the closed position on the 1H11-P700 panel.

NOTE: 1P70-A002A is on top of the Nitrogen bottle.

****2.**	Open Emergency Nitrogen bottle 1P70-A002A outlet valve 1P70-F138A.	On elev. 130RLR09, Nitrogen Bottle outlet valve 1P70-F138A handwheel is TURNED counter clockwise until it stops.	
3.	Confirm correct Nitrogen pressure on 1P70-PCV-F140.	At 130RLR09, the operator CONFIRMS 1P70-PCV-140 indicates between 100-110 psig.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**4.	Open Emergency Nitrogen supply header inboard isolation, 1P70-F141.	At 130RLR09, the operator TURNS 1P70-F141, Emergency Nitrogen Supply Header Inboard Isolation valve, parallel with the pipe.	
**5.	Open Emergency Nitrogen supply isolation, 1P70-F084.	At 130RLR09, the operator TURNS 1P70-F084, Emergency Nitrogen Supply Header Inboard Isolation valve, counter clockwise until it stops.	
6.	Confirm and monitor correct Nitrogen pressure on 1P70-PCV-F140.	At 130RLR09, the operator CONFIRMS 1P70-PCV-140 indicates between 100-110 psig.	

PROMPT: **INFORM** the operator that another operator will continuously monitor nitrogen pressure and replace bottles as necessary.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A fire has occurred on Unit 2.
2. Unit 2 has been scrammed and all rods are inserted.
3. The crew is addressing 34AB-X43-001-2, “Fire procedure” Attachment 1, step 8.3.7

INITIATING CUES:

Align nitrogen to SRVs from emergency temporary Nitrogen bottles per 34SO-P70-001-2, “Drywell Pneumatics System.”

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation"

Note to evaluator: Radiation dose rates are elevated in the vicinity of these Nitrogen bottles. Minimize time in this area. There is a posted low dose area close to this area that is in "line-of-sight." After the component locations are identified by the operator, move to a low dose rate area to discuss performance of the procedural steps.

START TIME:_____

1.	Operator reviews the procedure.	The Operator REVIEWS the procedure.	
**2.	Close Drywell Pneumatic Header Isolation, 2P70-F023.	At 130RBR23, the operator TURNS 2P70-F023, Drywell Pneumatic Header Isolation valve handwheel, clockwise until it stops.	

PROMPT: **IF** the operator sends a SO to check 2P70-F021, **INFORM** the operator that the valve has been closed. 2P70-F021 is located approximately 10 feet behind the Drywell Air Receiver tank, against the wall opposite the Drywell, 5 feet above the floor.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**3.	Close Drywell Pneumatic Header Isolation, 2P70-F021.	At 158RBR16, the operator TURNS 2P70-F021, Drywell Pneumatic Header Isolation valve handwheel, clockwise until it stops.	

NOTE: 2P70-F138A is on top of the Nitrogen bottle.

**4.	Open Emergency Nitrogen bottle 2P70-A002A outlet valve 2P70-F138A.	At 130RBR23, the operator TURNS 2P70-F138A, Nitrogen Bottle outlet valve handwheel, counter clockwise until it stops.	
5.	Confirm correct Nitrogen pressure on 2P70-PCV-F140.	On elev. 130RBR23, confirms 2P70-PCV-140 indicates between 100-110 psig.	
**6.	Open Nitrogen Bottles Pressure Control Valve Isolation valve, 2P70-F141.	At 130RBR23, the operator TURNS 2P70-F141, Nitrogen Bottles Pressure Control Valve Isolation valve handle, until it is parallel with the pipe.	
**7.	Open Emergency Nitrogen to Drywell Pneumatic header isolation, 2P70-F084.	At 130RBR23, the operator TURNS 2P70-F084, Emergency Nitrogen To Drywell Pneumatic Header Isolation handwheel, counter clockwise until it stops.	
8.	Confirm and monitor correct Nitrogen pressure on 2P70-PCV-F140.	On elev. 130RBR23, confirms 2P70-PCV-140 indicates between 100-110 psig.	

PROMPT: **INFORM** the operator that another operator will continuously monitor nitrogen pressure and replace bottles as necessary.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

PROMPT: **AFTER** the task is completed, **ASK** the fundamental question in Attachment 1 (Can be asked any time prior to completing all JPMs).

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

DRAFT
PLANT 3 (ALL)

Title **TRANSFER 600 VAC ESSENTIAL (LPCI BUS) FROM NORMAL TO ALTERNATE**		
Author: Anthony Ball	**Media Number:** Plant 3 2015-301	**Time** 23.0 Minutes
Line Technical Review By (N/A for minor revisions)		**Date:**
Reviewed by Instructional Technologist or designee		**Date**
Approved By (Training Program Supervisor, Lead Instructor or Line Supervisor)		**Date**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	Plant 3 2015-301

Ver. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	10/28/99	Initial development	RAB	DHG
01	04/24/00	Made Step 4 for both units non-critical, correct Operator title (SO)	RAB	DHG
02	11/02/00	Include objective number, change time allowance based on running average	RAB	DHG
03	03/11/02	Include initial Operator statement	RAB	RAB
04	03/08/05	Documentum revision	DNM	RAB
05	05/27/05	Revised Initial License statement for successful completion	RAB	RAB
06	04/18/06	Remove Response Cues	RAB	RAB
07	10/09/09	Added that 2R24-S018A (B) Alt Supply Bkr position can be determined in the CR or locally as stated in the procedure. Added HU steps.	GHC	ALD
07.1	10/17/11	Reviewed JPM against current procedure. Added pass / fail criteria. Added Fundamental question to Attachment 1. U-2 requires the following, "Confirm 2R24-S048 Diesel Bldg MCC 2D is ENERGIZED via the 2S11-S012 transformer **AND** 2R22-S006 2F 4160 VAC Bus. (2H11-P652). I changed the wording to reflect this.	MMG	ALS
7.2		Reviewed JPM against current procedure to be used on ILT-9 NRC Exam. Changed "Media Number" to Plant 3 and deleted Fundamental Review Question. Both will be added back to become new LR-JP-27.18-7.3 after NRC Exam.	ARB	

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
07.1	MMG

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**TRANSFER 600 VAC ESSENTIAL (LPCI BUS) FROM NORMAL TO ALTERNATE**
JPM NUMBER:	**Plant 3 2015-301**
TASK STANDARD:	The task shall be completed when the Operator has transferred a LPCI Bus (2R24-S018A/B) from its Normal to Alternate source per 34SO-R24-003-2.
TASK NUMBER:	027.018
OBJECTIVE NUMBER:	027.018.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.43

SRO 3.53

K/A CATALOG NUMBER: 262001A403

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.20

SRO 3.40

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	Unit 1	Unit 2
	34SO-R24-003-1 (current version)	34SO-R24-003-2 (current version)

REQUIRED MATERIALS:	Unit 1	Unit 2
	34SO-R24-003-1 (current version)	34SO-R24-003-2 (current version)

APPROXIMATE COMPLETION TIME: 23.0 Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 1 and Unit 2 are operating at 95% power.
2. The Normal Supply Breaker for the "1A (1B)" LPCI Bus, 1R24-S018A (B), must be replaced by maintenance.
3. Electrical power distribution for both units is aligned in a normal full power lineup.

INITIATING CUES:

Transfer 1R24-S018A (B) from its Normal to its Alternate supply per 34SO-R24-003-1.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the task as a **PASS**, sign, and date record
FAIL	❑ Above standards not met	❑ Mark the task as a **FAIL**, sign, and date ❑ Notify the dept training coordinator for initial trg and applicable continuing trg

START TIME:_____

1	Operator identifies the materials that are required.	Operator identifies the required materials and where to obtain them.	
2.	Operator reviews the procedure's precautions and limitations.	Operator has reviewed the precautions and limitations.	

PROMPT: **IF** the Operator asks if 1R24-S018A (S018B) has been de-energized, **INFORM** the Operator that 1R24-S018A (S018B) has NOT been de-energized.

****3**	Open 1R24-S018A (S018B) normal supply breaker is open.	The Operator CALLS the Control Room and REQUESTS that a Control Room Operator OPEN the 1R24-S018A (S018B) normal supply breaker on 1H11-P601.	

PROMPT: **AS** the Control Room Operator, **INFORM** the Operator that 1R24-S018A (S018B) normal supply breaker is open.

4	Confirm OFF/Place to OFF 1R26-M108 (M109) Disconnect switch.	In the 600V 1CD Transformer Room, the Operator CONFIRMS the 1R26-M108 (M109) disconnect switch is in the OFF position.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5	Confirm OFF/Place to OFF 1R26-M077 (M078) Disconnect switch.	In the 600 VAC 2C (2D) Bus Room, the Operator PLACES the 1R26-M077 (M078) disconnect switch to the OFF position.	
6	Verify that 1R24-S048 is energized.	At 1R22-S006, '1F" 4160 VAC Bus (1H11-P652), the Operator CONFIRMS 1R24-S048 is ENERGIZED.	

PROMPT: **AS** the Control Room Operator, **INFORM** the Operator that 1R24-S048 has been verified to be energized.

7	Confirm the 1R24-S018A (S018B) Alternate Supply Breaker is CLOSED.	At 1H11-P601 OR in the 1F Switchgear Room, the Operator CONFIRMS that 1R24-S018A(S018B) Alternate Supply Breaker is CLOSED.	

PROMPT: **AS** the Control Room Operator or an SO, **INFORM** the Operator that 1R24-S018A (S018B) Alternate Supply Breaker has been verified CLOSED.

8	Confirm disconnect switch 1R26-M108 is in the OFF position.	In the 1CD 600VAC Transformer Room, the Operator CONFIRMS the 1R26-M108 Disconnect Switch is in the OFF position.	
9	Confirm disconnect switch 1R26-M109 is in the OFF position.	In the 1CD 600VAC Transformer Room, the Operator CONFIRMS the 1R26-M109 disconnect switch is in the OFF position.	
10	Confirm 1R24-S048 is energized.	In the 1CD 600VAC Transformer Room, at the 1R26-M107 transfer switch, the Operator CONFIRMS 1R24-S048 "Power Available" light is ILLUMINATED.	
**11	Place 1R26-M107 transfer switch to 1R24-S018A (S018B) position.	In the 1CD 600VAC Transformer Room, the Operator PLACES 1R26-M107 transfer switch to 1R24-S018A (S018B) position.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**12	Secure the 1R26-M107 transfer switch.	The Operator SECURES 1R26-M107 transfer switch in the correct position.	
**13	Place to ON 1R26-M108 (M109) Disconnect switch.	In the 1CD 600VAC Transformer Room, the Operator PLACES the 1R26-M108 (M109) Disconnect switch to the ON position.	
14	Verify 1R24-S018A (S018B) is energized.	CONFIRM 1R24-S018A (S018B) is energized by observing an ILLUMINATED position indication lights (red or green) for 1E11-F015A (F015B) AND/OR 1E11-F007A (F007B).	

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 1 and Unit 2 are operating at 95% power.
2. The Normal Supply Breaker for the "2A(2B)" LPCI Bus, 2R24-S018A(B), must be replaced by maintenance.
3. Electrical power distribution for both units is aligned in a normal full power lineup.

INITIATING CUES:

Transfer 2R24-S018A(B) from its Normal to its Alternate supply per 34SO-R24-003-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the task as a **PASS**, sign, and date record
FAIL	❑ Above standards not met	❑ Mark the task as a **FAIL**, sign, and date ❑ Notify the dept training coordinator for initial trg and applicable continuing trg

START TIME:_____

1.	Operator identifies the materials that are required.	Operator identifies the required materials and where to obtain them.	
2.	Operator reviews the procedure's precautions and limitations.	Operator has reviewed the precautions and limitations.	

PROMPT: **IF** the Operator asks if 2R24-S018A (S018B) has been de-energized, **INFORM** the Operator that 2R24-S018A (S018B) has NOT been de-energized.

****3.**	Open 2R24-S018A (S018B) normal supply breaker is open.	The Operator CALLS the Control room and REQUESTS that a Control Room Operator OPEN the 2R24-S018A (S018B) normal supply breaker on 2H11-P601.	

PROMPT: **AS** the Control Room Operator, **INFORM** the Operator that 2R24-S018A (S018B) normal supply breaker has been opened.

4.	Confirm/Open 2R26-M108 (M109) Disconnect switch.	In the 600V 2CD Transformer Room, the Operator CONFIRMS the 2R26-M108 (M109) disconnect switch is in the OFF position.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	Open 2R26-M105 (M106) Disconnect switch.	In the 600 VAC 1C (1D) Bus room, the Operator PLACES the 2R26-M105 (M106) disconnect switch to the OFF position.	
6.	Verify that 2R24-S048 is energized.	At 2R22-S006, "2F" 4160 VAC Bus (2H11-P652) AND 2S11-S012 transformer (Diesel Bldg), the Operator / SO CONFIRMS 2R24-S048 is energized.	

PROMPT: **AS** the Control Room Operator and SO, **INFORM** the Operator that 2R24-S048 has been verified to be energized. (U-2 requires confirmation via 2S11-S012 transformer AND 2R22-S006 bus)

7.	Confirm the 2R24-S018A (S018B) Alternate Supply Breaker is CLOSED.	At 2H11-P601 or in the "2F" Switchgear Room, the Operator CONFIRMS that 2R24-S018A(S018B) Alternate Supply Breaker is CLOSED.	

PROMPT: **AS** the Control Room Operator or an SO, **INFORM** the Operator that 2R24-S018A (S018B) Alternate Supply Breaker has been verified CLOSED.

8.	Confirm disconnect switch 2R26-M108 is in the OFF position.	In the 2CD 600VAC Transformer Room, the Operator CONFIRMS the 2R26-M108 Disconnect switch is in the OFF position.	
9.	Confirm disconnect switch 2R26-M109 is in the OFF position.	In the 2CD 600VAC Transformer Room, the Operator CONFIRMS the 2R26-M109 disconnect switch is in the OFF position.	
10.	Confirm 2R24-S048 is energized.	In the 2CD 600VAC Transformer Room, at the 2R26-M107 transfer switch, the Operator CONFIRMS 2R24-S048 "Power Available" light is ILLUMINATED.	
**11.	Place 2R26-M107 transfer switch to 2R24-S018A (S018B) position.	In the 2CD 600VAC Transformer Room, the Operator PLACES 2R26-M107 transfer switch to 2R24-S018A (S018B).	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**12.	Secure the 2R26-M107 transfer switch.	The Operator SECURES 2R26-M107 transfer switch in the to 2R24-S018A (S018B) position.	
**13.	Place the 2R26-M108 (M109) Disconnect switch to the ON position.	In the 2CD 600VAC Transformer room, the Operator places the 2R26-M108 (M109) Disconnect switch to the ON position.	
14.	Verify 2R24-S018A (S018B) is energized.	CONFIRM 2R24-S018A (S018B) is energized by OBSERVING illuminated position indication lights (red or green) for 2E11-F015A (F015B) AND/OR 2E11-F007A (F007B).	

END TIME:_____

NOTE: The terminating cue shall be given to the Operator when:

- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**