Final Submittal

BRUNSWICK EXAM
50-2003-301
50-325 & 50-324

FEBRUARY 10 - 14 & 19, 2003

1. Administrative Questions/JPMs
2. In-plant JPMs
3. Control Room JPMs (simulator JPMs)

Facility: __Brunswick _____ Date of Examination: _February 2003
Examination Level (circle one): RO / **SRO** Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1 A.1.1	GEN 2.1.33/2.2.12 (4.0)	JPM Complete Jet Pump Operability per 0PT-13.1 *Note: Data will indicate a failed Jet Pump.*
A.1.2	GEN 2.2.32/2.2.27 (3.5)	JPM Using a prepared, partial view of the newly refueled core and Core Loading Plan, determine if the core loading has been done correctly.
A.2	GEN 2.2.14/2.2.11 (3.0)	JPM Given an approved Temporary Change (TC) complete SRO responsibilities for installation per 0OLP-22.
A.3	GEN 2.3.6 (3.1)	JPM Given data provided by the on-shift Chemistry Technician, issue a Liquid Radwaste Discharge per 0OP-06.4
A.4	GEN 2.4.40 (4.0)	JPM Determine Off-Site Release Per PEP-03.4.7 and Recommend Protective Actions.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A1-1

LESSON TITLE: Evaluate Jet Pump Performance Per PT-13.1.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Special Instructions

Transfer the following data onto a current revision of PT-13.1:

Reactor power level	96.6%
Recirc Pump A speed	88%
Recirc Pump B speed	88%
Recirc Pump A Flow	52 gpm X 1000
Recirc Pump B Flow	43 gpm X 1000
Jet Pump Loop A	30 mlbm/hr
Jet Pump Loop B	39 mlbm/hr

Attachment 2, Work Sheet 1

Loop A	Loop B
JP 1 – 30%	JP-11 – 40%
JP-2 – 32%	JP-12 – 42%
JP-3 – 31%	JP-13 – 39%
JP-4 – 33%	JP-14 – 43%
JP-5 – 32%	JP-15 – 40%
JP-6 – 33%	JP-16 – 38%
JP-7 – 31%	JP-17 – 39%
JP-8 – 32%	JP-18 – 38%
JP-9 – 25%	JP-19 – 39%
JP-10 – 21%	JP-20 – 42%

NOTE: Average of Loop A is 30.0%, Loop B is 40%

SAFETY CONSIDERATIONS

None

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. Unit Two (2) is operating at power.
2. 0PT-13.1, Reactor Recirculation Jet Pump Operability is being performed.
3. Another operator has recorded data required for the PT in Section 7.3, and on Attachment 2, Test Information Work Sheet 1. Attachment 2, Work Sheet 2 is not to be used.

INITIATING CUE:

You are directed to evaluate the data for Jet Pump performance, determine if acceptance criteria is met, and inform the Unit SCO of the results.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 0PT-13.1 and 2OP-02.
Current Revision of 0PT-13.1 and 2OP-02 obtained and verified, if applicable.

SAT/UNSAT* _____

NOTE: The following steps requires evaluation of curves located in 2OP-02, Figures 4.1, 4.2, 5.1, 5.2 and 6.1 through 6.10.

Step 2 – Confirm Recirc Pump A flow is within the band of the established curves.
Determine Recirc Pump A flow is NOT within the band of 2OP-02, Figure 4.1.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Confirm Recirc Pump B flow is within the band of the established curves.
Determine Recirc Pump A flow is within the band of 2OP-02, Figure 4.2.

SAT/UNSAT* _____

Step 4 – Confirm Jet Pump loop A flow is within the band of the established curves.
Determine Jet Pump Loop A flow is NOT within the band of 2OP-02, Figure 5.1.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 5 – Confirm Jet Pump loop B flow is within the band of the established curves.
Determine Jet Pump Loop A flow is within the band of 2OP-02, Figure 5.2.

SAT/UNSAT* _____

Step 6 – Calculate average jet pump % psid for each loop.
Determines Loop A average is 30% and Loop B average is 40%.

SAT/UNSAT* _____

Step 7 – Compare the % psid for each jet pump and calculated average jet pump % psid for each loop with the established curves (2OP-02, Figures 6.1 through 6.10).
Determine jet pump 10 falls outside the established curve in 2OP-02, Figure 6.5 (all other jet pumps within limits)

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 8 – Inform Unit SCO that jet pump 10 fails to meet acceptance criteria.
Unit SCO informed jet pump 10 fails to meet acceptance criteria.

SAT/UNSAT* _____

PROMPT: For SRO examinees only, direct the examinee to determine any action required by Tech Specs

NOTE: The following step is applicable to SRO examinees only

Step 9 – Determine that LCO 3.4.2 is not met, condition A applies, requiring the unit to be placed in Mode 3 in 12 hours, and Mode 4 in 36 hours.

Determines that LCO 3.4.2 is not met, condition A applies, requiring the unit to be placed in Mode 3 in 12 hours, and Mode 4 in 36 hours.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: If desired, the examiner may ask the examinee the safety implications of a failed jet pump. Invalidates LOCA analysis (due to loss of core reflooding to 2/3 core height and/or increased blowdown area).

TERMINATING CUE: When examinee has evaluated jet pump operability per PT-13.1 (and determined Tech Spec actions if applicable) this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

202001B201, Perform Reactor Recirculation Jet Pump Operability Test Per PT-13.1

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.1.33 3.4/4.0

GEN 2.2.12 3.0/3.4

REFERENCES:

0PT-13.1

2OP-02

TOOLS AND EQUIPMENT:

Calculator.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

Admin A1 – Conduct Of Operations

REASON FOR REVISION:

New JPM.

Evaluate Jet Pump Performance Per PT-13.1.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

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_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. Unit Two (2) is operating at power.
2. 0PT-13.1, Reactor Recirculation Jet Pump Operability is being performed.
3. Another operator has recorded data required for the PT in Section 7.3, and on Attachment 2, Test Information Work Sheet 1. Attachment 2, Work Sheet 2 is not to be used.

INITIATING CUE:

You are directed to evaluate the data for Jet Pump performance, determine if acceptance criteria is met, and inform the Unit SCO of the results.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A1-2

LESSON TITLE: Evaluate Partial View Of Core For Correct Core Loading.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SPECIAL INSTRUCTIONS

Prepare a picture of a partial core (4 cells – 16 Bundles).

Ensure 1 bundle is rotated 180°.

Ensure each bundle has a different serial number on the bail handle.

Prepare a core loading sequence sheet for the 16 bundles.

Ensure 2 of the bundles are in the incorrect location (but properly oriented).

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. Provide examinee with copy of prepared partial core view, prepared core load sequence sheets, and reactor vessel core map (ENP-24.12, Figure 1).

Read the following to trainee.

TASK CONDITIONS:

1. Unit 2 is in Mode 5. Core reload has just been completed.
2. You have a partial view of the reloaded core, along with the Core Component Sequence Sheets for those bundles, and Figure 1 from ENP-24.12, Reactor Vessel Core Map.

INITIATING CUE:

You are directed by the Shift Superintendent to evaluate the partial core loading for core verification and inform the Shift Superintendent of the results.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 – Evaluate partial Core View, Core Component Sequence Sheets for those bundles, and Figure 1 from ENP-24.12, Reactor Vessel Core Map.

Partial Core View, Core Component Sequence Sheets for those bundles, and Figure 1 from ENP-24.12, Reactor Vessel Core Map evaluated.

SAT/UNSAT* _____

NOTE: It is critical that the examinee identifies the two bundles incorrectly loaded. It is NOT critical the examinee identifies the locations are swapped.

Step 2 – Identify that bundle LYJ568 (Step 5 of the Core Component Sequence Sheets) is specified for location 9-10 but bundle LYJ468 is loaded in that location.

Identify that bundle LYJ568 (Step 5 of the Core Component Sequence Sheets) is not loaded in the correct location.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Identify that bundle LYJ468 (Step 10 of the Core Component Sequence Sheets) is specified for location 13-10 but bundle LYJ568 is loaded in that location.

Identify that bundle LYJ468 (Step 10 of the Core Component Sequence Sheets) is not loaded in the correct location.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Identify that bundle LYJ549 (Step 19 of the Core Component Sequence Sheets) is loaded in the incorrect orientation and that the Fastener location should be Southeast (as specified on the Core Component Sequence Sheets and not Northwest as shown in the partial core view (or that the bundle is rotated 180◦).

Identify that bundle LYJ549 (Step 19 of the Core Component Sequence Sheets) is loaded in the incorrect orientation.

**** CRITICAL STEP ** SAT/UNSAT* _____**

NOTE: All other bundles are correctly loaded; however whoever loaded these 16 bundles will surly lose his/her SRO license.

Step 4 – Identifies all other bundles are correctly loaded.

Identifies all other bundles are correctly loaded.

SAT/UNSAT* _____

Step 5 – Inform Shift Superintendent of results of partial core verification.

Shift Superintendent informed of results of partial core verification.

SAT/UNSAT* _____

TERMINATING CUE: When evaluation of the partial core load has been competed, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

None

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.2.32 3.5

REFERENCES:

ENP-24.12

ENP-24.13

FH-11

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

Admin Section A1

REASON FOR REVISION:

New JPM.

Evaluate Partial View Of Core For Correct Core Loading.

Time Required for Completion: 20 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 2

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Unit 2 is in Mode 5. Core reload has just been completed.
2. You have a partial view of the reloaded core, along with the Core Component Sequence Sheets for those bundles, and Figure 1 from ENP-24.12, Reactor Vessel Core Map.

INITIATING CUE:

You are directed by the Shift Superintendent to evaluate the partial core loading for core verification and inform the Shift Superintendent of the results.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A2

LESSON TITLE: Evaluate Proposed Temporary Change.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Special Instructions

Obtain copies of prints D-02549, Sheet 1B, 2-FP-05924, Sheet 2, LL-09243, Sheet 15 and LL09244, Sheet 15

On D-02549, change V35 and V36 to show closed, and denote valves closed per EC TC 03-001.

On 2-FP-9524, Sheet 2, draw cloud around G41-N005 connections 1NC and 1C, denote leads lifted per EC TC 03-001.

On 2-FP-9524, Sheet 2, draw cloud around G41-N005 connections 2NC and 2C, denote leads lifted per EC TC 03-001.

On LL-09243, Sheet 15, draw jumper from terminals 2-H02/CC5 to 2-H02/AA11. Denote jumper installed per TC EC 03-001.

On LL-09244, Sheet 15, draw jumper from terminals 2-H02/CC17 to 2-H02/BB14. Denote jumper installed per TC EC 03-001.

Mark up EGR-NGGC-005, Form 2 to reflect temporary changes.

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. This JPM may be administered in any setting.

Read the following to trainee.

TASK CONDITIONS:

1. Unit Two (2) Fuel Pool Cooling Skimmer Surge Tank low level alarm switch 2-G41-LSL-N005 has failed. The shelf condition of this level switch is closed. This failed level switch has resulted in Annunciator A-4 6-7 (Fuel Pool Cooling Alarm) being sealed in on Panel P603.
2. The failed level switch is obsolete. A temporary change has been developed in accordance with EGR-NGGC-0005 to abandon this level switch in place until a suitable replacement can be located and installed.
3. This temporary change is to valve out the failed level switch and lift leads and/or jumper the level switch contacts. This temporary change will defeat the level switch input to Annunciator A-4 6-7 (a multiple input Annunciator). This temporary change will also defeat low level indicating lights located on local panels 2-G41P001 and 2-G41-P002. The low level trip function for the Fuel Pool Cooling Pumps will not be affected.
4. A Temporary Change Log form (EGR-NGGC-0005, Form 2) has been prepared indicating a description of this temporary change and the Priority 0 drawings affected. The Priority 0 drawings referenced have been marked up to reflect the temporary change.

INITIATING CUE:

You are directed by the WCC SRO to review the marked up Priority 0 drawings identified on the Temporary Change Log Form 2 and ensure the changes reflected on the identified Priority 0 drawings meet the intent of the temporary change, and inform the WCC SRO of the results of your evaluation.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 – Review Temporary Change Log, Form 2 and evaluate drawings listed as Priority 0 on the Log.

Reviews Temporary Change Log, Form 2 and evaluate drawings listed as Priority 0 on the Log.

SAT/UNSAT* _____

Step 2 – Determine jumper installed from terminals 2-H02/CC5 to 2-H02/AA11 on drawing LL-09243, Sheet is for level switch N006, not N005 and should not be installed.

Determines jumper should not be installed from terminals 2-H02/CC5 to 2-H02/AA11 on LL-09243, Sheet 15.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 3 – Determine jumper installed from terminals 2-H02/CC17 to 2-H02/BB23 on drawing LL-09244, Sheet is for level switch N006, not N005 and should not be installed.

Determines jumper should not be installed from terminals 2-H02/CC17 to 2-H02/BB23 on LL-09244, Sheet 15.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 4 – Determine other drawing changes meet the intent of the TC.
Determines other drawing changes meet the intent of the TC.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 5 – Inform WCC SRO of results.
WCC SRO informed of results.

SAT/UNSAT* _____

TERMINATING CUE:	This box will tell the evaluator when the JPM is complete based on student performance.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

200 665 B5 04, Perform AO Actions For A Loss Of Division I DC Panels Per AOP-39.0

K/A REFERENCE AND IMPORTANCE RATING:

295004 AA1.01 3.3/3.4
Ability to operate D.C. electrical distribution systems as it applies to Partial Loss of D.C. power.

REFERENCES:

AOP-39.0, Revision 11
Loss of DC Power

TOOLS AND EQUIPMENT:
Plant Page.
Keys.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

6 - Electrical (DC Electrical Distribution)

REASON FOR REVISION:

Renamed from AOR to AOT, changed format to WORD from WP 5.1, updated for procedure revision, changed to support either unit, removed record of revision page.

Evaluate Proposed Temporary Change.

Time Required for Completion: 30 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 2

Setting: Control Room ___ Simulator___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

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_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. Unit Two (2) Fuel Pool Cooling Skimmer Surge Tank low level alarm switch 2-G41-LSL-N005 has failed. The shelf condition of this level switch is closed. This failed level switch has resulted in annunciator A-4 6-7 (Fuel Pool Cooling Alarm) being sealed in on Panel P603.

2. The failed level switch is obsolete. A temporary change has been developed in accordance with EGR-NGGC-0005 to abandon this level switch in place until a suitable replacement can be located and installed.

3. This temporary change is to valve out the failed level switch and lift leads and/or jumper the level switch contacts. This temporary change will defeat the level switch input to annunciator A-4 6-7 (a multiple input annunciator). This temporary change will also defeat low level indicating lights located on local panels 2-G41P001 and 2-G41-P002. The low level trip function for the Fuel Pool Cooling Pumps will not be affected.

4. A Temporary Change Log form (EGR-NGGC-0005, Form 2) has been prepared indicating a description of this temporary change and the Priority 0 drawings affected. The Priority 0 drawings referenced have been marked up to reflect the temporary change.

INITIATING CUE:

You are directed by the WCC SRO to review the marked up Priority 0 drawings identified on the Temporary Change Log Form 2 and ensure the changes reflected on the identified Priority 0 drawings meet the intent of the temporary change, and inform the WCC SRO of the results of your evaluation.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A3-SRO

LESSON TITLE: Evaluate Liquid Discharge Release Permit.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Special Instructions

Prepare a Liquid Release Permit, OP-06.4, Attachment 4. Complete Part I, Part II and Part III up to the Unit SCO approval line.

Ensure required recirc time and sample taken time is filled in prior to the actual time required by OP-06.4.

The remainder of the data should be correct.

Fill out 0E&RC-2009, Attachment 2, Part I. Ensure sample time matches time specified in the OP-06.4, Attachment 4.

Obtain a copy of an E&RC Pre-Release Permit.

An actual release may be obtained from the E&RC counting room to aid in filling out the required data.

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. Provide examinee with prepared copy of 0OP-06.4, Attachment 4, 0E&RC-2009, Attachment 2, and the E&RC Pre-Release Permit.

Read the following to trainee.

TASK CONDITIONS:

1. The Unit 1 Salt Water Release Tank is nearing capacity, and is scheduled to be released.
2. A Radioactive Liquid Release Permit has been prepared in accordance with 0OP-06.4.
3. A Pre-Release Permit has been prepared by E&RC in accordance with E&RC-2009.

INITIATING CUE:

You are directed by the Shift Superintendent to review the Radioactive Liquid Release Permit, and the Pre-Release Permit, and determine if the Unit 1 Salt Water Release Tank can be released per the supporting documentation, and inform the Shift Superintendent of the results of your review.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

NOTE: The examiner should have a copy of 0OP-06.4, Section 5.7 to provide to the examinee if requested, or allow examinee access to the entire procedure.

Step 1 - Obtain a current revision of 0OP-06.4.

Current Revision of 0OP-06.4 obtained and verified, if applicable.

SAT/UNSAT* _____

Step 2 – Determine Volume of U/1 SWRT at level of 79% is correct as specified on the Radioactive Liquid Release Permit.

Determined that volume of U/1 SWRT of 28637.5 gallons is correct as specified on the Radioactive Liquid Release Permit.

SAT/UNSAT* _____

Step 3 – Determine required Recirculation time for a U/1 SWRT at a tank level of 79% is correct as specified on the Radioactive Liquid Release Permit.

Determined that required Recirculation time for the U/1 SWRT at a tank level of 79% of 316 minutes is correct as specified on the Radioactive Liquid Release Permit.

SAT/UNSAT* _____

Step 4 – Determine with a Start Recirculation time of 0040, the required Recirc completion time should be 0556 (not 0546) and that the sample taken time must be after 0556 (not 0553) as specified on the Radioactive Liquid Release Permit.

Determines requirements for Recirculation time and/or sample time per 0OP-06.4 have not been satisfied, and that the release should not be approved.

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 5 – Informs Shift Superintendent that the Release Permit may not be approved.

Shift Superintendent informed that the Release Permit may not be approved.

SAT/UNSAT* _____

TERMINATING CUE: When the Radioactive Liquid Release Permit has been evaluated as unsatisfactory, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

341012B302, Review Radioactive Waste Discharge/Release Permits Per E&RC-2009 prior To Approval.

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.3.6 3.1

REFERENCES:

0OP-06.4
0E&RC-2009
BSEP Radioactive Liquid Release Permit 02-0044

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

Admin A3

REASON FOR REVISION:

New JPM.

Evaluate Liquid Discharge Release Permit.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: ___

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. The Unit 1 Salt Water Release Tank is nearing capacity, and is scheduled to be released.

2. A Radioactive Liquid Release Permit has been prepared in accordance with 0OP-06.4.

3. A Pre-Release Permit has been prepared by E&RC in accordance with E&RC-2009.

INITIATING CUE:

You are directed by the Shift Superintendent to review the Radioactive Liquid Release Permit, and the Pre-Release Permit, and determine if the Unit 1 Salt Water Release Tank can be released per the supporting documentation, and inform the Shift Superintendent of the results of your review.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A4-SRO

LESSON TITLE: Determine Off-Site Release Per PEP-03.4.7 And Recommend Protective Actions.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. This JPM may be performed in any location with a computer loaded with the CPL Dose program.
4. Transfer data from attachment 2 of this JPM handwritten onto an actual attachment from PEP-03.4.7.
5. The release at the site boundary should be approximately 6.38 E+01 mrem TEDE and 1.99 E+02 mrem CDE. Slight variances may be expected due to time data is entered in relation to Reactor shutdown. (Dose requires declaration of Site Area Emergency, however General Emergency EALs have been exceeded)

Read the following to trainee.

TASK CONDITIONS:

1. A General Emergency has been declared due to a steam line break in the Turbine Building on Unit 1. One set of MSIVs has failed to close and there are indications of fuel failure.

2. The operating crew is currently executing the Radioactivity Release Control EOP, and Steam Cooling Procedure due to loss of all RPV injection sources. RPV level has been below TAF for 15 minutes and below LL4 for 5 minutes.

3. Drywell High Range Radiation Monitors are reading 10,000 R/Hr at the 50' elevation, and 2000 R/Hr at the 20' elevation.

4. The Unit 1 reactor initially failed to scram, but was successfully scrammed 15 minutes ago.

5. Attachment 2 of PEP-3.4.7 has been filled out for data entry.

INITIATING CUE:

You are directed by the Shift Superintendent (SEC) to:

1. Perform an initial dose calculation per PEP 03.4.7, Automation of Off-Site Dose Projection procedure. You are to determine the EAL classification for the RADIATION RELEASE for execution of the Radiation Release Control EOP.

2. Determine required Protective Action Recommendations per 0PEP-02.6.28 for the emergency in progress.

You are to inform the Shift Superintendent (SEC) of the results of your assessments.

ATTACHMENT 2

Data Sheet for Dose Projection Inputs

CHARACTERISTIC	TIME			
Main Stack	Release Rate (µCi/Sec)	2.4e6		
	Flow Rate (CFM)	40000		
Turbine Building	#1 Release Rate (µCi/Sec)	5.2E6		
	#1 Flow Rate (CFM)	15000		
	#2 Release Rate (µCi/Sec)	5.2E6		
	#2 Flow Rate (CFM)	15000		
Reactor Building	Release Rate (CPM)	3.5E2		
	Flow Rate (CFM)	0		
Torus Vent	Release Rate (µCi/Sec)	0		
Core Uncovered	Time (1) lost/ (2) Returned			
Effective Filtration	Yes / No	Yes		
Release Height	Ground	Yes		
	Elevated	Yes		
Release Duration	Anticipated Length of Time	1 Hours		
Shutdown	Date			
	Time			
Met Data Wind Speed	Upper	5 MPH		
	Lower	4 MPH		
Met Data Direction	Upper	77 DEG		
	Lower	75 DEG		
Stability	Class	B		
Seabreeze	Yes / No	No		

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of PEP-03.4.7.
Current Revision ofPEP-03.4.7 obtained.

SAT/UNSAT* _____

Step 2 - Access the Dose Projection program.
Dose Projection Program accessed.

SAT/UNSAT* _____

NOTE: The attached sheets show the three screens for CPL DOSE program (answer key) and the expected inputs (with exception of time)

Slight variances may be expected due to time data is entered in relation to Reactor shutdown

Step 3 - Enter data from PEP-03.4.7 attachment into the dose projection program.
Data correctly entered into the dose projection program.

SAT/UNSAT* _____

Step 4 - Determine highest off-site dose is approximately 6.38E+01 TEDE and 1.99E+2 CDE both at the site boundary.

Determined that projected dose at site boundary is ≈6.38 mrem TEDE and ≈ 1.99+02 mrem CDE.

**** CRITICAL STEP ** SAT/UNSAT* _____**

NOTE: The EAL for the release (Site Area Emergency) is on bottom right of last display (results display) of Dose program and on last page of printout. The examinee may use this to determine the EAL for the release, or may determine the EAL for the release per 0PEP-02.1, Attachment 1, Section 4, or the EAL flowchart. (EAL 04.03.01).

Step 5 – Determine projected dose at the site boundary meets the EAL for a Site Area Emergency.

Determine projected dose at the site boundary meets the EAL for a Site Area Emergency.

**** CRITICAL STEP ** SAT/UNSAT* _____**

NOTE: The EAL for the release is a Site Area Emergency. However, since a General Emergency has been declared, Protective Action Recommendations (PAR) are required per 0PEP-02.6.28. Since release does not exceed GE EAL, the Guidance in Attachment 2 does not need to be modified.

Step 6 – Refer to 0PEP-02.6.28 Determine with current met data that 0PEP-02.6.28 requires a PAR to evacuate zones A,B,C,D,E and shelter zones F,G,H,K.

Determines with current met data that 0PEP-02.6.28 requires a PAR to evacuate zones A,B,C,D,E and shelter zones F,G,H,K.

**** CRITICAL STEP ** SAT/UNSAT* _____**

PROMPT:	When the PAR has been determined, hand examinee extra attached final printout from a dose projection. Inform examinee that it is now one hour later, and another operator has performed a dose projection, and direct the examinee to determine the EAL classification for the RADIATION RELEASE for execution of the Radiation Release Control EOP.
NOTE	The last sheet shows a projected dose of 1.79E+03 TEDE and 6.75E+03 CDE which exceeds the EAL for a General Emergency. The EAL block of this form has been deliberately deleted to force the examinee to evaluate EALs. EALs may be evaluated using 0PEP-02.1, or the EAL flow chart

Step 7 – Determine second dose projection requires declaration of a General Emergency for the Radiation Release using PEP-02.1 or the EAL flow chart.
Determines the release is at the General Emergency Classification.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 8 - Notifies Shift Superintendent of results.
Shift Superintendent notified of off-site dose projection, PAR and EAL results.

SAT/UNSAT* _____

TERMINATING CUE:	When the offsite dose projection has been performed and lines 12 & 13 of the Emergency Notification form are filled in, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

344 058 B3 02

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.4.40 4.0

REFERENCES:

0PEP-03.4.7
0PEP-02.1
0PEP-02.6.28

TOOLS AND EQUIPMENT:

Computer loaded with CPL Dose.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

Administrative – Emergency Plan

REASON FOR REVISION:

New JPM.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure?: Yes _____ No _____

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. A General Emergency has been declared due to a steam line break in the Turbine Building on Unit 1. One set of MSIVs has failed to close and there are indications of fuel failure.

2. The operating crew is currently executing the Radioactivity Release Control EOP, and Steam Cooling Procedure due to loss of all RPV injection sources. RPV level has been below TAF for 15 minutes and below LL4 for 5 minutes.

3. Drywell High Range Radiation Monitors are reading 10,000 R/Hr at the 50' elevation, and 2000 R/Hr at the 20' elevation.

4. The Unit 1 reactor initially failed to scram, but was successfully scrammed 15 minutes ago.

5. Attachment 2 of PEP-3.4.7 has been filled out for data entry.

INITIATING CUE:

You are directed by the Shift Superintendent (SEC) to:

1. Perform an initial dose calculation per PEP 03.4.7, Automation of Off-Site Dose Projection procedure. You are to determine the EAL classification for the RADIATION RELEASE for execution of the Radiation Release Control EOP.

2. Determine required Protective Action Recommendations per 0PEP-02.6.28 for the emergency in progress.

You are to inform the Shift Superintendent (SEC) of the results of your assessments.

Facility: __Brunswick _____	Date of Examination: _February 2003
Examination Level (circle one): **RO** / SRO	Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1 A.1.1	GEN 2.1.33/2.2.12 (4.0)	JPM Complete Jet Pump Operability per 0PT-13.1 *Note: Data will indicate a failed Jet Pump.*
A.1.2	GEN 2.1.5 (2.3/3.4)	JPM Evaluate Overtime Eligibility
A.2	GEN 2.2.14/2.2.11 (2.5)	JPM Given an approved Temporary Change (TC) make the necessary changes to the applicable drawings.
A.3	GEN 2.3.10 (2.9/3.0) 2.3.1 (2.6/3.0)	1.. You have been notified by the Refuel Floor SRO that a spent fuel element has just dropped into the fuel pool and he is evacuating the reactor building. A. What action must you take to protect yourself from any ensuing radiation? (.5) B. How long do you have to accomplish this? (.3) And C. What is the allowable stay time in the Control Room. (.2) Cite References. 2. Determine which operator of obtains a lower dose for 2 operators using different paths.
A.4	GEN 2.4.39 (3.3/3.1)	JPM Estimate Release from Unit 1 Reactor Building and Turbine Building Per PEP-03.6.1.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A1-1

LESSON TITLE: Evaluate Jet Pump Performance Per PT-13.1.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Special Instructions

Transfer the following data onto a current revision of PT-13.1:

Reactor power level	96.6%
Recirc Pump A speed	88%
Recirc Pump B speed	88%
Recirc Pump A Flow	52 gpm X 1000
Recirc Pump B Flow	43 gpm X 1000
Jet Pump Loop A	30 mlbm/hr
Jet Pump Loop B	39 mlbm/hr

Attachment 2, Work Sheet 1

Loop A	Loop B
JP 1 – 30%	JP-11 – 40%
JP-2 – 32%	JP-12 – 42%
JP-3 – 31%	JP-13 – 39%
JP-4 – 33%	JP-14 – 43%
JP-5 – 32%	JP-15 – 40%
JP-6 – 33%	JP-16 – 38%
JP-7 – 31%	JP-17 – 39%
JP-8 – 32%	JP-18 – 38%
JP-9 – 25%	JP-19 – 39%
JP-10 – 21%	JP-20 – 42%

NOTE: Average of Loop A is 30.0%, Loop B is 40%

SAFETY CONSIDERATIONS

None

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.

2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. Unit Two (2) is operating at power.

2. 0PT-13.1, Reactor Recirculation Jet Pump Operability is being performed.

3. Another operator has recorded data required for the PT in Section 7.3, and on Attachment 2, Test Information Work Sheet 1. Attachment 2, Work Sheet 2 is not to be used.

INITIATING CUE:

You are directed to evaluate the data for Jet Pump performance, determine if acceptance criteria is met, and inform the Unit SCO of the results.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 0PT-13.1 and 2OP-02.
Current Revision of 0PT-13.1 and 2OP-02 obtained and verified, if applicable.

SAT/UNSAT* _____

NOTE: The following steps requires evaluation of curves located in 2OP-02, Figures 4.1, 4.2, 5.1, 5.2 and 6.1 through 6.10.

Step 2 – Confirm Recirc Pump A flow is within the band of the established curves.
Determine Recirc Pump A flow is NOT within the band of 2OP-02, Figure 4.1.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Confirm Recirc Pump B flow is within the band of the established curves.
Determine Recirc Pump A flow is within the band of 2OP-02, Figure 4.2.

SAT/UNSAT* _____

Step 4 – Confirm Jet Pump loop A flow is within the band of the established curves.
Determine Jet Pump Loop A flow is NOT within the band of 2OP-02, Figure 5.1.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 5 – Confirm Jet Pump loop B flow is within the band of the established curves.
Determine Jet Pump Loop A flow is within the band of 2OP-02, Figure 5.2.

SAT/UNSAT* _____

Step 6 – Calculate average jet pump % psid for each loop.
Determines Loop A average is 30% and Loop B average is 40%.

SAT/UNSAT* _____

Step 7 – Compare the % psid for each jet pump and calculated average jet pump % psid for each loop with the established curves (2OP-02, Figures 6.1 through 6.10).
Determine jet pump 10 falls outside the established curve in 2OP-02, Figure 6.5 (all other jet pumps within limits)

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 8 – Inform Unit SCO that jet pump 10 fails to meet acceptance criteria.
Unit SCO informed jet pump 10 fails to meet acceptance criteria.

SAT/UNSAT* _____

PROMPT: For SRO examinees only, direct the examinee to determine any action required by Tech Specs

NOTE: The following step is applicable to SRO examinees only

Step 9 – Determine that LCO 3.4.2 is not met, condition A applies, requiring the unit to be placed in Mode 3 in 12 hours, and Mode 4 in 36 hours.

Determines that LCO 3.4.2 is not met, condition A applies, requiring the unit to be placed in Mode 3 in 12 hours, and Mode 4 in 36 hours.

**** CRITICAL STEP ** SAT/UNSAT* _____**

NOTE: If desired, the examiner may ask the examinee the safety implications of a failed jet pump. Invalidates LOCA analysis (due to loss of core reflooding to 2/3 core height and/or increased blowdown area).

TERMINATING CUE: When examinee has evaluated jet pump operability per PT-13.1 (and determined Tech Spec actions if applicable) this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

202001B201, Perform Reactor Recirculation Jet Pump Operability Test Per PT-13.1

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.1.33 3.4/4.0

GEN 2.2.12 3.0/3.4

REFERENCES:

0PT-13.1

2OP-02

TOOLS AND EQUIPMENT:

Calculator.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

Admin A1 – Conduct Of Operations

REASON FOR REVISION:

New JPM.

Evaluate Jet Pump Performance Per PT-13.1.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Unit Two (2) is operating at power.
2. 0PT-13.1, Reactor Recirculation Jet Pump Operability is being performed.
3. Another operator has recorded data required for the PT in Section 7.3, and on Attachment 2, Test Information Work Sheet 1. Attachment 2, Work Sheet 2 is not to be used.

INITIATING CUE:

You are directed to evaluate the data for Jet Pump performance, determine if acceptance criteria is met, and inform the Unit SCO of the results.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A1-2-RO

LESSON TITLE: Evaluate Overtime Eligibility.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.

2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. A startup of Unit 1 is planned for the following shift. One Reactor Operator must be held over three hours for startup.

2. The following is the work history (excluding shift turnover time) of the available Reactor Operators on shift (hours reflect those worked PRIOR to the 3 hour holdover). A break of at least 8 hours occurred between all working periods. All operators began their shift schedule at the same time each day.

DAY	1	2	3	4	5	6	7	8
Operator #1	0	4	12	10	10	14	10	11
Operator #2	0	12	10	12	3	12	8	13
Operator #3	0	0	12	12	12	8	8	14
Operator #4	0	8	12	10	10	8	10	11
Operator #5	0	0	12	14	12	10	13	10

NOTE: A break of at least 8 hours has occurred between all work periods

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for three hours without prior overtime approval, and determine which operators CANNOT be held over for three hours without prior overtime approval.

Also identify any deviations to 0AP-001 that may have already occurred between Day 1 and Day 7 (assume no authorization to exceed 0AP-001 limits)

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 0AP-001.
Current Revision of 0AP-001 obtained.

SAT/UNSAT* _____

NOTE: It is Critical that the examinee correctly determines which operators can be held over for three hours, and which operators cannot without overtime authorization per 0AP-001.

It is not critical that the examinee identify the specific limit that would be exceeded for the operators who cannot be held over.

Step 2 – Determine Operator **#1** would exceed 72 hours in a 7 day period and would require overtime authorization.

*Determines Operator **#1** would require overtime authorization.*

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Determine Operator **#2** would exceed 72 hours in a 7 day period and would require overtime authorization.

*Determines Operator **#2** would require overtime authorization.*

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 4 – Determine Operator **#3** would exceed 16 hours straight and 16 hours in a 24 hour period (today) and 24 hours in a 48 hour period (days 7 and 8) and would require overtime authorization.

*Determines Operator **#3** would require overtime authorization.*

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 5 – Determine Operator **#4** would not exceed any overtime restrictions and could be held over for the 3 hours.

*Determined that Operator **#4** would not exceed any overtime restrictions and could be held over for the 3 hours.*

SAT/UNSAT* _____

Step 6 – Determine Operator **#5** would exceed 24 hours in a 48 hour period and would exceed 72 hours in a 7 day period and would require overtime authorization.

*Determines Operator **#5** would require overtime authorization.*

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

PROMPT: If asked, inform examinee that no approved copy of 0AP-001, Attachment 1, exists for Operator #5

Step 7 – Determine Operator **#5** has exceeded 24 hours in a 48 hour period (day 3 and 4, and day 4 and 5).

*Determined that Operator **#5** exceeded 24 hours in a 48 hour period (day 3 and 4, and day 4 and 5).*

**** CRITICAL STEP ** SAT/UNSAT* _____**

TERMINATING CUE: When the examinee has evaluated overtime restrictions, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

Conduct shift turnover and relief

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.1.5.

REFERENCES:

0AP-001

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

A.1 – Conduct Of Operations

REASON FOR REVISION:

New JPM for NRC exam.

Evaluate Overtime Eligibility.

Time Required for Completion: 10 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: ___

Setting: Control Room ___ Simulator___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. A startup of Unit 1 is planned for the following shift. One Reactor Operator must be held over three hours for startup.

2. The following is the work history (excluding shift turnover time) of the available Reactor Operators on shift (hours reflect those worked PRIOR to the 3 hour holdover). A break of at least 8 hours occurred between all working periods. All operators began their shift schedule at the same time each day.

DAY	1	2	3	4	5	6	7	8
Operator #1	0	4	12	10	10	14	10	11
Operator #2	0	12	10	12	3	12	8	13
Operator #3	0	0	12	12	12	8	8	14
Operator #4	0	8	12	10	10	8	10	11
Operator #5	0	0	12	14	12	10	13	10

NOTE: A break of at least 8 hours has occurred between all work periods

INITIATING CUE:

Evaluate the work history for all 5 operators. Determine which operator(s), if any, can be held over for three hours without prior overtime approval, and determine which operators CANNOT be held over for three hours without prior overtime approval.

Also identify any deviations to 0AP-001 that may have already occurred between Day 1 and Day 7 (assume no authorization to exceed 0AP-001 limits)

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A2

LESSON TITLE: Evaluate Proposed Temporary Change.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Special Instructions

Obtain copies of prints D-02549, Sheet 1B, 2-FP-05924, Sheet 2, LL-09243, Sheet 15 and LL09244, Sheet 15

On D-02549, change V35 and V36 to show closed, and denote valves closed per EC TC 03-001.

On 2-FP-9524, Sheet 2, draw cloud around G41-N005 connections 1NC and 1C, denote leads lifted per EC TC 03-001.

On 2-FP-9524, Sheet 2, draw cloud around G41-N005 connections 2NC and 2C, denote leads lifted per EC TC 03-001.

On LL-09243, Sheet 15, draw jumper from terminals 2-H02/CC5 to 2-H02/AA11. Denote jumper installed per TC EC 03-001.

On LL-09244, Sheet 15, draw jumper from terminals 2-H02/CC17 to 2-H02/BB14. Denote jumper installed per TC EC 03-001.

Mark up EGR-NGGC-005, Form 2 to reflect temporary changes.

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. This JPM may be administered in any setting.

Read the following to trainee.

TASK CONDITIONS:

1. Unit Two (2) Fuel Pool Cooling Skimmer Surge Tank low level alarm switch 2-G41-LSL-N005 has failed. The shelf condition of this level switch is closed. This failed level switch has resulted in Annunciator A-4 6-7 (Fuel Pool Cooling Alarm) being sealed in on Panel P603.
2. The failed level switch is obsolete. A temporary change has been developed in accordance with EGR-NGGC-0005 to abandon this level switch in place until a suitable replacement can be located and installed.
3. This temporary change is to valve out the failed level switch and lift leads and/or jumper the level switch contacts. This temporary change will defeat the level switch input to Annunciator A-4 6-7 (a multiple input Annunciator). This temporary change will also defeat low level indicating lights located on local panels 2-G41P001 and 2-G41-P002. The low level trip function for the Fuel Pool Cooling Pumps will not be affected.
4. A Temporary Change Log form (EGR-NGGC-0005, Form 2) has been prepared indicating a description of this temporary change and the Priority 0 drawings affected. The Priority 0 drawings referenced have been marked up to reflect the temporary change.

INITIATING CUE:

You are directed by the WCC SRO to review the marked up Priority 0 drawings identified on the Temporary Change Log Form 2 and ensure the changes reflected on the identified Priority 0 drawings meet the intent of the temporary change, and inform the WCC SRO of the results of your evaluation.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 – Review Temporary Change Log, Form 2 and evaluate drawings listed as Priority 0 on the Log.

Reviews Temporary Change Log, Form 2 and evaluate drawings listed as Priority 0 on the Log.

SAT/UNSAT* _____

Step 2 – Determine jumper installed from terminals 2-H02/CC5 to 2-H02/AA11 on drawing LL-09243, Sheet is for level switch N006, not N005 and should not be installed.

Determines jumper should not be installed from terminals 2-H02/CC5 to 2-H02/AA11 on LL-09243, Sheet 15.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 3 – Determine jumper installed from terminals 2-H02/CC17 to 2-H02/BB23 on drawing LL-09244, Sheet is for level switch N006, not N005 and should not be installed.

Determines jumper should not be installed from terminals 2-H02/CC17 to 2-H02/BB23 on LL-09244, Sheet 15.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 4 – Determine other drawing changes meet the intent of the TC.
Determines other drawing changes meet the intent of the TC.

**** CRITICAL STEP ** SAT/UNSAT* ____**

Step 5 – Inform WCC SRO of results.
WCC SRO informed of results.

SAT/UNSAT* ____

TERMINATING CUE: This box will tell the evaluator when the JPM is complete based on student performance.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

200 665 B5 04, Perform AO Actions For A Loss Of Division I DC Panels Per AOP-39.0

K/A REFERENCE AND IMPORTANCE RATING:

295004 AA1.01 3.3/3.4
Ability to operate D.C. electrical distribution systems as it applies to Partial Loss of D.C. power.

REFERENCES:

AOP-39.0, Revision 11
Loss of DC Power

TOOLS AND EQUIPMENT:
Plant Page.
Keys.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

6 - Electrical (DC Electrical Distribution)

REASON FOR REVISION:

Renamed from AOR to AOT, changed format to WORD from WP 5.1, updated for procedure revision, changed to support either unit, removed record of revision page.

Evaluate Proposed Temporary Change.

Time Required for Completion: 30 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 2

Setting: Control Room ___ Simulator___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. Unit Two (2) Fuel Pool Cooling Skimmer Surge Tank low level alarm switch 2-G41-LSL-N005 has failed. The shelf condition of this level switch is closed. This failed level switch has resulted in annunciator A-4 6-7 (Fuel Pool Cooling Alarm) being sealed in on Panel P603.

2. The failed level switch is obsolete. A temporary change has been developed in accordance with EGR-NGGC-0005 to abandon this level switch in place until a suitable replacement can be located and installed.

3. This temporary change is to valve out the failed level switch and lift leads and/or jumper the level switch contacts. This temporary change will defeat the level switch input to annunciator A-4 6-7 (a multiple input annunciator). This temporary change will also defeat low level indicating lights located on local panels 2-G41P001 and 2-G41-P002. The low level trip function for the Fuel Pool Cooling Pumps will not be affected.

4. A Temporary Change Log form (EGR-NGGC-0005, Form 2) has been prepared indicating a description of this temporary change and the Priority 0 drawings affected. The Priority 0 drawings referenced have been marked up to reflect the temporary change.

INITIATING CUE:

You are directed by the WCC SRO to review the marked up Priority 0 drawings identified on the Temporary Change Log Form 2 and ensure the changes reflected on the identified Priority 0 drawings meet the intent of the temporary change, and inform the WCC SRO of the results of your evaluation.

BNP 03 A3 RO QUESTION 1

REFERENCES ***ARE NOT*** PERMITTED FOR PART A

Part A

Unit One is in a refueling outage. You are an operator in the Control Room. A fuel handing accident has just occurred on Unit One requiring evacuation of the Refuel Floor and the Reactor Building due to high radiation conditions.

What action must you perform to protect Control Room personnel from excessive dose?

REFERENCES ***ARE*** PERMITTED FOR PARTS B and C

Part B

What is the maximum time to complete the above action?

Part C

Completion of the above required action in the required time ensures the Control Room will remain habitable for a minimum of _____ without exceeding dose limits specified in 10CFR50. (Fill in the blank)

BNP 03 A3 RO QUESTION 2

Two operators are directed to perform a task in the Unit Two Reactor Building. They take separate paths to the job location as described in the following table:

Operator 1	
Dose Rate	Path
9 mr/hr	Transient time in the Unit One Reactor Building 6 minutes
9 mr/hr	Transient time in the Unit Two Reactor Building 3 minutes
1 mr/hr	Changes into PCs to go into contaminated area in Unit Two Reactor Building (Takes 6 minutes)
1 mr/hr	Transient time through contaminated area is 3 minutes
1 mr/hr	Changes out of PCs to exit contaminated area in Unit Two Reactor Building (Takes 6 minutes)
	Arrives at job site

Operator 2	
Dose Rate	Path
8 mr/hr	Transient time in the Unit One Turbine Building 3 minutes
8 mr/rh	Transient time in the Unit Two Turbine Building 3 minutes
9 mr/hr	Transient time in the Unit Two Reactor Building 6 minutes
	Arrives at job site

Which operator received the lower dose?

BNP 03 A3 RO QUESTION 1 ANSWER KEY

REFERENCES ***ARE NOT*** PERMITTED FOR PART A

Part A

Unit One is in a refueling outage. You are an operator in the Control Room. A fuel handing accident has just occurred on Unit One requiring evacuation of the Refuel Floor and the Reactor Building due to high radiation conditions.

What action must you perform to protect Control Room personnel from excessive dose?

Start Control Building Emergency Air Filtration (or CREV). (0.5 pts)

Reference AOP-05.0, immediate action

REFERENCES ***ARE*** PERMITTED FOR PARTS B and C

Part B

What is the maximum time to complete the above action?

20 minutes (0.25 pts)

Part C

Completion of the above required action in the required time ensures the Control Room will remain habitable for a minimum of _____ without exceeding dose limits specified in 10CFR50. (Fill in the blank)

30 days (0.25 pts)

Minimum acceptable for Question 1 is 0.75 pts.

Reference AOP-05.0, Immediate Actions and General Discussion
Reference Tech Spec Bases B 3.7.3, Background
Reference SD-37, Section 1.2 (Design Bases)

K/A: 2.3.10 2.9/3.0

BNP 03 A3 RO QUESTION 2 ANSWER KEY

Two operators are directed to perform a task in the Unit Two Reactor Building. They take separate paths to the job location as described in the following table:

Operator 1	
Dose Rate	Path
9 mr/hr	Transient time in the Unit One Reactor Building 6 minutes
9 mr/hr	Transient time in the Unit Two Reactor Building 3 minutes
1 mr/hr	Changes into PCs to go into contaminated area in Unit Two Reactor Building (Takes 6 minutes)
1 mr/hr	Transient time through contaminated area is 3 minutes
1 mr/hr	Changes out of PCs to exit contaminated area in Unit Two Reactor Building (Takes 6 minutes)
	Arrives at job site

Operator 2	
Dose Rate	Path
8 mr/hr	Transient time in the Unit One Turbine Building 3 minutes
8 mr/rh	Transient time in the Unit Two Turbine Building 3 minutes
9 mr/hr	Transient time in the Unit Two Reactor Building 6 minutes
	Arrives at job site

Which operator received the lower dose?

Operator 1

(9 mr/hr X 0.1 hour) + (9 mr/hr X 0.05 hour) + (1 mr/hr X 0.1 hour) + (1 mr/hr X 0.05 hour) + (1 mr/hr X 0.1 hour) = 1.6 mr

Operator 2

(8 mr/hr X 0.05 hour) + (8 mr/hr X 0.05 hour) + (9 mr/hr X 0.1 hour) = 1.7 mr

Operator #1 received the total lower dose

K/A 2.31 2.6/3.0

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
ADMIN

BNP-03-A4-RO

LESSON TITLE: Estimate Release From Unit One Reactor Building and Turbine Building Per PEP-03.6.1.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure **WILL** be provided to the trainee.

2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. An accident is in progress on Unit One.

2. Unit One Reactor Building HVAC has been started per 0EOP-01-SEP-04 with three supply fans and three exhaust fans running.

3. Unit One Reactor Building Vent Flow instrument 1-VA-FR-3356 is failed downscale

4. Unit One Reactor Building Roof Vent monitor (1-CAC-AQR-1264-3) is reading 2.3 E+03 CPM. The posted efficiency factor is 1.525 E-05.

5. Unit One Turbine Building Vent Flow Instrument (1-VA-FT-3358) is inoperable.

6. Unit One Turbine Building Vent monitor (1-D12-RR-4548) is reading 5.3 E-04 μCi/cc.

7. The Emergency Operations Facility has requested the Release Rate from the Unit One Turbine Building and the Unit One Reactor Building be estimated for determination of off-site release dose projections.

INITIATING CUE:

You are directed by the Shift Superintendent to estimate the release rates from the Unit One Reactor Building and the Unit One Turbine Building per 0PEP-03.6.1. Determine if these release rates can be added together, or must be reported separately. Inform the Shift Superintendent of the results.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 0PEP-03.6.1.
Current Revision of 0PEP-03.6.1 obtained.

SAT/UNSAT* _____

NOTE: Sequence of steps for determining Reactor Building and Turbine Building estimated releases are not important.

Step 2 – Estimate Unit One Reactor Building Release as follows:

a. Record Meter Reading (CPM) on Attachment 2
2.3 E+03 CPM recorded on Attachment 2.

SAT/UNSAT* _____

b. Record Flow on Attachment 2
Multiplies 43,200 times 3 and records 129600 (CFM) on Attachment 2.

SAT/UNSAT* _____

c. Record Efficiency Factor on Attachment 2
1.525 E-05 recorded on Attachment 2.

SAT/UNSAT* _____

d. Determines Release Rate from Unit One Reactor Building to be 4545.72 μCi/sec and records Release Rate on Attachment 2
Multiplies 2.3E+03 times 129600 times 1.525E-05, determines Release Rate is 4.5E+03 to 4.6E+03.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 3 – Estimate Unit One Turbine Building Release as follows:

a. Record Meter Reading (CPM) on Attachment 3
5.3 E-04 μCi/cc *recorded on Attachment 3.*

SAT/UNSAT* _____

b. Record Flow on Attachment 3
Records 15,500 (CFM) on Attachment 3.

SAT/UNSAT* _____

c. Record Conversion Factor on Attachment 3
472 recorded on Attachment 3.

SAT/UNSAT* _____

d. Determines Release Rate from Unit One Turbine Building to be 3877.48 μCi/sec and records Release Rate on Attachment 2
Multiplies 5.3E-04 times 15500 times 472, determines Release Rate is 3.8E+03 to 3.9E+03.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 4 – Determines that since multiple building vent rad monitors are not monitoring the same point, the individual source terms may be added to obtain the total source term (BOTH are considered ground level vs. elevated release per PEP-03.6.1, Step 9.3).
Determines that the individual source terms may be added to obtain the total source term.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 5 – Adds Reactor Building and Turbine Building Release (4545.72 μCi/sec + 3877.48 μCi/sec) to obtain total release of 8423.2 μCi/sec

Total release rate calculated to be 8.3E+03 to 8.5E+03 μCi/sec

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 6 – Report results of Release Rate Estimates to the Shift Superintendent.

Shift Superintendent informed of results.

SAT/UNSAT* _____

TERMINATING CUE: When the release rate from the Unit One Turbine Building and Unit One Reactor Building has been estimated, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

299201B201, Perform Daily Surveillance Report Per OI-3.1 Or OI-3.2

K/A REFERENCE AND IMPORTANCE RATING:

GEN 2.4.39 3.3/3.1

REFERENCES:

0PEP-03.6.1

TOOLS AND EQUIPMENT:

Calculator.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

A.4 – Admin - Emergency Plan

REASON FOR REVISION:

New JPM.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 1

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. An accident is in progress on Unit One.
2. Unit One Reactor Building HVAC has been started per 0EOP-01-SEP-04 with three supply fans and three exhaust fans running.
3. Unit One Reactor Building Vent Flow instrument 1-VA-FR-3356 is failed downscale
4. Unit One Reactor Building Roof Vent monitor (1-CAC-AQR-1264-3) is reading 2.3 E+03 CPM. The posted efficiency factor is 1.525 E-05.
5. Unit One Turbine Building Vent Flow Instrument (1-VA-FT-3358) is inoperable.
6. Unit One Turbine Building Vent monitor (1-D12-RR-4548) is reading 5.3 E-04 μCi/cc.
7. The Emergency Operations Facility has requested the Release Rate from the Unit One Turbine Building and the Unit One Reactor Building be estimated for determination of off-site release dose projections.

INITIATING CUE:

You are directed by the Shift Superintendent to estimate the release rates from the Unit One Reactor Building and the Unit One Turbine Building per 0PEP-03.6.1. Determine if these release rates can be added together, or must be reported separately. Inform the Shift Superintendent of the results.

Facility: __Brunswick _____ Date of Examination: __February 2003

Exam Level (circle one): RO / SRO(I) / SRO(**U**) Operating Test No.: _____

B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Reactor Recirculation Pump Start - Recirculation Pump Speed Control Failure (BNP-03-B1a)	(D)(A)(S)	1
b. Reduce RPV water level using RWCU to Radwaste (BNP-	(N)(S)	2
c. Emergency equalization around MSIVs using Hard Card (BNP-03-A1c)	(D)(S)	3
d. Shutdown Cooling Restoration With RHR Pump overload. (BNP-03-B1d)	(D)(A)(S)(L)	4
e. Vent the Drywell per OP-10 *w/ Stack Rad Monitor Increase >50%* (**U**) (BNP-03-B1e)	(D)*(A)*(S)	5
f. Manual Startup of Control Building Emergency Ventilation - Trip of One Fan (**U**), (BNP-03-B1f)	(N)(A)(S)	9
g. Core Performance Parameter Check- manual APRM GAF Adjustment Required (**U**) (BNP-03-B1g)	(D)(S)	7

B.2 Facility Walk-Through

a. Start RCIC from remote S/D Panel (**U**) (BNP-03-B2a)	(D)(R)	2
b. Local Manual Start Of "A" DG using Prelube Start Control (BNP-03-B2b)	(D)	6
c. Fire Water Injection Using The Motor Driven Fire Pump (**U**) (BNP-03-B2c)	(M)(R)	8

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
SIMULATOR

BNP-03-B1a

LESSON TITLE: Recirculation Pump Start – Recirculation Pump Speed Control Failure.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP (Recommended)

IC-11	BOC
Rx Pwr	100%
Core Age	BOC

Triggers

E1 – Auto initiated, Recirc B Runback Reset Push Button = TRUE

Malfunctions

None

Overrides

E1 – Recirc B Flow Control 1.0 over 60 seconds

Remote

None

Special Instructions

Reduce core flow to ENP-24 limit, drive 1st 3 sets of rods on ENP-24.

Secure Recirc Pump B, place seal staging valve (V17) to Manual/Open, and reduce controller output to approx. 16%.

Ensure core flow >30.8 and <45 mlbm/hr, and Recirc A pump flow >23,500 gpm. Ensure scram avoidance region will not be entered when Recirc A pump flow is reduced to 23.500 gpm.

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee. Evaluator should provide copy of OP-02, Sections 5.2 and 8.2 completed up to the steps specified in the task conditions.

2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

3. Steps in 2OP-02 to place APRMs to setup are not applicable in the simulator due to simulator configuration with Unit One PRNM.

Read the following to trainee.

TASK CONDITIONS:

1. Recirculation Pump 2B has tripped. The cause of the trip has been corrected.

2. Recirculation Pump 2A is in operation.

3. RWCU is in normal operation per 2OP-14.

4. An off-going operator has completed steps in 2OP-02, Section 8.2, up to step 8.2.2.4, and Section 5.2, up to step 5.2.2.22.

5. Another operator is available to make log entries as required.

INITIATING CUE:

You are directed to continue the startup of Recirculation Pump 2B and inform the Unit SCO when 2OP-02 Sections 5.2 and 8.2 are complete.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 2OP-02, Sections 5.2 and 8.2.
Current Revision of 2OP-02, Sections 5.2 and 8.2 obtained and verified, if applicable.

SAT/UNSAT* _____

Step 2 – Ensure temperature differential between the reactor coolant within the dome and bottom head drain is less than 145◦F as follows:

a. Determine reactor pressure, convert to psia by adding 14.7 and use steam tables to convert reactor pressure to temperature.
Reactor temperature in the dome determined by converting psig to psia and using steam tables.

SAT/UNSAT* _____

PROMPT: If examinee requests another individual to read C12-TR-R018, Channel 153 (Local Indication), direct examinee to use available indication on panel P603.

NOTE: Since bottom head drain temperature indication is available, B32-TR-R650 (H12-P603) or process computer points B055-B058 should not be used.

b. Determine bottom head drain temperature using G31-TI-R607 Point 5 (Panel H12-P603), or C12-TR-R018 Channel 153 (Local).
Bottom head drain temperature using G31-TI-R607 Point 5 is determined.

SAT/UNSAT* _____

c. Determine temperature difference and record time.
Temperature differential determined and time recorded in OP-02.

SAT/UNSAT* _____

PROMPT: If examinee requests another individual to record differential temperature and time in the CO logbook, report log entry is complete.

PROMPT: If examinee asks, inform examinee APRM setup is not desired.

NOTE: Steps 23 and 24 of 2OP-02, Section 5.2.2 are not applicable.

Step 3 – Slowly reduce speed of the operating Reactor Recirculation Pump using Recirc Pump 2A Speed Control potentiometer until loop flow is less than or equal to 50% (23,000 gpm) of rated loop flow.
Recirc loop 2A flow is ≤23,500 gpm on B32-FR-R614 or B32-R613.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 4 – Within 30 minutes prior to startup of the second pump, ensure temperature differential between operating loop and idle loop is less than or equal to 50°F and that operating loop flow is less than or equal to 23,500 gpm as follows:

a. Operating loop temperature (B32-TR-R650) or process computer (B055-B058)
Loop 2A temperature recorded in 2OP-02 using B32-TR-R650 or B055-B056.

SAT/UNSAT* _____

b. Idle loop temperature (B32-TR-R650) or process computer (B055-B058)
Loop 2B temperature recorded in 2OP-02 using B32-TR-R650 or B057-B058.

SAT/UNSAT* _____

c. Determine differential temperature, record results and time in 2OP-02
Differential temperature determined and recorded, along with time in 2OP-02.

SAT/UNSAT* _____

PROMPT: If examinee requests another individual to record differential temperature and time in the CO logbook, report log entry is complete.

NOTE: B32-FR-R614 (flow recorder) is available and should be used for the following step.

d. Operating loop flow rate on B32-FR-R614, if available, or flow indicator B32-R613 is less than or equal to 23,500 gpm (50% of rated loop flow) and time recorded in 2OP-02

Loop 2A flow rate from B32-FR-R614 and time recoded in 2OP-02.

SAT/UNSAT* _____

PROMPT: If examinee requests another individual to record Loop 2A flow rate and time in the CO logbook, report log entry is complete.

NOTE: Step 27 of 2OP-02, Section 5.2.2 is not applicable.
A recirc runback signal will be received when the discharge valve is closed.

Step 5 – Ensure Pump 2B discharge valve B32-F031B is closed.

Pump 2B discharge valve B32-F031B is full closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: Step 29 of 2OP-02, Section 5.2.2 is not applicable.

Step 6 – Ensure 30 minutes has not elapsed since temperature differentials and flow rate were determined.

30 minutes has not elapsed since temperature differentials and flow rate were determined

SAT/UNSAT* _____

Step 7 – Start MG Set 2B drive motor and ensure the following:
MG Set 2B drive motor is started

**** CRITICAL STEP ** SAT/UNSAT* _____**

a. MG Set B drive motor breaker closes.
Ensures MG Set 2B drive motor closes.

SAT/UNSAT* _____

b. MG Set B accelerates to speed.
Ensures MG 2B accelerates to speed.

SAT/UNSAT* _____

c. Approximately 6 seconds after the drive motor breaker closes, the generator field breaker closes and starts the Reactor Recirculation Pump.
Ensures MG 2B field breaker closes and Recirculation Pump 2B starts.

SAT/UNSAT* _____

NOTE: B32-R613 will indicate very little flow since the discharge valve is closed. Flow is through the discharge bypass valve only.

d. Recirc Pump 2B discharge flow B32-R613 indicates flow.
Ensures Recirc Pump 2B discharge flow B32-R613 indicates flow.

SAT/UNSAT* _____

PROMPT: If examinee requests another individual to record time the MG Set 2B drive motor breaker was closed in the CO logbook, report log entry is complete.

Step 8 – If in Modes 1 or 2 and the reactor is critical, perform the following:

a. Using 2 second jogs and 10 second rest times for the first minute, jog open Pump 2B discharge valve B32-F031B.
B32-F031B is opened using 2 second jogs and 10 second rest times for the first minute (5 total jogs).

**** CRITICAL STEP ** SAT/UNSAT*** _____

b. Fully open Pump 2B discharge valve B32-F031B.
B32-F031B is fully opened.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: Steps 34 and 35 of 2OP-02, Section 5.2.2 are not applicable.

Step 9 – Place the control switch for Seal Staging Valve B32-V17 to AUTO and ensure the valve remains open.

B32-V17 open with the control switch in AUTO.

SAT/UNSAT* _____

Step 10 – Reset Recirculation runback in accordance with Section 8.3.

Recognizes runback must be reset and obtains copy of 2OP-02, Section 8.3.

SAT/UNSAT* _____

Step 11 – Adjust the potentiometer on Recirc Pump 2B Speed Control lowering the speed demand signal until speed signal shows a slight decrease in pump speed.

Recirc B Speed Control is lowered to achieve a slight decrease in pump speed.

SAT/UNSAT* _____

NOTE: When the Runback Reset push button for Recirc Pump 2B is depressed, the speed demand will begin to increase. Speed demand signal will ramp to 100% over a 60 second period. Pump speed (and reactor power) will increase until the scoop tube is locked. Locking the scoop tube is an immediate operator action of AOP-03.0.

Maximum pump speed mismatch is 20% below 58 mlbm/hr total core flow and 10% above 58 mlbm/hr total core flow.

PROMPT: If examinee requests I&C assistance in resetting the runback, as I&C report signals matched and runback can be reset.

Step 12 – Reset the Recirculation runback for Reactor Recirculation Pump 2B as follows:

a Depress the Recirc Runback Reset push button for Recirculation Pump 2B.
Recirc Runback Reset pushbutton for Pump 2B is depressed.

**** CRITICAL STEP ** SAT/UNSAT* _____**

b Ensure reactor power and flow are stabilized.
Recognize increasing speed on Recirc Pump 2B and lock the scoop tube prior to exceeding maximum pump speed mismatch.

**** CRITICAL STEP ** SAT/UNSAT* _____**

NOTE: If desired, record Pump Speeds and Core flow when the scoop tube is locked.

Pump A Speed ____ Pump B Speed ____ Total Core Flow ___

NOTE: This condition requires entry into AOP-03.0. When examinee locks scoop tube and informs SCO of the failure, the JPM is complete since the task cannot be completed. Since the task cannot be completed, it is acceptable for the examiner to inform the examinee that the JPM is complete.

PROMPT: When informed as SCO of the failure, inform examinee that another operator will enter and announce AOP-03.0

Step 13 – Inform SCO of speed control failure.
SCO informed of speed control failure.

SAT/UNSAT* _____

TERMINATING CUE: When the scoop tube is locked for Recirc MG Set 2B, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

202004B101, Startup A Reactor Recirculation Pump Per OP-02

202015B401, Respond To A Recirc Flow Control Failure Increasing Per AOP-03.0

K/A REFERENCE AND IMPORTANCE RATING:

202001 A4.01 3.7/3.7

Ability to manually operate and/or monitor in the control room: Recirculation pumps

REFERENCES:

2OP-02

TOOLS AND EQUIPMENT:

Steam Tables

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

1 – Reactivity Control (Recirculation System)

REASON FOR REVISION:

Bank JPM LOR-SIM-JP-002-A07. Renamed from LOR to LOT, changed format to WORD from WP 5.1, updated for procedure revision.

Time Required for Completion: 20 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator 4 (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes 4 No ___

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. Recirculation Pump 2B has tripped. The cause of the trip has been corrected.
2. Recirculation Pump 2A is in operation.
3. RWCU is in normal operation per 2OP-14.
4. An off-going operator has completed steps in 2OP-02, Section 8.2, up to step 8.2.2.4, and Section 5.2, up to step 5.2.2.22.
5. Another operator is available to make log entries as required.

INITIATING CUE:

You are directed to continue the startup of Recirculation Pump 2B and inform the Unit SCO when 2OP-02 Sections 5.2 and 8.2 are complete.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
SIMULATOR

BNP-03-B1b

LESSON TITLE: Reduce RPV Water Level Using RWCU To Radwaste.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP

IC-03	BOC
Rx Pwr	0%
Core Age	BOC

Triggers

None

Malfunctions

None

Overrides

None

Remote

None

Special Instructions

Secure RWCU reject flow by closing G31-F033 and G31-F034.

Raise RPV level to approximately 195". Ensure alarm A7 2-2 is sealed in.

Ensure both RWCU Filter Demins are in service.

SAFETY CONSIDERATIONS:

None.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. There is no direct procedural guidance for this JPM. It is considered within the operator's capability to control RPV water level using CRD and RWCU as directed by General Operating Procedures.

Read the following to trainee.

TASK CONDITIONS:

1. Unit Two is in Mode 2, performing a reactor startup per GP-02.
2. RPV level band is 182" to 192" as indicated on C32-LI-N004A/B/C.
3. CRD is operating for control rod withdrawal.
4. RWCU is in operation. RWCU was aligned for reject to the main condenser, but that flow path has been secured for maintenance to repair a small leak in the header downstream of G31-F034, Reject To Condenser. G31-F034 has been placed under clearance in the closed position.
5. Reactor Level Hi/Lo has alarmed since securing the RWCU reject flow path.

INITIATING CUE:

You are directed by the Unit SCO establish a RWCU reject to Radwaste in accordance with GP-02, Step 5.3.4, and lower RPV water level to <192" as indicated on narrow range instruments C32-LI-N004A/B/C. You are to inform the Unit SCO when the Reactor Hi/Lo Level alarm is clear.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

NOTE: The following actions are directed by GP-02. There are no specific instructions in OP-14 (Reactor Water Cleanup Operating Procedure) that apply for current plant conditions. The operator is expected to be able to control RPV level using CRD and RWCU reject during execution of General Operating Procedures.

PROMPT: When notified of reject operation to Radwaste, as Radwaste CO, inform examinee that you have aligned the reject flow path to the Waste Collector Tank. Report Waste Collector Tank level is 20% and sufficient capacity exists for approximately 20,000 gallons of reject flow.

Step 1 – Obtain current revision of GP-02.
Current revision of GP-02 is obtained.

SAT/UNSAT* _____

Step 2 – Notify Radwaste of intention to reject to Radwaste, and coordinate to ensure Radwaste can accept the reject flow.
Radwaste notified of reject to Radwaste.

SAT/UNSAT* _____

Step 3 – Open Reject To Radwaste Vlv, G31-F035.
Reject To Radwaste Vlv, G31-F035 is open.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

Step 4 – Throttle open RWCU Reject Flow Control Vlv, G31-F033 to achieve a lowering RPV water level.

G31-F033 is opened to achieve a lowering reactor water trend.

**** CRITICAL STEP ** SAT/UNSAT* ____**

PROMPT: If asked, as Radwaste CO, report Water Collector Tank level rising.

NOTE: The operator may (but is not required to) reduce CRD flow rate to the RPV to aid in reducing RPV level to the desired band. If the operator reduces CRD flow rate, CRD parameters should be maintained per OP-08, Section 6.0 (CRD Dive Water Pressure restored 260-275 psig by throttling closed Dive Pressure Control Valve).

NOTE: The operator should monitor Regen HX Outlet, Point 2, and/or Filter Inlet, Point 3, on G31-TI-R607, to ensure Non-Regen heat exchangers outlet temperature remains below 130°F, but with RPV temperature <212°F, this limitation will not be exceeded.

Step 5 - Monitor Regen HX Outlet, Point 2, and/or Filter Inlet, Point 3, on G31-TI-R607, to ensure Non-Regen heat exchangers outlet temperature remains below 130°F.

Operator monitors Regen HX Outlet, Point 2, and/or Filter Inlet, Point 3, on G31-TI-R607, to ensure Non-Regen heat exchangers outlet temperature remains below 130°F.

SAT/UNSAT* ____

Step 6 – Lower RPV water level at or below 192" as indicated by C32-LI-N004A/B/C.
RPV water level indicates at or below 192" as indicated by C32-LI-N004A/B/C and Reactor Level Hi/Lo alarm is clear.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 7 – Inform Unit SCO that RPV water level is in the required band.
Unit SCO informed RPV water level is in the required band.

SAT/UNSAT* _____

TERMINATING CUE: When RPV water level indicates ≤192" on narrow range indicators N004A/B/C, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

204002B101, Place The RWCU System In Service With The Reactor Not In Cold Shutdown Per OP-14.

K/A REFERENCE AND IMPORTANCE RATING:

204000, A4.08 3.4/3.4

REFERENCES:

2OP-14

GP-02

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

2 – Inventory Control (Reactor Water Cleanup)

REASON FOR REVISION:

New JPM.

Reduce RPV Water Level Using RWCU To Radwaste.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator 4 (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. Unit Two is in Mode 2, performing a reactor startup per GP-02.
2. RPV level band is 182" to 192" as indicated on C32-LI-N004A/B/C.
3. CRD is operating for control rod withdrawal.
4. RWCU is in operation. RWCU was aligned for reject to the main condenser, but that flow path has been secured for maintenance to repair a leak in the header downstream of G31-F034, Reject To Condenser. G31-F034 has been placed under clearance in the closed position.
5. Reactor Level Hi/Lo has alarmed since securing the RWCU reject flow path.

INITIATING CUE:

You are directed by the Unit SCO establish a RWCU reject to Radwaste in accordance with GP-02, Step 5.3.4, and lower RPV water level to <192" as indicated on narrow range instruments C32-LI-N004A/B/C. You are to inform the Unit SCO when the Reactor Hi/Lo Level alarm is clear.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
CONTROL ROOM

BNP-03-B1c

LESSON TITLE: Emergency Equalization Around MSIV's - Using the Hard Card

REVISION NO: 1

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP:

A. Initial Conditions:

1. Recommended Initial Conditions

IC	11
Rx. Pwr.	100%
Core Age	BOL

2. Required Plant Conditions

MSIVs closed with control switches in open, condenser vacuum < 10", no other group 1 conditions present.

B. Malfunctions

A small steam leak in the drywell or secondary containment

C. Overrides

None

D. Special Instructions

Perform a MANUAL Scram carry out initial operator actions. Close the MSIVs. Ensure condenser vacuum drops to <10". After this is done place the MSIV control switches to OPEN.

SAFETY CONSIDERATIONS:

1. NONE.

EVALUATOR NOTES: (Do not read to examinee)

1. The applicable procedure section **WILL NOT** be provided to the examinee (Hard Card from P601).
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the examinee.

Read the following to trainee.

TASK CONDITIONS:

1. A scram and Group 1 Isolation have occurred.
2. No fuel failure or steam line breaks have occurred.
3. The Main Condenser is available as a heat sink.
4. The SRO has anticipated that Emergency Depressurization may become required.

INITIATING CUE:

You are directed to perform the control operator actions associated with Emergency Equalization around the MSIV's, and open MSIVs when pressure is <200 psid, using the Hard Card. You are to inform the Unit SCO when the Hard Card actions are complete.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain "Hard Card" for MSIV equalization
"Hard Card" obtained for MSIV equalization.

SAT/UNSAT* _____

NOTE: When requested, place the low condenser vacuum bypass switches to Bypass using Remote Function MS_IAGP1BYP

PROMPT: (From Simulator Operator) Inform examinee low condenser vacuum bypass switches are in Bypass

Step 2 - Request the condenser vacuum bypass switches in bypass position.
Vacuum bypass switches placed in bypass

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 3 - Place all MSIV switches in the CLOSE position.
All MSIV switches in CLOSE position (B21-F022A, B, C & D, B21-F028A, B, C & D).

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 4 - Reset Group 1 Isolation.

Resets Group 1 Isolation reset switches, A72-S32 and S33, on P601, are depressed and White lights are ON.

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 5 - Open Outboard MSIV's.

Outboard MSIV switches: B21-F028A, B21-F028B, B21-F028C, B21-F028D placed in OPEN and MSIVs are OPEN.

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 6 - Open MS-F020.

MSL Drain Isolation Valve MS-F020 open.

SAT/UNSAT* _____

Step 7 - Open B21-F019.

MSL Outboard drain Isolation Valve B21-F019 open.

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 8 - Close MS-V28

Steam supply to MSR's, SJAE's, RFP's, MS-V28 indicates full closed.

SAT/UNSAT* _____

Step 9 - Close MVD-F021.

Common drain line orifice Bypass Valve to condenser, MVD-F021 closed.

SAT/UNSAT* _____

Step 10 - Open B21-F016.

MSL Inboard drain Isolation Valve, B21-F016 open.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: The expectation is to open all four valves in the following step. It is critical that at least one valve be opened for equalization.

Step 11 - Open MS-F038 A, B, C, D.

At least one MSL orifices bypass valve: MS-F038A, B, C, or D open to increase steam line pressure.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 12 - Ensure steam line pressure is increasing downstream of Outboard MSIVs.

Steam line pressure rising as indicated on Main Steam Pressure A/B indications on XU-1.

SAT/UNSAT* _____

Step 13- Close MS-V46, V47, V48, V49 and V35.

MSL drain valves MS-V46, MS-V47, MS-V48, & MS-V49 and V35 are all closed.

SAT/UNSAT* _____

Step 14 - When less than 200 psid across the valve, open Inboard MSIVs.

Inboard MSIVs B21-F022A, B, C & D are open.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 15 - Open MVD-F021.

MVD-F021 indicates open.

SAT/UNSAT* _____

NOTE: When requested, open MVD-V5005 using Remote Function MS_VMS5005D.

PROMPT: (From Simulator Operator) Inform examinee MVD-V5005 is open.

Step 16 – Request AO open MVD-V5005.
MVD-V5005 is open

SAT/UNSAT* _____

Step 17 - Open MS-V46, V47, V48, V49 and V35.
MS-V46, V47, V48, V49 and V35 are opened.

SAT/UNSAT* _____

Step 18 - Ensure open MS-V43, MS-V44, MS-V45, MS-V37/39, MS-V41/V42, MS-V36.
MS-V43, MS-V44, MS-V45, MS-V37/39, MS-V41/V42, MS-V36 are open.

SAT/UNSAT* _____

NOTE: Closing MS-V28 is not critical to equalize pressure around MSIVs. If closed, re-opening MS-V28 is critical to re-establish condenser vacuum to allow operation of turbine bypass valves (turbine steam seals and SJAEs).

Step 19 - Open MS-V28.

MS-V28 is open.

**** CRITICAL STEP ** SAT/UNSAT* _____**

Step 20 - Notify Unit SCO that MSIVs are open and to continue with pressure control as directed by the EOPs.

Supervisor notified MSIVs have been opened per the Hard Card.

SAT/UNSAT* _____

TERMINATING CUE: When the actions to equalize around and open MSIVs have been performed per the hard card, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

LIST OF REFERENCES

RELATED TASKS:

239 201 B4 01
Equalize Around And Open Main Steam Isolation Valves Per Hot Startup OP-25.

K/A REFERENCE AND IMPORTANCE RATING:

239001 A4.01 4.2/4.0
Ability to manually operate and or monitor in the Control Room: MSIVs

REFERENCES:

EOP-01-RVCP, Reactor Vessel Control Procedure
Hard Card for MSIV equalization and reopening (S/1032)

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION

3 - Reactor Pressure Control (Main and Reheat Steam System)

REASON FOR REVISION:

Bank JPM LOT-SIM-JP-025-A01. Updated to current revision of procedure (addition of MVD-V5005).

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 2

Setting: Control Room ___ Simulator 4 (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. A scram and Group 1 Isolation have occurred.
2. No fuel failure or steam line breaks have occurred.
3. The Main Condenser is available as a heat sink.
4. The SRO has anticipated that Emergency Depressurization may become required.

INITIATING CUE:

You are directed to perform the control operator actions associated with Emergency Equalization around the MSIV's, and open MSIVs when pressure is <200 psid, using the Hard Card. You are to inform the Unit SCO when the Hard Card actions are complete.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
SIMULATOR

BNP-03-B1d

LESSON TITLE: Shutdown Cooling Restoration With RHR Pump Overload.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP

IC-01

Malfunctions

RP004F, RPS MG Set B Trip

Overrides

E1, ZA347 (RHR Pump B Overload alarm)
E1, ZUA1861 (4KV Bus E4 Motor Overload alarm)

E2, ZA367 (RHR Pump D Overload alarm)
E2, ZUA1661 (4KV Bus E2 Motor Overload alarm)

Special Instructions

1. Throttle E11-F003B and E11-F048B to achieve system flow of 6000 gpm with both valves indicating dual position.

2. Insert malfunction RP004F (or transfer RPS Bus B to alternate).

3. Perform actions to restore systems lost as desired. The ½ scram may be reset, but **DO NOT** reset PCIS logic.

4. Loss of RPS MG Set B results in closure of the RHR Outboard Valve (E11-F008) and the injection valve (E11-F015B) with resultant RHR Pump trip.

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. RHR Loop B was operating in Shutdown Cooling when a trip of RPS MG Set B resulted in a Group 8 isolation and a loss of Shutdown Cooling.
2. RPS Bus B has been transferred to Alternate Power.
3. RHR Loop B flow was 6000 gpm prior to the RPS MG Set B trip.
4. The shift superintendent has directed a reactor water level band of +200" to +220".

INITIATING CUE:

You are directed to restart RHR Shutdown Cooling using RHR Loop B per AOP-15.0 step 3.2.8, and inform the Unit SCO when Shutdown cooling has been restored.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of AOP-15.0.
Current Revision of AOP-15.0 obtained.

SAT/UNSAT* _

Step 2 – Restore and maintain reactor water level 200-220".
Reactor water level is 200-220" as indicated on B21-LI-N027A or B.

SAT/UNSAT* __

Step 3 – Reduce reactor pressure below 125 psig per GP-05
Reactor pressure is below 125 psig.

SAT/UNSAT* __

Step 4 – Ensure RPS is energized.
RPS Buses A and B are energized.

SAT/UNSAT* __

Step 5 – Reset the group 8 isolation.
Isolation Reset Groups 1,2,3,6,8 pushbutton, A71-S33 is depressed.

**** CRITICAL STEP ** SAT/UNSAT* __**

PROMPT: If requested, as Unit SCO, inform examinee that piping cooldown or drain down are NOT a concern

Step 6 – Close Loop B Outboard Injection Valve, E11-F017B.
E11-F017B indicates full closed.

SAT/UNSAT* __

Step 7 – Open Loop B Inboard Injection Valve E11-F015B.
E11-F015B indicates full open.

**** CRITICAL STEP ** SAT/UNSAT* __**

Step 8 – Open RHR Shutdown Cooling Outboard Isolation Valve E11-F008.
E11-F008 indicates full open.

**** CRITICAL STEP ** SAT/UNSAT* __**

Step 9 – Open RHR Shutdown Cooling Inboard Isolation Valve E11-F009.
E11-F009 indicates full open.

SAT/UNSAT* __

Step 10 – Start an RHR Pump in the loop being used for shutdown cooling.
RHR Pump 2B or 2D is running.

**** CRITICAL STEP ** SAT/UNSAT*** __

NOTE: When E11-F017B has been throttled to establish approximately 6000 gpm loop flow, if RHR Pump B has been started, initiate Trigger E1, or if RHR Pump D has been started, initiate Trigger E2 (do NOT initiate both).
When the Pump (B or D) with the overload alarm is stopped, clear the Alarm Summary.

PROMPT: If requested, as AO report 51 device shows target on phase B at breaker for RHR Pump B (E4) or RHR Pump D (E2) as applicable.

If informed as Unit SCO of overload alarm, acknowledge the report, and inform examinee that you will contact I&C, and have another operator dispatch an AO to the pump motor breaker to check relay status.

Step 11 – Slowly throttle open Loop B Outboard Injection Valve E11-F017B to re-establish RHR loop conditions prior to the event.
E11-F017B throttled open to establish RHR Loop flow of >4150 gpm.

**** CRITICAL STEP ** SAT/UNSAT*** __

NOTE: The APP (*A-03 4-7 for RHR Pump B/A-03 6-7 for RHR Pump D)*) provides three courses of action for a pump overload:

If in accident conditions, continue running pump (does NOT apply).

If testing the pump, trip the pump (does NOT apply).

If pump is operating for some other mode, start a redundant pump and stop the pump with the overload.

Step 12 – Refer to APP for RHR Pump (B or D) overload
Refers to APP for RHR Pump (B or D) overload

SAT/UNSAT* __

Step 13 – Start redundant RHR Pump (B or D)
RHR Loop B Pump (B or D) without overload is running.

** **CRITICAL STEP** ** **SAT/UNSAT*** __

Step 14 – Stop RHR Pump (B or D) with overload alarm.
RHR Pump with overload alarm (B or D) is off.

** **CRITICAL STEP** ** **SAT/UNSAT*** __

Step 15 – Fully open Loop B Outboard Injection Valve E11-F017B.
E11-F017B indicates full open.

SAT/UNSAT* __

Step 16 – Ensure Reactor Head Vent Valves, B21-F003 and B21-F004 are Open.
Reactor Head Vent Valves, B21-F003 and B21-F004 are Open.

SAT/UNSAT* __

Step 17 – Inform Unit SCO RHR shutdown cooling has been re-established per AOP-15.0.
Unit SCO informed RHR shutdown cooling has been re-established per AOP-15.0.

SAT/UNSAT* __

TERMINATING CUE: When RHR shutdown cooling has been re-established per AOP-15.0, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

205016B401, Respond To A Loss Of Shutdown Cooling Per AOP-15

K/A REFERENCE AND IMPORTANCE RATING:

295021 AA1.02 3.5/3.5
Ability to operate and/or monitor RHR/shutdown cooling as it applies to loss of shutdown cooling.

REFERENCES:

AOP-15.0
APP A-03, UA-16, UA-18

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

4 – Heat Removal From Reactor Core (Shutdown Cooling System)

REASON FOR REVISION:

New JPM.

Time Required for Completion: 10 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 2

Setting: Control Room ___ Simulator___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes 4 No ____

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date:_____

TASK CONDITIONS:

1. RHR Loop B was operating in Shutdown Cooling when a trip of RPS MG Set B resulted in a Group 8 isolation and a loss of Shutdown Cooling.

2 RPS Bus B has been transferred to Alternate Power.

3. RHR Loop B flow was 6000 gpm prior to the RPS MG Set B trip.

4. The shift superintendent has directed a reactor water level band of +200" to +220".

INITIATING CUE:

You are directed to restart RHR Shutdown Cooling using RHR Loop B per AOP-15.0 step 3.2.8, and inform the Unit SCO when Shutdown cooling has been restored.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
CONTROL ROOM

BNP-03-B1e

TITLE: Vent the Drywell per OP-10 w/ Stack Rad Monitor Increase >50%

REVISION NO: 3

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP:

A. Initial Conditions:

1. Recommended Initial Conditions

IC 11
Rx. Pwr. 100%
Core Age BOC

2. Required Plant Conditions

Drywell Pressure above 0.5 psig SLOWLY rising or stable, AND below 1.8 psig.

B. Malfunctions

None required

C. Overrides

Meters

Event	Panel	Tag	Title	Value (ramp rate)	Activate Time (sec)	Deactivate Time (sec)
E1	XU-3	G5B02G15	Main Stack Radiation	13 / 5 min	0 SEC	N/A

Trigger 1 Q6225LGT CAC-V23 Green Lamp = False

D. Special Instructions

Secure Drywell Coolers 2C and 2D Fans 1 and 2 and allow drywell pressure to rise to ≥0.6 psig as indicated on CAC-PI-2685-1 on XU-51, then restart Drywell Coolers 2D Fan 2 and allow Drywell pressure to stabilize. Override Drywell Cooler 2C Fans 1 and 2 and Drywell Cooler 2D Fan 1 control switches OFF.

SAFETY CONSIDERATIONS:

NONE

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee, once it is demonstrated he/she knows the correct procedure.

2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. Drywell pressure is above normal due to a partial loss of Drywell Cooling.

2. AOP-14.0 has been entered.

3. Standby Gas Treatment System is in the Standby Alignment.

4. The plant stack radiation monitor is in service and CAC-CS-5519, CAC Purge Vent Isolation Override is in OFF.

INITIATING CUE:

The Unit SCO directs you to vent the Drywell via Standby Gas Treatment, and to inform him when drywell pressure has been reduced below 0.5 psig.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain current revision of OP-10, Section 8.2 and verify if applicable.

Current revision of OP-10, Section 8.2 is obtained and verified as required.

SAT/UNSAT* _____

Step 2 - Record D12-RR-R600B, STACK RAD MONITOR, digital point display.

Value for D12-RR-R600B recorded in OP-10.

SAT/UNSAT* _____

Step 3 - Add 0.17 to the value to obtain the logarithmic equivalent of a 50% increase in stack radiation monitor reading and record result.

Value recorded in OP-10 of initial reading + 0.17 (1.23).

SAT/UNSAT* _____

NOTE: Step 3 of Section 8.2.2 is not applicable.

Step 4 - Monitor Stack Rad Monitor, D12-RM-R600B, for increase in activity during venting.

D12-RM-R600B periodically monitored.

SAT/UNSAT* _____

Step 5 - CLOSE REACTOR BUILDING SBGT TRAIN 2A INLET VALVE, VA-2D-BFV-RB.

VA-2D-BFV-RB indicates fully closed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

Step 6 - CLOSE REACTOR BUILDING SBGT 2B INLET VALVE, VA-2H-BFV-RB.

VA-2H-BFV-RB indicates fully closed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

Step 7 - OPEN SBGT DW SUCT DAMPER, VA-2F-BFV-RB.

VA-2F-BFV-RB, indicates open.

**** CRITICAL STEP ** SAT/UNSAT*** ____

NOTE: Steps 10 and 11 of Section 8.2.2 are not applicable.

Step 8 - OPEN DW PURGE EXH VALVE, CAC-V9.

CAC-V9 indicates full open.

**** CRITICAL STEP ** SAT/UNSAT*** ____

Step 9 - OPEN DW PURGE EXH VALVE, CAC-V23.

CAC-V23 indicates full open.

**** CRITICAL STEP ** SAT/UNSAT*** ____

NOTE:	It is normal indication in the plant for the stack rad monitor reading to rise when venting is initiated.
NOTE:	When CAC-V23 is opened, stack rad monitor reading will begin to rise.
NOTE:	It is not normal practice in the plant to open CAC-V49 and CAC-V50. If examinee does not open these valves, steps 10 and 11 of this JPM are not applicable.
PROMPT:	If requested, inform examinee as Unit SCO that it is not desired to vent from the drywell head.

Step 10 - OPEN DW HEAD PURGE EXH VLV, CAC-V49.

CAC-V49 indicates full open.

SAT/UNSAT* ____

Step 11 - OPEN DW HEAD PURGE EXH VLV, CAC-V50.

CAC-V50 indicates full open.

SAT/UNSAT* ____

Step 12 - Monitor Main Stack Rad Monitor and determine reading has risen by >50%.
Determines Main Stack Rad Monitor reading has risen by >.17 (50%).

SAT/UNSAT* _____

NOTE:	It is critical for at least one valve to be closed in each vent path that is open, i.e., CAC-V23 or CAC-V9, **AND**, CAC-V49 or CAC-V50 (if opened), or that the primary containment suction valve VA-2F-BFV-RB is closed to isolate the release path.
CUE:	When the vent path has been isolated, delete the meter override on the Main Stack Rad Monitor.
PROMPT:	If the examinee informs the Unit SCO that the Main Stack has risen by >50%, direct examinee as Unit SCO to perform required actions for the increase.

Step 13 - CLOSE DW PURGE EXH VLV, CAC-V23.
CAC-V23 indicates full closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 14 - CLOSE DRYWELL PURGE EXH VALVE, CAC-V9.
CAC-V9 indicates full closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: Either Step 15 OR Step 16 of this JPM is critical ONLY if opened.

Step 15 - ENSURE DW HEAD PURGE EXH VLV, CAC-V49, IS CLOSED.
CAC-V49 indicates full closed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

Step 16 - ENSURE DW HEAD PURGE EXH VLV, CAC-V50, IS CLOSED.
CAC-V50 indicates full closed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

Step 17 - CLOSE SBGT DW SUCT DAMPER, VA-2F-BFV-RB.
VA-2F-BFV-RB indicates full closed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

NOTE: The following valves would auto open on SBGT Initiation therefore Steps 18 and 19 are NOT critical.

Step 18 - OPEN SBGT TRAIN 2B REACTOR BUILDING SUCTION VALVE, VA-2H-BFV-RB.
VA-2H-BFV-RB indicates full open.

SAT/UNSAT* ____

Step 19 - OPEN SBGT TRAIN 2A REACTOR BUILDING SUCTION VALVE, VA-2D-BFV-RB.

VA-2D-BFV-RB indicates full open.

SAT/UNSAT* _____

Step 20 - CONFIRM ALL SUPPRESSION CHAMBER TO DRYWELL VACUUM BREAKERS are closed.

All Suppression Chamber to Drywell vacuum breakers verified closed.

SAT/UNSAT* _____

PROMPT: If asked, inform examinee as Unit SCO that E&RC has been notified to sample containment and perform E&RC 2020, Noble Gas Instantaneous Release Rate Determination.

PROMPT: If asked, inform examinee as Unit SCO that another operator is standing by to perform 0PT-02.3.1, Suppression Chamber to DW Vacuum Breaker Test.

Step 21 - Inform Unit SCO venting is secured due to increase of 50% in Main Stack Rad Monitor reading.

Unit SCO is informed venting is secured due to increase of 50% in Main Stack Rad Monitor reading.

SAT/UNSAT* _____

TERMINATING CUE: Primary containment Venting has been secured.

*** Comments required for any step evaluated as UNSAT.**

LIST OF REFERENCES

RELATED TASKS:

261 008 B1 01, Perform Normal Primary Containment Venting.

K/A REFERENCE AND IMPORTANCE RATING:

261000 A4.04 3.3/3.4

Ability to manually operate and monitor Primary Containment Pressure.

REFERENCES:

2OP-10, Sect. 8.2 Rev 59

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev 2):

Safety Function 9, Radioactivity Release

REASON FOR REVISION:

Bank JPM. Minor changes.

Vent the Drywell per OP-10 w/ Stack Rad Monitor Increase >50%

Time Required for Completion: 10 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual ✓ Unit: 2

Setting: Control Room ___ Simulator ✓ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No ✓ Time Limit N/A

Alternate Path: Yes ✓ No ___

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Drywell pressure is above normal due to a partial loss of Drywell Cooling.
2. AOP-14.0 has been entered.
3. Standby Gas Treatment System is in the Standby Alignment.
4. The plant stack radiation monitor is in service and CAC-CS-5519, CAC Purge Vent Isolation Override is in OFF.

INITIATING CUE:

The Unit SCO directs you to vent the Drywell via Standby Gas Treatment, and to inform him when drywell pressure has been reduced below 0.5 psig.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
CONTROL ROOM

BNP-03-B1f

TITLE: Manual Startup of Control Building Emergency Ventilation – Trip Of One Fan

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

Simulator Setup:

IC-11

Triggers

E1 – Trips CREV Train A

E2 – Trips CREV Train B

E3 – Overrides Emerg Air Fan Fail To Run alarm

Malfunctions

None

Overrides

E1 – CREV Train A Switch in STBY

E2 – CREV Train B Switch in STBY

E3 – Alarm UA-14 2-2 ON

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to examinee)

1. The applicable procedure section **WILL** be provided to the examinee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG 1021, Appendix E, or similar to the examinee.

Read the following to examinee.

TASK CONDITIONS:

1. You are the Unit Two Control Operator.
2. Unit Two is operating at power. Unit One is in MODE 5.
3. The Control Building Emergency Recirculation System is in standby.
4. A fuel handling accident has occurred on Unit One.
5. The Unit One SCO has entered AOP-05.0 and EOP-04-RRCP.
6. This JPM is time critical.

INITIATING CUE:

You are directed to perform the actions for manual startup of the Control Building Emergency Recirculation System Per the Hard Card and inform the Unit SCO when the actions are complete.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 -Obtain hard card S/1067.

Hard card S/1067 obtained.

SAT/UNSAT* _____

Step 2 – PLACE CB Emergency Recirculation Fan, 2A(B)-ERF-CB in ON.

2A(B)-ERF-CB control switch placed to ON.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 3 – ENSURE Control Room Normal Makeup Damper, 2L-D-CB, Closes.

2L-D-CB, Control Room Normal Makeup Damper verified closed.

SAT/UNSAT* _____ _____

Step 4 – ENSURE Control Building Emergency Recirculation Damper, VA-2J-D-CB, Opens.

VA-2J-D-CB, Control Building Emergency Recirculation Damper verified OPEN.

SAT/UNSAT* _____

NOTE: Monitor CREV on panel mimics. If CREV Fan A has been started, initiate Triggers 1 and 3. If CREV Fan B has been started, initiate Triggers 2 and 3. Do NOT initiate both Triggers 1 and 2.

Dropping out the 42 device on either CREV Fan, 10 seconds after an auto start in PREF, or a manual start will bring in alarm UA-14 2-2.

The examinee may start the CREV Fan that was not previously running per guidance of the Hard Card or APP UA-14 2-2.

If the Fan that was tripped is placed in Stby or Pref, delete alarm override ZUA1422.

Step 5 – Recognize loss of running CREV Fan and START the CREV not previously started.
One CREV Train (A ore B) is in operation)

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 6 – STOP Control Building Washroom Exhaust Fan, 2D-EF-CB, and ENSURE associated damper closes.
2D-EF-CB, Control Building Washroom Exhaust Fan, stopped and associated damper verified closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 7 – STOP Control Building Mechanical Equipment Room Vent Fans, 2F-SF-CB and 2E-EF-CB, and ENSURE associated Supply and Exhaust Dampers CLOSE.
2F-SF-CB and 2E-EF-CB, Control Building Mechanical Equipment Room Vent Fans stopped and associated Supply and Exhaust Dampers verified closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 8 - STOP Cable Spread Room 2 Vent Fans, 2A-SF-CB and 2A-EF-CB, and ENSURE associated Supply and Exhaust Dampers CLOSE.

2A-SF-CB and 2A-EF-CB, Cable Spread Room 2 Vent Fans stopped and associated Supply and Exhaust Dampers verified closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

PROMPT: When requested to STOP (Unit One) Cable Spread Room 1 Vent Fans initiate batch file unit one cable spread fan shutdown

Step 9 – Request Unit 1 STOP Cable Spread Room 1 Vent Fans, 1A-SF-CB and 1A-EF-CB, and ENSURE associated Supply and Exhaust Dampers CLOSE.

1A-SF-CB and 1A-EF-CB, Cable Spread Room 1 Vent Fans stopped and associated Supply and Exhaust Dampers verified closed.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 10 – Inform Unit SCO that actions for manual startup of the Control Building Emergency Recirculation System are complete.

Unit SCO notified.

SAT/UNSAT* _____

TERMINATING Cue: When the Control Building Emergency Recirculation System has been started and isolated per the hard card, this JPM is complete.

- **Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

288202B101, Start the Control Building ventilation System per OP-37

K/A REFERENCE AND IMPORTANCE RATING:

290003 A4.01 3.2/3.2

Ability to use procedures to manually initiate Control Building HVAC.

REFERENCES:

Hard Card S/1067

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2)

9, Radioactivity Release

REASON FOR REVISION:

New JPM.

LIST OF REFERENCES

Time Required for Completion: 10 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual ✓ Unit: 0

Setting: Control Room ___ Simulator ✓ (Not applicable to In-Plant JPMs)

Time Critical: Yes ✓ No ___ Time Limit 20 min

Alternate Path: Yes ✓ No ___

EVALUATION

Examinee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Examinee Verify Procedure? Yes _____ No _____
(Each Student should verify one JPM per evaluation set)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. You are the Unit Two Control Operator.
2. Unit Two is operating at power. Unit One is in MODE 5.
3. The Control Building Emergency Recirculation System is in standby.
4. A fuel handling accident has occurred on Unit One.
5. The Unit One SCO has entered AOP-05.0 and EOP-04-RRCP.
6. This JPM is time critical.

INITIATING CUE:

You are directed to perform the actions for manual startup of the Control Building Emergency Recirculation System Per the Hard Card and inform the Unit SCO when the actions are complete.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
CONTROL ROOM

BNP-03-B1g

LESSON TITLE: Core Performance Parameter Check – Manual APRM GAF Adjustment Required

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SIMULATOR SETUP:

A. Initial Conditions:

1. Recommended Initial Conditions

IC 11 (UNIT 1)

B. Malfunctions

None

C. Overrides

None

D. Special Instructions

1. Ensure Process Computer is operating properly.
2. At the NUMAC adjust the gain for APRM 1 so APRM 1 GAF (PPC 820) is 1.02.
3. Obtain an updated Core Performance Log to provide to the examinee.

SAFETY CONSIDERATIONS:

1. NONE.

EVALUATOR NOTES: (Do not read to examinee)

1. The applicable procedure sections **WILL** be provided to the examinee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained in NUREG 1021, Appendix E, or similar to the examinee.
3. This JPM will be administered on the Simulator.
4. Performance means Frequency A (every 24 hrs when >25% RTP) is required.

Read the following to examinee.

TASK CONDITIONS:

1. The CODSR (Control Operator Daily Surveillance Report) requires performance of 1PT-01.11 Core Performance Parameter Check on Unit 1.
2. All applicable prerequisites of 1PT-01.11 are met.
3. If independent verification is required, assume the verification is complete as applicable.

INITIATING CUE:

The Unit SCO directs you to perform 1PT-01.11 and inform the SCO of the results upon completion.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain current revision of 1PT-01.11 and verify if applicable.

Current revision of 1PT-01.11 obtained and verified as required.
References Section 7.1

SAT/UNSAT* _

PROMPT:	Once examinee demonstrates that he/she can demand a Core Performance Log, provide the Core Performance Log obtained before administering this JPM for use throughout the remainder of this JPM.

NOTE:	An edit of the process computer core performance program is obtained by calling up computer display 820, depressing the blue soft 10 key, then depressing the blue soft 2 key. There are many methods to call up computer display 820. The quickest way is to simply depress the green Heat Balance soft key.

Step 2 - Obtain an edit of the process computer core performance (Heat Balance/Core Mon) program.

Core Performance Log (Heat Balance/Core Mon) obtained from process computer.

SAT/UNSAT* _

NOTE: Failed sensor inputs would be identified by a magenta value displayed in the upper right quadrant of computer display 820, which lists the sensor inputs to the heat balance.

Step 3 - Verify, using the Failed Sensor List, failed inputs have correct substitute values.
Determines no failed sensors exist and that this step is marked as N/A.

SAT/UNSAT* _

Step 4 - Locate WTFLAG on the Core Performance Log and proceed with step 7.1.5.
WTFLAG determined to equal 2, proceeds to Step 7.1.5 of 1PT-01.11.

SAT/UNSAT* _

Step 5 - Determine if criteria listed in Section 6.1 of 1PT-1.11 are met.
Checks core performance log and verifies value for CMFLCPR ≤1.00.

SAT/UNSAT* _

Checks core performance log and verifies value for CMAPRAT ≤1.00.

SAT/UNSAT* _

PROMPT: If informed that APRM 1 GAF is > 1.00, direct the examinee to adjust APRM 1 to within limits using manual GAF adjustment.

PROMPT: Inform examinee that the Unit SCO approves adjustment of APRM 1 GAF by performing a manual gain adjustment with the APRM bypassed.

NOTE: If requested, the examiner may act as the independent verifier.

Step 6 - Determine if the acceptance criteria listed in Section 6.2 of 1PT-01.11 are satisfied.
Determines APRMS 2, 3, and 4 are within limits and APRM 1 is above the limit.

**** CRITICAL STEP ** SAT/UNSAT*** _

Step 7 - Obtain current revision of 1OP-09 and verify if applicable.
Current revision of 1OP-09 obtained and verified as required. References Section 8.1.2.

SAT/UNSAT* _

PROMPT: As the Unit SCO, direct the examinee to adjust the GAF on APRM 1 by performing a manual gain adjustment with the APRM bypassed.

NOTE: If requested, the examiner may act as the independent verifier.

Step 8 - OBTAIN Unit SCO permission to adjust the APRM GAFs.
Obtains SCO permission.

SAT/UNSAT*

Step 9 - OBTAIN Display 820 at the PPC.
PPC Screen 820 is displayed.

SAT/UNSAT*

Step 10 – Review heat balance substituted values and failed sensors for impact on APRM 1 gain adjustment.
Determines no substitute values and no failed sensors.

SAT/UNSAT*

Step 11 – Ensure APRM 1 keylock is in OPER.
Checks APRM keylock in OPER.

SAT/UNSAT*

Step 12 – Ensure APRM 1 heading indicates OPERATE.
Checks APRM 1 header shows OPERATE.

SAT/UNSAT*

NOTE:	Since the simulator models Unit 2, but has Unit 1 APRM, Process Computer Point U1C51R1066 is not available on the simulator (Unit 2) Process Computer.

PROMPT:	Direct examinee to use Process Computer Point U2C51R1066 for GAF adjustment.

Step 13 - OBTAIN value of U1C51R1066.
Obtains U1C51R1066 from PPC Screen 820 or Core Performance Log.
SAT/UNSAT*

Step 14 - PLACE the APRM to be adjusted in *BYPASS*.
Places APRM 1 in bypass at P603.
SAT/UNSAT*

Step 15 - CONFIRM BYP is indicated for the selected APRM channel at Panel P608.
Observe BYP (BYPASS) heading in inverse video for APRM 1.
SAT/UNSAT*

Step 16 - PRESS ETC soft key to obtain ENTER SET MODE soft key.
Obtains the ENTER SET MODE soft key.
**** CRITICAL STEP ** SAT/UNSAT***

Step 17 - PRESS ENTER SET MODE soft key.
Presses ENTER SET MODE soft key.
**** CRITICAL STEP ** SAT/UNSAT***

NOTE: If ten (10) seconds expires before the password is accepted (ENT is pressed on the numeric keypad) the screen will revert to the Main APRM Bar Graph display. The examinee must repeat steps 16, 17, 18 to access the correct screen.

PROMPT: If requested, direct the trainee to take any actions needed to continue.

Step 18 - ENTER password "1 2 3 4" AND PRESS ENT.
Using the data keypad enters 1234 and presses ENT before 10 seconds expire.
**** CRITICAL STEP ** SAT/UNSAT***

Step 19 – SELECT APRM GAIN using cursor keys.
Using the cursor keypad selects APRM GAIN.
SAT/UNSAT*

Step 20 - PRESS SET PARAMETERS soft key.
Presses SET PARAMETERS soft key.
**** CRITICAL STEP ** SAT/UNSAT***

Step 21 - CONFIRM APRM indicates SET PARAMETERS: APRM GAIN display.
Observes SET PARAMETERS: APRM GAIN displayed.
SAT/UNSAT*

NOTE:	The LEFT and RIGHT cursor keys are used to select the DESIRED GAIN digit to be modified, and the UP and DOWN cursor keys will change the selected digit. The PROJECTED FLUX (%) and the PROJECTED AGAF are recalculated each time a DESIRED APRM GAIN digit is changed.

Step 22 - ADJUST the DESIRED APRM GAIN so that the PROJECTED FLUX (%) is ≥ Heat Balance value previously obtained.

Using the cursor keypad selects and changes the DESIRED APRM GAIN until PROJECTED FLUX (%) is ≥ Heat Balance value obtained in Step 13.

**** CRITICAL STEP ** SAT/UNSAT***

Step 23 - PRESS ACCEPT soft key.

Presses ACCEPT soft key.

**** CRITICAL STEP ** SAT/UNSAT***

Step 24 - CONFIRM the "PRESENT" APRM GAIN changes to equal the "DESIRED" APRM GAIN AND the PROJECTED AGAF equals 1.000.

Confirms "PRESENT" and "DESIRED" APRM GAIN equal and PROJECTED AGAF is ≤1.000.

SAT/UNSAT*

Step 25- PRESS EXIT soft key.

Presses EXIT soft key.

SAT/UNSAT*

Step 26 - PRESS EXIT SET MODE soft key.

Presses EXIT SETMODE soft key.

SAT/UNSAT*

Step 27 - PRESS YES soft key.
Presses Yes soft key.

SAT/UNSAT*

Step 28 - CONFIRM APRM display header shows OPERATE.
Confirms APRM display header indicates OPERATE.

SAT/UNSAT*

Step 29 – Verify APRM GAF ≤ 1.00 on Attachment 3 of 1OP-09.
Confirms APRM 1 AGAF ≤1.00 using PPC 820 screen or by obtaining a new Core Performance Log.

SAT/UNSAT*

Step 30 - REMOVE APRM from BYPASS.
Removes *APRM 1 from bypass at P603.*

SAT/UNSAT*

Step 31 – If Process Computer is available AND additional APRM GAF adjustments are NOT required, Then perform the following:

a. Press XFER COMMAND soft key from PPC Screen 877, PRNM TO PPC DATA TRANSFER MENU
XFER COMMAND soft key from PPC Screen 877, PRNM TO PPC DATA TRANSFER MENU is depressed

SAT/UNSAT*

b. Press A/L GAINS soft key from PPC Screen 877, to initiate transfer of LPRM and APRM Gains from PRNM to PPC
A/L soft key from PPC Screen 877, is depressed

SAT/UNSAT*

c. Confirm completed transfer status on PPC Screen 887
Completed transfer status on PPC Screen 887 is confirmed

SAT/UNSAT*

PROMPT: Inform examinee that another operator will complete Attachment 3.

Step 32 - Determine if CMFLPD is ≤1.00.
Checks core performance log and verifies value for CMFLPD is ≤1.00.

SAT/UNSAT* _

NOTE: The Following Step is likely already performed and is NOT required to be completed again.

Step 33 - Verify acceptance criteria listed in Section 6.0 met satisfactorily.
Acceptance criteria determined to be satisfactory.

SAT/UNSAT* _

Step 34 - Notify Unit SCO that 1PT-01.11 is completed SAT.
Supervisor notified.

SAT/UNSAT* ___

TERMINATING CUE:
1PT-01.11 acceptance criteria verified and the Unit SCO informed the results are satisfactory.

*** Comments required for any step evaluated as UNSAT.**

LIST OF REFERENCES

RELATED TASKS:

215209B401: Operate the PRNMS per OP-9.

K/A REFERENCE AND IMPORTANCE RATING:

215005 A1.07 (3.0/3.4)

REFERENCES:

1PT-01.11
1OP-09

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2):

7 - Instrumentation (APRM System)

REASON FOR REVISION:

Bank JPM. Modified to provide enhanced examiner notes. Changed from alternate path to not alternate path.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate ___ Actual 4 Unit: 1

Setting: Control Room ___ Simulator 4 (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee:_____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. The CODSR (Control Operator Daily Surveillance Report) requires performance of 1PT-01.11 Core Performance Parameter Check on Unit 1.

2. All applicable prerequisites of 1PT-01.11 are met.

3. If independent verification is required, assume the verification is complete as applicable.

INITIATING CUE:

The Unit SCO directs you to perform 1PT-01.11 and inform him of the results upon completion.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
IN-PLANT

BNP-03-B2a

LESSON TITLE: Start RCIC From The Remote Shutdown Panel.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

Use caution in vicinity of energized electrical equipment.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL NOT** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. This JPM is written based on RCIC being in the standby alignment.
4. This JPM may be performed on either Unit.

Read the following to trainee.

TASK CONDITIONS:

1. The Shift Superintendent has directed entry into AOP-32.0 and evacuation of the Control Room.
2. All immediate actions of AOP-32.0 are complete.
3. Remote shutdown equipment has been distributed and communications between remote shutdown stations is established.
4. All Normal/Local switches listed in AOP-32.0 have been placed in Local.
5. This task will be performed on Unit ____. (Specified by the examiner)

INITIATING CUE:

You are directed by the Unit SCO to perform ALL operator actions, including Remote Shutdown Panel actions (Stations 1, 2, & 3) required to start RCIC for reactor vessel injection to maintain reactor vessel injection +170-200". You are to inform the Unit SCO when reactor vessel level is >170", or reactor vessel level is rising toward 170".

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

NOTE: The examinee would have a copy of AOP-32.0 already. If desired, the examiner may ask the examinee where the remote shutdown procedure and equipment is normally located.

Step 1 - Obtain a current revision of AOP-32.0.
Current Revision of AOP-32.0 obtained.

SAT/UNSAT* _____

NOTE: The yellow ALM light on RCIC Flow Controller, E51-FIC-3325 will be lit for actual plant conditions since the Normal/Local switch is in Local and power is isolated.

PROMPT: When asked, inform examinee that yellow ALM light on RCIC Flow Controller, E51-FIC-3325, is out.

Step 2 – Station 1, Verify yellow ALM light on RCIC Flow Controller, E51-FIC-3325, is out.
Yellow ALM light on RCIC Flow Controller, E51-FIC-3325, verified out

SAT/UNSAT* _____

NOTE: RCIC is assumed to be in a normal standby alignment for this JPM

PROMPT: When asked, inform examinee that E51-F010 red light is on, green light off as indicated at MCC 1(2)XBD.

Step 3 – Station 2, verify open or open RCIC CST Suction Valve E51-F010, at MCC 1(2)XBD, Compt B38, Row C2.
E51-F010 is verified open.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F031 red light is off, green light on as indicated at MCC 1(2)XBD.

Step 4 – Station 2, verify closed or close RCIC Supp Pool Suction Valve E51-F031, at MCC 1(2)XBD, Compt B45, Row G1.
E51-F031 is verified closed.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F029 red light is off, green light on as indicated at MCC 1(2)XBD.

Step 5 – Station 2, verify closed or close RCIC Supp Pool Suction Valve E51-F029, at MCC 1(2)XBD, Compt B46, Row G2.
E51-F029 is verified closed.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F046 red light is off, green light on as indicated at MCC 1(2)XBD.

When examinee places local switch to Open, indicate red light on, then green light off (Valve is seal-in).

Step 6 – Station 2, verify open or open RCIC Cooling Water Valve E51-F046, at MCC 1(2)XBD, Compt B39, Row D1.
E51-F046 is opened at the MCC.

**** CRITICAL STEP ** SAT/UNSAT*** ____

PROMPT: When asked, inform examinee that E51-F012 red light is on, green light off as indicated at MCC 1(2)XBD.

Step 7 – Station 2, verify open or open RCIC Pump Discharge Valve E51-F012, at MCC 1(2)XBD, Compt B40, Row D2.
E51-F046 is verified open.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F013 red light is off, green light on as indicated at MCC 1(2)XBD.

When examinee places local switch to Open, indicate red light on, then green light off (Valve is seal-in).

Step 8 – Station 2, verify open or open RCIC Injection Valve E51-F013, at MCC 1(2)XBD, Compt B41, Row E1.

E51-F013 is opened at the MCC.

**** CRITICAL STEP ** SAT/UNSAT*** ____

PROMPT: When asked, after examinee places RCIC barometric condenser vacuum pump to Start at the MCC, inform examinee that RCIC barometric condenser vacuum pump red light is on, green light off as indicated at MCC 1(2)XBD.

Step 9 – Station 2, Start the RCIC barometric condenser vacuum pump, at MCC 1(2)XBD, Compt B35, Row B1.

RCIC barometric condenser vacuum pump is running.

**** CRITICAL STEP ** SAT/UNSAT*** ____

PROMPT: When asked, inform examinee that E51-V8 red light is on, green light off as indicated at MCC 1(2)XBD.

Step 10 –Station 2, verify open or open RCIC Turbine Trip and Throttle Valve E51-V8, at MCC 1(2)XBD, Compt B37, Row C1.

E51-V8 is verified open.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F008 red light is on, green light off as indicated at MCC 1(2)XBD.

Step 11 –Station 2, verify open or open RCIC Steam Supply Outboard Isolation Valve E51-F008, at MCC 1(2)XBD, Compt B43, Row F1.

E51-F008 is verified open.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F007 red light is on, green light off as indicated at MCC 1(2)XC.

Step 12 –Station 3, verify open or open RCIC Steam Supply Inboard Isolation Valve E51-F007, at MCC 1(2)XC, Compt DS4, Row D3.

E51-F007 is verified open.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F045 red light is off, green light on as indicated at MCC 1(2)XBD.

When examinee places local switch to Open, indicate red light on, then green light off (Valve is seal-in).

Step 13 –Station 2, verify open or open RCIC Turbine Steam Supply Valve E51-F045, at MCC 1(2)XBD, Compt B44, Row F2.

E51-F045 is opened at the MCC.

**** CRITICAL STEP ** SAT/UNSAT* ____**

PROMPT: If requested, indicate RCIC flow as indicated on E51-FIC-3325 indicates 400 gpm (same as controller setting) and that controller output indicates 80%.

Step 14 –Station 1, Verify RCIC flow corresponds to RCIC Flow Controller, E51-FIC-3325, setting.

RCIC flow corresponds to RCIC Flow Controller, E51-FIC-3325, setting.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that E51-F019 red light is off, green light on as indicated at MCC 1(2)XDB.

Step 15 – Verify closed, or close RCIC Minimum Flow Bypass Valve to Suppression Pool, E51-F019, at MCC 1(2)XDB Compt B47, Row H1.

E51-F019 is verified closed.

SAT/UNSAT* ____

PROMPT: When asked, inform examinee that reactor level indicates +150 inches and steady on wide range level instrument at remote shutdown panel (0-210 inches, B21-LI-R604BX).

Step 15 –Station 1, Adjust RCIC Flow Controller, E51-FIC-3325, to maintain reactor vessel level between 170" and 200".

RCIC setpoint tape maintained at 400 gpm, or adjusted to ≤500 gpm.

SAT/UNSAT* ____

Step 16 –Inform Unit SCO that RCIC is injectiong to the reactor vessel and level is being maintained 170: to 200".

Unit SCO informed.

SAT/UNSAT* ____

TERMINATING CUE: When RCIC has been started per AOP-32.0, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

200204B401, Perform The Station 1 Actions For Shutdown Outside The Control Room Per AOP-32.0

K/A REFERENCE AND IMPORTANCE RATING:

295016 AA1.06 4.0/4.1

REFERENCES:

AOP-32.0

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

2 – Inventory Control (Reactor Core Isolation Cooling)

REASON FOR REVISION:

Bank JPM. Converted to WORD and updated for latest procedure revision.

Start RCIC From The Remote Shutdown Panel.

Time Required for Completion: 15 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 0

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. The Shift Superintendent has directed entry into AOP-32.0 and evacuation of the Control Room.

2. All immediate actions of AOP-32.0 are complete.

3. Remote shutdown equipment has been distributed and communications between remote shutdown stations is established.

4. All Normal/Local switches listed in AOP-32.0 have been placed in Local.

5. This task will be performed on Unit ____. (Specified by the examiner)

INITIATING CUE:

You are directed by the Unit SCO to perform ALL operator actions, including Remote Shutdown Panel actions (Stations 1, 2, & 3) required to start RCIC for reactor vessel injection to maintain reactor vessel injection +170-200". You are to inform the Unit SCO when reactor vessel level is >170", or reactor vessel level is rising toward 170".

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
IN-PLANT

BNP-03-B2b

LESSON TITLE: Local Manual Start Of A DG Using Prelube Start Control.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

Use caution in the vicinity of operating equipment.

Use caution in vicinity of energized electrical equipment.

Hearing Protection required in the Diesel Building.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.
3. This JPM may be performed on any of four Diesel Generators (ensure DG is in standby alignment, not running or under clearance).

Read the following to trainee.

TASK CONDITIONS:

1. All applicable prerequisites as listed in OP-39, Section 4.0 are met.
2. Diesel Generators are in the standby mode in accordance with OP-39, Section 5.1.
3. Diesel Generator # ____ is to be started.
4.
5. The Diesel Generator will be tied and loaded from the Control Room per OP-50.1.

INITIATING CUE:

You are directed by the Unit SCO to perform a local manual start of Diesel Generator ____ per OP-39, Section 5.4. You are to inform the Control Room when the Diesel Generator is ready for electrical operation per OP-50.1.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

Step 1 - Obtain a current revision of 0OP-39, Section 5.4.
Current Revision of 0OP-39, Section 5.4 obtained and verified, if applicable.

SAT/UNSAT* _____

Step 2 – Confirm the diesel Generator auxiliary systems are operable by observing the following conditions locally.

PROMPT: If requested, indicate each reading/indication for the following steps is "as-seen".

a. Starting air pressure is between 240-260 psig as indicated by DG-PI-6514-1 (2, 3, 4)
Starting air pressure is observed to be between 240-260 psig as indicated by DG-PI-6514-1 (2, 3, 4).

SAT/UNSAT* _____

b. Starting air Receivers A & B pressures are between 325-350 psig as indicated by DG-PI-1690 and 1692 (1674 and 1677, 1663 and 1666, 787 and 788)
Starting air Receivers A & B pressures are observed to be between 325-350 psig as indicated by DG-PI-1690 and 1692 (1674 and 1677, 1663 and 1666, 787 and 788).

SAT/UNSAT* _____

c. Engine control air pressure is between 90-125 psig as indicated by DG-PI-1686 (1680, 1660, 1252).
Engine control air pressure is observed to be between 90-125 psig as indicated by DG-PI-1686 (1680, 1660, 1252).

SAT/UNSAT* ____

d. Jacket Water Expansion Tank level is between ½ and ¾ full in sight glass.
Jacket Water Expansion Tank level is observed to be between ½ and ¾ full in sight glass.

SAT/UNSAT* ____

e. Jacket Water Heater Pump is in operation.
Jacket Water Heater Pump observed to be in operation.

SAT/UNSAT* ____

f. Jacket Water Heater temperature out is between 150° to 160° as indicated by MUD-TI-2117 (4144, 2171, 2198).
Jacket Water Heater temperature out is observed to be between 150° to 160° as indicated by MUD-TI-2117 (4144, 2171, 2198).

SAT/UNSAT* ____

g. Lube Oil Filter Pump is in operation.
Lube Oil Filter Pump observed to be in operation.

SAT/UNSAT* _____

h. Lube oil bypass filter temperature is between 130° to 160° as indicated by LO-TI-2062 (2040, 2063, 2086).
Lube oil bypass filter temperature is observed to be between 130° to 160° as indicated by LO-TI-2062 (2040, 2063, 2086).

SAT/UNSAT* _____

i. Governor oil level is at or above the high level mark.
Governor oil level is observed to be at or above the high level mark.

SAT/UNSAT* _____

NOTE: The DG can be placed in LOCAL MANUAL mode form control room panel XU-2 only.

PROMPT: When control room is requested to transfer the Diesel Generator to the Local Manual mode, inform examinee the Diesel Generator is in the Local Manual mode.

If requested, indicate the Local light on the Engine Control Panel is lit, and the Auto Start light is out.

Step 3 – Request control room place the DG in the Local Manual mode.
DG is in the Local Manual Mode.

**** CRITICAL STEP ** SAT/UNSAT*** ____

NOTE: When the Prestart PB is depressed, engine auxiliaries (i.e., motor driven lube oil, jacket water pumps, crankcase vacuum blower) auto start. Actual engine cranking (opening of air start solenoids) is time delayed by 20 seconds. Auto actions on depressing the Prestart are listed in OP-39, Section 5.4.2, Steps 4a through 4f.

PROMPT: When examinee depresses Prestart PB, .if requested, after 20 seconds indicate engine has started as indicated by noise, RPM indication, or any other reasonable indication a large engine is running.

PROMPT: Inform examinee that observation of automatic actions for troubleshooting is not required and can be marked N/A.

Step 4 – Depress PRESTART push button located on local Engine Control Panel
PRESTART push button is depressed.

**** CRITICAL STEP ** SAT/UNSAT*** ____

NOTE: The following alarm is located on control room panel XU-2.

PROMPT: After approximately 10 seconds from the time the engine starts, inform examinee that the DG Running alarm has been received in the control room.
PROMPT: When requested, indicate Service Water Pressure on SW-PI-153-1 (2, 3, 4) indicates approximately 45 psig.

Step 5 – Ensure Service Water Pressure SW-PI-153-1 (2, 3, 4) on Engine Control Panel is 40-50 psig, by adjusting Jacket Water Cooler Service Water Outlet Valve 2-SW-V206 (V207, V208, V209), to maintain pressure.

Service Water Pressure SW-PI-153-1 (2, 3, 4) on Engine Control Panel is observed to be 40-50 psig.

SAT/UNSAT* _____

PROMPT: Inform examinee that another operator will monitor diesel generator operation in accordance with section 6.0.

Step 6 – Inform the control room that the diesel generator is ready for electrical operation per OP-50.1.

Control room informed that the diesel generator is ready for electrical operation per OP-50.1.

SAT/UNSAT* _____

TERMINATING CUE: When the DG is running and ready for electrical operation, this JPM is complete.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

264004B204, Perform DG Monthly Load Test Per PT-12.2A-D

K/A REFERENCE AND IMPORTANCE RATING:

264000 A1.03 2.9/2.9.

REFERENCES:

OP-39

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

6 - Electrical (Emergency Generators)

REASON FOR REVISION:

Bank JPM. Revised from WP to WORD.

Local Manual Start Of A DG Using Prelube Start Control.

Time Required for Completion: 10 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: ___

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. All applicable prerequisites as listed in OP-39, Section 4.0 are met.
2. Diesel Generators are in the standby mode in accordance with OP-39, Section 5.1.
3. Diesel Generator # ____ is to be started.
4. The Diesel Generator will be tied and loaded from the Control Room per OP-50.1.

INITIATING CUE:

You are directed by the Unit SCO to perform a local manual start of Diesel Generator _____ per OP-39, Section 5.4. You are to inform the Control Room when the Diesel Generator is ready for electrical operation per OP-50.1.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE
IN-PLANT

BNP-03-B2c

LESSON TITLE: Fire Water Injection Using The Motor Driven Fire Pump.

REVISION NO: 0

RECOMMENDED BY: _____
Instructor/Developer DATE

CONCURRENCE BY: _____
Line Superintendent/Supervisor DATE

APPROVED BY: _____
Superintendent/Supervisor Training DATE

SAFETY CONSIDERATIONS:

Use caution in the vicinity of operating equipment.

Use caution in vicinity of energized electrical equipment.

EVALUATOR NOTES: (Do not read to trainee)

1. The applicable procedure section **WILL** be provided to the trainee.
2. If this is the first JPM of the JPM set, read the JPM briefing contained NUREG 1021, Appendix E, or similar to the trainee.

Read the following to trainee.

TASK CONDITIONS:

1. Unit One is in accident conditions, and is executing EOP-01-RVCP due to low reactor water level. Reactor water level is below Top of Active Fuel. EOP-01-RVCP directs aligning all available alternate coolant injection per EOP-01-LEP-01. Reactor pressure is 10 psig.
2. Off-Site Power is unavailable to either unit. DG2 is tripped, and Bus E2 is de-energized, and cannot be energized by cross-tie. Buses E1, E3, and E4 are energized by their respective DGs. Buses E5 and E6 have been cross-tied.
3. The Diesel Driven Fire Pump is unavailable.
4. The Motor Driven Fire Pump is aligned to its normal power supply. The Motor Driven Fire Pump cannot be started from the control room.
5. Fire protection tank level is normal. A radwaste operator is available to control and monitor fire protection tank level.
6. RHR Loop B injection flow path is available.

INITIATING CUE:

You are directed by the Unit CO to transfer the Motor Driven Fire Pump to its alternate power supply, start the Motor Driven Fire Pump locally, and perform the AO actions for aligning Fire Protection Injection per EOP-01-LEP-01, Section 6, and inform the CO when your actions are complete.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the **Comments**.

NOTE: Steps in LEP-01 to start the Fire Pump (OP-41) are in parenthesis. Per OI-28, during EOP execution, these steps may be (but are NOT required to be) performed without procedure.

Step 1 - Obtain a current revision of EOP-01-LEP-01 and OP-41.
Current Revision of EOP-01-LEP-01 and OP--41.

SAT/UNSAT* _____

Step 2 – Shift the Motor Driven Fire Pump to the alternate supply as follows:

a. Disengage position pin from position plate.
Position pin is disengaged.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

b. Place Transfer switch located on front of 2-FP-P2-XFER-SW cabinet to position A.
Transfer switch located on front of 2-FP-P2-XFER-SW cabinet placed to position A.

** **CRITICAL STEP** ** **SAT/UNSAT*** _____

c. Ensure position pin engages position plate.
Position pin engaged.

SAT/UNSAT* _____

PROMPT: If examinee contacts control room to start the Motor Driven Fire Pump. Inform examinee, the pump will not start from the control room and must be locally started.

Step 3 – Momentarily depress the local start push button for the Motor Driven Fire Pump.
Motor Driven Fire Pump is running.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: PIV-20 is located north of the Unit 1 Reactor Building near MWT.

Step 4 – Unlock and open Fire Protection (Well Water) to Service Water Flush Supply Shutoff Valve 2-FP-PIV20.

**** CRITICAL STEP ** SAT/UNSAT*** _____

NOTE: E11-F073 disconnect switch is on the 23' elevation of the cable spread area.

Step 5 – Place the E11-F073 disconnect switch to On at Node L1G in the cable spread area.
E11-F073 disconnect switch is in On at Node L1G in the cable spread area.

**** CRITICAL STEP ** SAT/UNSAT*** _____

PROMPT: When examinee informs control room that the E11-F073 disconnect switch is on, inform examinee as that E11-F073 and F075 are open.

Step 6 – Open RHR Service Water Header Flush Valve, SW-V140 (located 50' elevation behind B & D RHRSW booster pumps)
SW-V140 is manually opened.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 7 – Open Well Water Flush To Service Water Shutoff Valve, WW-V203 (located 50' elevation behind B & D RHRSW booster pumps)
WW-V203 is manually opened.

**** CRITICAL STEP ** SAT/UNSAT*** _____

Step 8 – Inform CO local actions are complete to inject fire water to the reactor.
CO informed actions for fire water injection are complete.

TERMINATING CUE: This box will tell the evaluator when the JPM is complete based on student performance.

*** Comments required for any step evaluated as UNSAT.**

RELATED TASKS:

200075B504, Perform Alternate Coolant Injection With Fire Water Per LEP-01

K/A REFERENCE AND IMPORTANCE RATING:

286000 A1.05 3.2/3.2

REFERENCES:

OP-41

EOP-01-LEP-01

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.):

8 – Fire Protection

REASON FOR REVISION:

New JPM.

Time Required for Completion: 20 Minutes (approximate).

APPLICABLE METHOD OF TESTING

Performance: Simulate 4 Actual ___ Unit: 1

Setting: Control Room ___ Simulator ___ (Not applicable to In-Plant JPMs)

Time Critical: Yes ___ No 4 Time Limit N/A

Alternate Path: Yes ___ No 4

EVALUATION

Trainee: _____ SSN: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Did Trainee Verify Procedure as Authorized Copy?: Yes _____ No _____
(Each Student should verify one JPM per evaluation set.)

Comments: _____

_____

_____

_____

_____

Comments reviewed with Student

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Unit One is in accident conditions, and is executing EOP-01-RVCP due to low reactor water level. Reactor water level is below Top of Active Fuel. EOP-01-RVCP directs aligning all available alternate coolant injection per EOP-01-LEP-01. Reactor pressure is 10 psig.

2. Off-Site Power is unavailable to either unit. DG2 is tripped, and Bus E2 is de-energized, and cannot be energized by cross-tie. Buses E1, E3, and E4 are energized by their respective DGs. Buses E5 and E6 have been cross-tied.

3. The Diesel Driven Fire Pump is unavailable.

4. The Motor Driven Fire Pump is aligned to its normal power supply. The Motor Driven Fire Pump cannot be started from the control room.

5. Fire protection tank level is normal. A radwaste operator is available to control and monitor fire protection tank level.

6. RHR Loop B injection flow path is available.

INITIATING CUE:

You are directed by the Unit CO to transfer the Motor Driven Fire Pump to its alternate power supply, start the Motor Driven Fire Pump locally, and perform the AO actions for aligning Fire Protection Injection per EOP-01-LEP-01, Section 6, and inform the CO when your actions are complete.