



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 1A**

LESSON TITLE: Recirculation Pump Start - Dual Recirculation Pump Trip.

LESSON NUMBER: LOT-SIM-JP-002-A03

REVISION NO: 08

Robert Bolin
PREPARER

07/18/14
DATE

Lou Sosler
TECHNICAL REVIEWER

07/18/14
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07/18/14
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Facility Representative

08/15/14
DATE

Revision Summary:

REV. No.	REVISION SUMMARY
8	JPM formatted for new template

RELATED TASKS:

202017B401, Respond To Recirc Pump Trip(s) Per AOP-04.0

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

K/A REFERENCE AND IMPORTANCE RATING:

202001 A4.01 3.7/3.7

Ability to operate and/or monitor in the control room Recirculation Pumps

REFERENCES:

2OP-02, Revision 104

2AOP-04.0, Revision 7

TOOLS AND EQUIPMENT:

None.

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

1 - Reactivity Control

REASON FOR REVISION:

Updated to the new format

SIMULATOR SETUP:

Initial Conditions

IC-09
Rx Pwr - 50%
Core Age - BOC

Required Plant Conditions

Recirculation Pump 2B secured with Pump 2A flow <23,500 gpm and rod line <80%

Malfunctions

Trigger E1 - EE026F - Loss Of 4160 VAC Bus 2B

Overrides

None

Special Instructions

Trip Recirc Pump 2B

Place B32-V17 (seal staging valve) to Manual/Open

Operate Recirc 2A to maintain core flow >30.8 mlbm/hr but as low as possible

Reduce CRD flow to 30 gpm

Reduce Recirc Pump 2B speed control to ≈16%

Do **NOT** initiate malfunction until specified in JPM

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. Copy of OP-02, Section 6.1.2 marked up to step 6.1.2.22 should be provided to the examinee.
-

Read the following to the JPM performer

TASK CONDITIONS:

1. Recirculation pump 2B is being restarted.
2. APRM trip and alarm setpoints were NOT changed to support single loop operation.
3. An off-going operator has completed 2OP-02, Section 6.1.2 up to step 6.1.2.22.
4. Another operator is available to make the required log entries.

INITIATING CUE:

You are to continue the startup of Recirculation Pump 2B and inform the Unit CRS when 2OP-02, Section 6.1.2 has been completed.

PERFORMANCE CHECKLIST

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

TIME START: _____

PROMPT: Report to the performer that another operator will make the log book entry after the values have been determined.

Step 1 - Ensure the temperature differential between operating and idle loop is <50° and the idle loop flow is <24,500 gpm.

- Records operating loop temperature (Step 22a)*
- Records idle loop temperature (Step 22b)*
- Subtracts idle loop temperature from operating loop temperature and records time (Step 22c)*
- Records differential temperature and time in CO logbook (Step 22d)*
- Records Operating loop flow and time (Step 22e).*
- Records operating loop flow and time in CO logbook. (Step 22f)*

SAT/UNSAT*

Step 2 - Determine 6.1.2.23 is not required

Step 6.1.2.23 determined to be not applicable

SAT/UNSAT*

PROMPT: As the CRS inform the performer to continue in the procedure if the F031B valve is closed for more than 5 minutes and the performer questions as to what to do.

Step 3 - Ensure Recirc Pump 2B discharge valve B32-F031B is closed

Recirc pump B discharge valve (B32-F031B) is fully closed by placing the control switch in the closed position providing the following indication: green light illuminated and red light off.

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

Step 4 - Determine 6.1.2.25 is not required

Step 6.1.2.25 determined to be not applicable

SAT/UNSAT*

Step 5 - Confirms RECIRC PUMP B START PERMISSIVES MET white light is lit.

Verifies RECIRC PUMP B START PERMISSIVES MET white light is illuminated. (Step 26)

SAT/UNSAT*

Step 6 - Identifies RECIRC VFD 2B 4KV SUPPLY BRK is not closed.

Determines that RECIRC VFD 2B 4KV SUPPLY BRK is NOT closed and continues in procedure. (Step 27)

SAT/UNSAT*

Step 7 - Determines that READY TO PRECHARGE white light is lit and on the control room HMI REDUN LOSS light is not lit and goes to step 6.1.2.30.

*Identifies on P603 panel that the READY TO PRECHARGE white light is lit.
Identifies on the control room HMI that the REDUN LOSS lights are not lit for VFD B
Goes to step 6.1.2.30*

SAT/UNSAT*

Step 8 - Confirms Recirc VFD B READY TO PRECHARGE white light is lit.

*Identifies on P603 panel that the READY TO PRECHARGE white light is lit.
(Step 30)*

SAT/UNSAT*

PROMPT: As the CRS acknowledge report of expected alarms for pre-charge of VFD 2B. (Alarms on A-7 that come in are 2-3, 3-3, 4-3, and 5-3)

Step 9 - Depresses VFD B PRECHARGE pushbutton and confirm PRECHARGE IN PROGRESS white light is lit.

*Depresses PRE-CHARGE pushbutton on P603 panel.
Identifies on P603 panel that the PRECHARGE IN PROGRESS white light is lit. (Step 31)*

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

Step 10 - Identifies that the 4KV Supply breaker closes and N/As step 6.1.2.31, 32 & 33

RECIRC VFD 2B 4KV SUPPLY BRK is closed and N/As the step.

SAT/UNSAT*

Step 11 - Confirms RECIRC VFD 2B 4KV SUPPLY BRK closes to supply power to the Recirc VFD.

Determines that RECIRC VFD 2B 4KV SUPPLY BRK is closed. (Step 34)

SAT/UNSAT*

Step 12 - Confirms VFD B READY TO START white light is lit.

*Determines that VFD B READY TO START white light is illuminated.
(Step 35)*

SAT/UNSAT*

Step 13 - Depress the VFD B FAULT RESET pushbutton twice.

Depresses VFD B FAULT RESET pushbutton twice on P603 panel. (Step 36)

SAT/UNSAT*

Step 14 - Confirm PRECHARGE IN PROGRESS white light is OFF.

Confirms PRECHARGE IN PROGRESS white light is not illuminated on P603 panel. (Step 37)

SAT/UNSAT*

Step 15 - Checks the status of the control room HMI.

*Redundancy Status-Master A NXG in service indicated by blue light
Communications Status- Control A, Control B, CSC, and Customer (RFCS)
available, as indicated by blue light
Alarms/ faults status indicated by grey light
Input Power- Voltage greater than 3900V
Input Power- Frequency approximately 60 Hz (Step 38)*

SAT/UNSAT*

Step 16 - Determine <30 minutes has elapsed since ΔT 's and flow rate were determined

<30 minutes has elapsed since ΔT 's and flow rate were determined (Step 39)

SAT/UNSAT*

Step 17 - Depress Recirc VFD B VFD START pushbutton.

Recirc VFD B VFD START pushbutton is depressed. (Step 40)

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

Step 18 - Confirms the following indications.

*RECIRC PUMP B SPEED DEMAND is approximately 20%.
RECIRC PUMP B CALCULATED SPEED ramps to approximately 20%.
RECIRC PUMP B ACTUAL SPEED ramps to approximately 20%.
VFD B RUNNING red light is lit. (Step 41)*

SAT/UNSAT*

PROMPT: Report to the performer that another operator will make the log book entry.

Step 19 - Record time at which the Recirc Pump was started.

Determines that a log entry is required for the time that the Recirc Pump was started. (Step 42)

SAT/UNSAT*

NOTE: When B32-F031 is jogged open on the second occurrence initiate trigger E1 to trip 4KV Bus 2B.

Step 20 - Using 2 second jogs and 10 second rest times for first minute, jog open recirc Pump B discharge valve.

B32-F031B is opened using ≈ 2 second jogs and ≈ 10 second rest times for the 1st minute. (Step 43a)

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

Step 21 - Insert a manual reactor scram.

Manual Reactor scram is inserted. (Immediate Operator Action)

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

PROMPT: When examinee has inserted a manual reactor scram or identified that a manual reactor scram is required, inform examinee that the JPM is complete.

TERMINATING CUE: When a manual reactor scram has been inserted or identified that it is required, this JPM is complete.

* Comments required for any step evaluated as UNSAT.

TIME COMPLETED: _____

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

Validation Time: 21 Minutes (approximate).

Time Taken: _____

APPLICABLE METHOD OF TESTING

Performance: Simulate Actual Unit: 2
Setting: In-Plant Simulator Admin
Time Critical: Yes No Time Limit N/A
Alternate Path: Yes No

EVALUATION

Performer: _____

JPM: Pass Fail

Remedial Training Required: Yes No

(Reference TAP-411 for evaluation guidance)

Comments: _____

Comments Reviewed With Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Recirculation pump 2B is being restarted.
2. APRM trip and alarm setpoints were NOT changed to support single loop operation.
3. An off-going operator has completed 2OP-02, Section 6.1.2 up to step 6.1.2.22.
4. Another operator is available to make the required log entries.

INITIATING CUE:

You are to continue the startup of Recirculation Pump 2B and inform the Unit CRS when 2OP-02, Section 6.1.2 has been completed.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 2B**

LESSON TITLE: HPCI Start Per The Hard Card - Exhaust Diaphragm Failure.

LESSON NUMBER: LOT-SIM-JP-019-A05

REVISION NO: 5

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Facility Representative **08/15/14**
DATE

Revision Summary:

REV. No.	REVISION SUMMARY
5	Re-formatted for the new template

RELATED TASKS:

206201B101, Start Up The HPCI System Manually Per OP-19 For Injection

206014B401, Verify Group 4 Isolation

K/A REFERENCE AND IMPORTANCE RATING:

206000 A3.09 4.2/4.1

Ability to monitor automatic operation of HPCI including response to system isolation

REFERENCES:

2OP-19, Section 5.3

Hard Card S/1149, HPCI Injection In EOPs

SER 24-93

TOOLS AND EQUIPMENT:

None.

SAFETY FUNCTION (from NUREG 1123, Rev 2.)

2 - Inventory Control (HPCI)

SIMULATOR SETUP

Recommended Initial Conditions

IC-11 100%, BOC

Event Triggers

E1 - Activates all malfunctions/overrides

Malfunctions

A, ES040F, HPCI Fail To Auto Start
A, ES053F - E41-F002 Fail To Auto Close
A, ES054F - E41-F003 Fail To Auto Close
E1, ES047F - HPCI Stm Brk HPCI Room, 1%, 0 SEC

Overrides

Lamps

E1, P601, Q1112SWL, Auto Isol Sig A White, ON
E1, P601, Q1111SWL, Auto Isol Sig B White, ON

Alarms

E1, P601, ZA135, HPCI Isol Trip Sig A, ON
E1, P601, ZA145, HPCI Isol Trip Sig B, ON
E1, P601, ZA152, HPCI Turb Exh Diaph Press Hi, On

Special Instructions

1. Trip both RFPs
2. Perform scram immediate actions
3. Ensure RPV level is <LL2

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 the JPM Performer

TASK CONDITIONS:

1. Both Reactor Feedwater Pumps have tripped from rated power.
2. RPV water level has dropped to below LL2.
3. HPCI has failed to automatically initiate.

INITIATING CUE:

You are directed by the Unit CRS to start HPCI for injection per the Hard Card and raise RPV level to 170-200 inches. Inform the Unit CRS when level is being restored.

PERFORMANCE CHECKLIST

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

Step 1 - Obtain Hard Card for HPCI Injection In EOPs.
Hard Card for HPCI Injection obtained.

SAT/UNSAT*

TIME START _____

Step 2 – Verifies high water level signal is reset.
Verifies indicating light is off. The examinee may depress the high water level signal reset, E41-S25, pushbutton.

SAT/UNSAT*

Step 3 - Ensure Auxiliary Oil Pump is not running.
Auxiliary Oil Pump indicates not running.

SAT/UNSAT*

Step 4 - Ensure E41-V9 and E41-V8 are closed.
E41-V9 and E41-V8 indicate closed.

SAT/UNSAT*

Step 5 - Open E41-F059.
E41-F059 indicates full open.

SAT/UNSAT*

Step 6 – Place HPCI flow controller in Manual and adjust output demand to midscale.
Places the HPCI flow controller in (M) Manual and then adjusts the output demand to ~midscale, using the manual lever.

SAT/UNSAT*

Step 6 – Start Vacuum Pump and leave in start
Vacuum Pump is running

SAT/UNSAT*

HPCI Start Per The Hard Card - Exhaust Diaphragm Failure.

Step 7 - Open E41-F001.

E41-F001 indicates full open.

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

Step 7 - Start Auxiliary Oil Pump and Leave in START.

Auxiliary Oil Pump control switch in the START position.

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

Step 8 - Open E41-F006 immediately after E41-V8 has dual indication.

E41-F006 indicates and remains full open.

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

Step 9 – Ensure E41-V9 and E41-V8 are open.

E41-V9 and E41-V8 indicate open, red lights are on.

SAT/UNSAT*

Step 10 – When speed stops increasing, then adjust speed to approximately 2100 rpm.

HPCI speed is adjusted to ~2100 rpm as indicated on the FIC.

SAT/UNSAT*

NOTE: When HPCI is injecting to the RPV and level is starting to rise, initiate trigger E1 to activate HPCI malfunction/overrides.

Step 11 - Diagnose indications of a HPCI Exhaust Diaphragm rupture.

Determined the exhaust diaphragm has ruptured.

SAT/UNSAT*

Step 12 - Determine HPCI has failed to auto isolate and manually isolate HPCI by closing E41-F002 and F003.

E41-F002 or E41-F003 indicate full closed before HPCI room temperature reaches 165°F.

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

Step 13 - Inform Unit CRS HPCI is isolated and unavailable for injection.
CRS informed HPCI is unavailable for injection.

SAT/UNSAT*

TERMINATING CUE: When HPCI is isolated, this JPM is complete.

TIME COMPLETE: _____

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

TASK CONDITIONS:

1. Both Reactor Feedwater Pumps have tripped from rated power.
2. RPV water level has dropped to below LL2.
3. HPCI has failed to automatically initiate.

INITIATING CUE:

You are directed by the Unit CRS to start HPCI for injection per the Hard Card and raise RPV level to 170-200 inches. Inform the Unit CRS when level is being restored.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 3C**

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

LESSON NUMBER: LOT-SIM-JP-025-A01

REVISION NO: 4

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DATE

Revision Summary:

REV. No.	REVISION SUMMARY
4	Updated to the new JPM template.
3	Revised to match latest revision for hard card S/1032, OP-25.

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 Emergency MSIV equalization and reopening (S/1032)

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev .2)

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

SIMULATOR SETUP:

A. Initial Conditions:

1. Recommended Initial Conditions

IC	Any 100% IC
Rx. Pwr.	100%
Core Age	Any

2. Required Plant Conditions

Mode 3 with MSIVs closed, SJAES tripped, and RFPs tripped

B. Malfunctions

None

C. Overrides

None

D. Remote Function

MS_IAGP1BYP Lo Cond Vacuum GP1 Trip Byp

E. Special Instructions

Perform a MANUAL Scram carry out EOP-01-RSP initial operator actions. Close the MSIVs, Trip the SJAES, RFPs and OPEN the condenser vacuum breakers to reduce vacuum to <10". After this is done place the MSIV control switches to OPEN.

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to performer)

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

Read the following to the JPM performer.

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 Unit CRS has anticipated that Emergency Depressurization may be required.
5. The condenser vacuum bypass switches are in the bypass position
6. Another operator will control reactor pressure 800 - 1000 psig using SRVs.

INITIATING CUE:

You are directed to perform the control operator actions associated with emergency equalization around the MSIVs, and open MSIVs when pressure is <200 psid, using the Hard Card.

You are to inform the Unit CRS when all of the MSIVs are open IAW the Hard Card.

PERFORMANCE CHECKLIST

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

Step 1 - Obtain "Hard Card" for MSIV equalization (S1032).
"Hard Card" obtained for MSIV equalization.

SAT/UNSAT

TIME START _____

Step 2 – Ensure the condenser vacuum bypass switches in bypass position.
Vacuum bypass switches are verified to be in bypass from the Initial Conditions given or by recognizing that alarms A-7, 5-6, Low Cndsr Vacuum Bypass Sys A and A-7, 6-6, Low Cndsr Vacuum Bypass Sys B are in alarm.

SAT/UNSAT

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

SAT/UNSAT

Step 4 – Reset Group 1 Isolation.
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 MSIVs.
Outboard MSIV control switches, B21-F028A, B21-F028B, B21-F028C, B21-F028D, placed in OPEN and MSIVs are OPEN as indicated by the red lights on, green lights off.

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

Step 6 – Open MS-F020.
Ensures MSL Drain Isolation Valve, MS-F020, is open.

SAT/UNSAT

Step 7 – Open B21-F019.

Places the control switch for MSL Outboard Drain Isolation Valve, B21-F019, to open and verifies the red light comes on and the green light goes out.

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

Step 8 – Ensure the following valves are closed:

- Main Steam to SJAE, MS-V3**
- Main Steam to SJAE, MS-V4**
- Stm to East MSR Drain Vlv, MS-V43
- Stm to West MSR Drain Vlv, MS-V44
- Drn Vlv, MS-V45
- RFP B HP Stop & Ln Drn, MS-V37/V39
- RFP A HP Stop & Ln Drn, MS-V41/V42
- Stm to SJAE Drain Vlv, MS-V36
- Mn Stm Ln Before SV Drains, MS-V46
- Mn Stm Ln Before SV Drains, MS-V47
- Mn Stm Ln Before SV Drains, MS-V48
- Mn Stm Ln Before SV Drains, MS-V49
- Mn Stm to BPV Chest Drn Vlv, MS-V35
- Main Steam Line Drain Vlv, MVD-F021
- 2nd Stg RH Stm Vlv, RSSV-1
- 2nd Stg RH Stm Vlv, MS-RSSV-2

Ensures all listed valves are closed. (Bolded items must be closed, the others are verified closed).

SAT/UNSAT

Step 9 – Ensure both Reactor Feed Pumps tripped.

Verifies both Reactor Feed Pumps are tripped.

SAT/UNSAT

Step 10 – Open B21-F016.

MSL Inboard Drain Isolation Valve, B21-F016, open.

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

Step 11 – Open MS-F038 A, B, C, D.

MSL Orifice Bypass Valve, MS-F038A, B, C, and D, open

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

Emergency Equalization Around MSIV's - using the Hard Card.

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 14 – When < 200 psid across the valves, open Inboard MSIVs.

Inboard MSIVs B21-F022A, B, C & D are opened before steam pressure reaches 50 psid.

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

Step 20 – Notify Unit CRS that MSIVs are open for anticipating emergency depressurization.

Unit CRS 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.

TIME COMPLETE: _____

NOTE: Comments required for any step evaluated as UNSAT

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

Emergency Equalization Around MSIV's - using the Hard Card.

Validation Time: 15 Minutes (approximate).

Time Taken: _____

APPLICABLE METHOD OF TESTING

Performance:	Simulate	<u> </u>	Actual	<u>X</u>	Unit:	<u>2</u>
Setting:	Control Room	<u> </u>	Simulator	<u>X</u>	In-Plant:	<u> </u>
Time Critical:	Yes	<u> </u>	No	<u>X</u>	Time Limit	<u> </u>
Alternate Path:	Yes	<u> </u>	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass Fail

Remedial Training Required: Yes No

Comments: _____

Comments reviewed with Performer

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 Unit CRS has anticipated that Emergency Depressurization may be required.
5. The condenser vacuum bypass switches are in the bypass position
6. Another operator will control reactor pressure 800 - 1000 psig using SRVs.

INITIATING CUE:

You are directed to perform the control operator actions associated with emergency equalization around the MSIVs, and open MSIVs when pressure is <200 psid, using the Hard Card.

You are to inform the Unit CRS when the actions to equalize and open the MSIVs per the Hard Card are complete.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 4D**

LESSON TITLE: Shutdown Cooling Restoration With RHR Pump Overload.

LESSON NUMBER: LOT-SIM-JP-302-L04

REVISION NO: 1

Robert Bolin

PREPARER 07/18/14

DATE

Lou Sosler

TECHNICAL REVIEWER 07/18/14

DATE

Derek Pickett

LINE REVIEW/VALIDATOR 07/18/14

DATE

Jerry Pierce

Facility Representative 08/15/14

DATE

Revision Summary:

REV. No.	REVISION SUMMARY
1	Reformatted to the new JPM template
0	New JPM developed for NRC license exam.

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 Supp. 1.):

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

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 200-220 inches.

INITIATING CUE:

You are directed to restart RHR Shutdown Cooling using RHR Loop B per 0AOP-15.0 step 4.2.11, and inform the Unit CRS when Shutdown cooling has been restored.

PERFORMANCE CHECKLIST

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

Step 1 - Obtain a current revision of 0AOP-15.0, Loss of Shutdown Cooling.
Current Revision of AOP-15.0 obtained.

SAT/UNSAT*

TIME START _____

Step 2 – Restore and maintain reactor water level 200-220”.
Reactor water level is observed to be between 200-220 inches as indicated on B21-LI-N027A or B.

SAT/UNSAT*

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

SAT/UNSAT*

Step 4 – Ensure RPS is energized.
RPS Buses A and B are energized (part of initial conditions given to student).

SAT/UNSAT*

Step 5 – Reset the group 8 isolation.
A71-S32, Isolation Reset Groups 1,2,3,6,8 pushbutton, is depressed.
A71-S33, Isolation Reset Groups 1,2,3,6,8 pushbutton, is depressed.

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

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

Step 6 – Close E11-F017B , Loop B Outboard Injection Vlv.
E11-F017B control switch is taken to the close position and the valve is observed to be closed by the green light on and the red light off.

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

Shutdown Cooling Restoration With RHR Pump Overload.

Step 7 – Open E11-F015B, Loop B Inboard Injection Vlv.

E11-F015B control switch is taken to the open position and the valve is observed to be open by the green light off and the red light on.

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

Step 8 – Open E11-F009, RHR Shutdown Cooling Inbd Isol Vlv.

E11-F009 verified to be in the open position by observing the green light off and the red light on.

SAT/UNSAT*

Step 9 – Slowly open E11-F008, RHR Shutdown Cooling Otbd Isol Vlv.

E11-F008 control switch is taken to the open position and then back to the norm position in small increments to throttle the valve slowly open. Observes the red light to come on and when full open the green light will be off.

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

Step 10 – Start a RHR Pump in the loop being used for shutdown cooling.

Places RHR Pump 2B or 2D control switch to the Run position verify red light is on and green light goes off, pump discharge pressure is also observed to rise to shutoff head (~200 psig).

**** 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.

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 CRS 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.

Shutdown Cooling Restoration With RHR Pump Overload.

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*

Shutdown Cooling Restoration With RHR Pump Overload.

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

TIME COMPLETE: _____

* Comments required for any step evaluated as UNSAT.

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

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 200-220 inches.

INITIATING CUE:

You are directed to restart RHR Shutdown Cooling using RHR Loop B per 0AOP-15.0 step 4.2.11, and inform the Unit CRS when Shutdown cooling has been restored.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 5E**

LESSON TITLE: Termination of Primary Containment Venting - SEP-01.

LESSON NUMBER: LOT-SIM-JP-300-K06

REVISION NO: 2

Robert Bolin
PREPARER 07/18/14
DATE

Lou Sosler
TECHNICAL REVIEWER 07/18/14
DATE

Derek Pickett
LINE REVIEW/VALIDATOR 07/18/14
DATE

Jerry Pierce
Facility Representative 08/15/14
DATE

Revision Summary:

REV. No.	REVISION SUMMARY
2	Reformatted using the new JPM template
1	Revised based on procedural change of SBGT V8 and V9 being normally open

LIST OF REFERENCES

RELATED TASKS:

223 003 B5 01
Initiate Emergency Drywell Venting Per SEP-01

K/A REFERENCE AND IMPORTANCE RATING:

295024 EA1.19 3.3,3.4
Ability To Operate/Monitor Containment Atmosphere Control System As It Applies To High Drywell Pressure

REFERENCES:

EOP-01-SEP-01, Rev. 18, Primary Containment Venting

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2)

Safety Function 5, Containment Integrity

SIMULATOR SETUP:

Recommended Initial Conditions

IC-11, 100% Power, BOC

Required Plant Conditions

The plant has been scrambled with Immediate Operator Actions complete. Primary containment is being vented using SEP-01, section 1 through step 4.

Triggers

Malfunctions

Overrides

Remotes

EP_IACACJMP CAC-V8, 10 & 2683 Isol (SEP-01 & 05) ON

EP_IAEOPJP5 Purge Exh Fans & Vlv Isol ON

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to performer)

1. The applicable procedure section WILL be provided to the performer.
 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 performer.
-

Read the following to the JPM performer.

TASK CONDITIONS:

1. Primary Containment Venting to Control Pressure is in progress per EOP-01-SEP-01, Section 1.
2. Primary Containment O₂ and H₂ levels have been determined by the STA to be below 1%.
3. Primary Containment Pressure can be maintained without venting.

INITIATING CUE:

You are directed to terminate Primary Containment Venting, using SEP-01, Section 4 and inform your supervisor when the required actions are complete.

PERFORMANCE CHECKLIST

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

Step 1 - Obtain current revision of SEP-01, Section 4 and verify revision if applicable.
Current revision of SEP-01, Section 4 is obtained.

SAT/UNSAT*

TIME START _____

PROMPT: Inform the performer that Primary Containment Purging is not in progress.

NOTE: Steps 2 through 12 are to be completed in the specified order.

Step 2 - ENSURE CLOSED the Torus Purge Exh VLV CAC-V7
CAC-V7 verified closed.

SAT/UNSAT*

Step 3 - ENSURE CLOSED Hardened Wet Well Vent Valve, CAC-V216.
CAC-V216 verified closed.

SAT/UNSAT*

Step 4 - ENSURE CLOSED Torus Purge Exh Vlv CAC-V8.
CAC-V8 verified closed.

SAT/UNSAT*

NOTE: Closing the V22 or the V172 is critical. The valves are in series so isolating either valve is critical but not isolating both.

Step 5 - CLOSE Torus Purge Exh Vlv CAC-V22.
CAC-V22 closed.

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

Step 6 - CLOSE Supp Pool Purge Exh Vlv CAC-V172.
CAC-V172 closed.

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

Termination of Primary Containment Venting - SEP-01.

Step 7 - ENSURE CLOSED Drywell Purge Exh Vlv CAC-V9.
CAC-V9 verified closed.

SAT/UNSAT*

Step 8 - ENSURE CLOSED Drywell Purge Exh Vlv CAC-V10.
CAC-V10 verified closed.

SAT/UNSAT*

Step 9 - ENSURE CLOSED DW Purge Exh Vlv CAC-V23.
CAC-V23 verified closed.

SAT/UNSAT*

Step 10 - ENSURE CLOSED DW Head Purge Vlv CAC-V49.
CAC-V49 verified closed.

SAT/UNSAT*

Step 11 - ENSURE CLOSED DW Head Purge Exh Vlv CAC-V50.
CAC-V50 verified closed.

SAT/UNSAT*

Step 12 - ENSURE CLOSED SGBT DW Suct Damper, VA-F-BFV-RB.
VA-F-BFV-RB verified closed.

SAT/UNSAT*

Step 13 - ENSURE OPEN SGBT A Isol Damper, VA-D-BFV-RB.
VA-D-BFV-RB verified open.

SAT/UNSAT*

Step 14 - ENSURE OPEN SGBT B Isol Damper, VA-H-BFV-RB.
VA-H-BFV-RB verified open.

SAT/UNSAT*

Termination of Primary Containment Venting - SEP-01.

PROMPT: If asked, **FURTHER** operation of SBGT **is** required.

Step 15 - STOP Purge Exhaust Fan A, A-PS-EF-RB.
Fan A-PS- EF-RB stopped.

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

Step 16 - STOP Purge Exhaust Fan B, B-PS-EF-RB.
Fan B-PS- EF- RB stopped.

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

NOTE: Steps 17 through 20 are to be completed in the specified order.

Step 17 - CLOSE Purge Otbd Exhaust Isol, A-BFV RB.
A-BFV-RB closed.

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

Step 18 - CLOSE Purge Suction & Inbd Exhaust Isol, I-BFV RB, N-BFV-RB.
I-BFV-RB and N-BFV-RB closed.

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

Step 19 - ENSURE CLOSED Rx Bldg To Torus Vac Bkr, CAC-V16.
CAC-V16 verified closed.

SAT/UNSAT*

Step 20 - ENSURE CLOSED Rx Bldg To Torus Vac Bkr, CAC-V17.
CAC-V17 verified closed.

SAT/UNSAT*

Step 21 - Place Control Switch In OFF for CAC DIV I AC Isol Ovr, CAC-CS-4178.
CAC-CS-4178 placed in OFF.

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

Termination of Primary Containment Venting - SEP-01.

Step 22 - Place Control Switch In OFF for CAC DIV II AC Isol Ovrdr, CAC-CS-4179.
CAC-CS-4179 placed in OFF.

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

Step 23 - Place Control Switch In OFF for CAC DIV I DC Isol Ovrdr, CAC-CS-4337.
CAC-CS 4337 placed in OFF.

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

Step 24 - Place Control Switch In OFF for CAC DIV II DC Isol Ovrdr, CAC-CS-4338.
CAC-CS-4338 placed in OFF.

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

Step 25 - Place Control Switch In OFF for CAC Purge Vent Isol Ovrdr, CAC-CS-5519.
CAC-CS-5519 placed in OFF.

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

PROMPT: As Unit CRS, inform trainee that another operator will perform any needed PTs or jumper removals.

Step 27 - INFORM supervisor that Primary Containment Venting has been terminated.
Supervisor informed.

SAT/UNSAT*

TERMINATING CUE: When Primary Containment Venting has been secured IAW SEP-01 Section 4 up to step 9 this JPM is complete.

TIME COMPLETE: _____

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

Validation Time: 10 Minutes (approximate).

Time Taken: _____ Minutes

APPLICABLE METHOD OF TESTING

Performance:	Simulate	<u> </u>	Actual	<u>X</u>	Unit:	<u>2</u>
Setting:	Control Room	<u> </u>	Simulator	<u>X</u>	In-Plant:	<u> </u>
Time Critical:	Yes	<u> </u>	No	<u>X</u>	Time Limit	<u> </u>
Alternate Path:	Yes	<u> </u>	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Comments: _____

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. Primary Containment Venting to Control Pressure is in progress per EOP-01-SEP-01, Section 1.
2. Primary Containment O2 and H2 levels have been determined by the STA to be below 1%.
3. Primary Containment Pressure can be maintained without venting.

INITIATING CUE:

You are directed to terminate Primary Containment Venting, using SEP-01, Section 4 and inform your supervisor when the required actions are complete.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 6F**

LESSON TITLE: Transfer RPS Bus B From Normal to Alternate Power

LESSON NUMBER: LOT-SIM-JP-003-A03

REVISION NO: 4

Robert Bolin
PREPARER

07/18/14
DATE

Lou Sosler
TECHNICAL REVIEWER

07/18/14
DATE

Bruce Leitch
LINE REVIEW/VALIDATOR

07/18/14
DATE

Jerry Pierce
Facility Representative

08/15/14
DATE

Revision Summary:

REV. No.	REVISION SUMMARY
4	Reformatted to the new JPM template. Adjusted cues such that procedure was partially already complete.
3	Changed Task Conditions. Added prompt to note procedure before step 2. Changed prompt before step 3 concerning noting of procedure. Added note before step 8 concerning CREV. Added new step 13 and renumbered following steps. Added start and completion time blanks. Added time required for completion and time taken blocks on pg 11

LIST OF REFERENCES

RELATED TASKS:

212 013 B1 01

K/A REFERENCE AND IMPORTANCE RATING:

212000 A2.02

Ability to predict the impacts of RPS bus power supply failure on RPS System and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations.

3.7/ 3.9

REFERENCES:

2OP-03.0

TOOLS AND EQUIPMENT:

none

SAFETY FUNCTION (from NUREG 1123, Rev 2 Supp. 1.):

7

SIMULATOR SETUP:

Recommended Initial Conditions

IC-11, 100% Power, BOC

Required Plant Conditions

1. Trip RPS MG Set B.
2. Perform necessary actions to stabilize the plant following the loss of RPS Bus B.
3. Acknowledge alarms.
4. RPS ALT POWER SOURCE to Alternate (E8).
5. RPS ALT Supply EPA breakers #5 and #6 to RESET.

Triggers

Malfunctions

Overrides

Remotes

System	Tag	Title	Value
RP	RP004F	RPS B MG Set	TRIP
RP	IBZNORM	RPS ALT POWER	E8 - ALT
RP	IAEPAALT	RPS ALT EPA BKRS	RESET

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to performer)

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

Read the following to the JPM performer.

TASK CONDITIONS:

RPS MG Set B spurious trip has occurred and cannot be restarted.

INITIATING CUE:

The Unit CRS, with the SM's permission, has directed that you energize RPS Bus B from the alternate source IAW 2OP-03 so that the Reactor Building Ventilation can be started and inform him when the applicable procedure section is complete.

PERFORMANCE CHECKLIST

NOTE: Sequence is assumed unless denoted in the Comments.

Step 1 - **Obtain** current revision of 2OP-03, Section 8.2.
Current revision of 2OP-03, Section 8.2 obtained.

SAT/UNSAT*

TIME START _____

<p>NOTE: If the examinee obtains the wrong procedure section have them perform the procedure section in the simulator procedure.</p> <p>PROMPT: When the correct procedure section is obtained inform examinee that 2OP-03, Section 8.2 has been completed up to step 7.</p>
--

Step 2 – **Place** RPS POWER SOURCE SELECT SWITCH on P610 to ALT B.
Selector switch is in ALT B.

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

Step 3 – **Reset** SCRAM groups 1/4 and 2/3.
Scram reset.

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

Step 4 – **Ensure** TRIP SYS B SCRAM GROUPS 1, 2, 3, 4, lights on H12-P603 are on.
Lights are lit.

SAT/UNSAT*

Step 5 – **Ensure** SCRAM GROUPS 1, 2, 3, 4 lights on H12-P611 are on.
Lights are lit.

SAT/UNSAT*

Step 6 – **Close** SAMPLE OUTBD ISOL VLV, B32-F020.
Valve is closed.

SAT/UNSAT*

<p>NOTE: CREV will automatically shutdown when the following step is performed. IF verification of CREV auto start is desired, THEN verification must be performed prior to the following step.</p> <p>PROMPT: If asked, tell performer that verification of CREV is not necessary.</p>

Transfer RPS Bus B From Normal to Alternate Power

Step 7 – **Depress** ISOLATION RESET GROUPS 1, 2, 3, 6, 8, pushbutton, A71-S32, on H12-P601.
Reset pushbutton is depressed.

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

Step 8 – **Depress** ISOLATION RESET GROUPS 1, 2, 3, 6, 8, pushbutton, A71-S33, on H12-P601.
Reset pushbutton is depressed.

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

Step 9 – **Verify** Group I logic is reset by observing Outboard MSIV Logic AC AND Inboard MSIV Logic DC lights are lit on Panel P601.
Lights are on.

SAT/UNSAT*

PROMPT: When requested inform examinee that the MSIV DC Logic lights (Panel P622) and AC Logic lights (Panel P623) are lit.

Step 10 – **Ensure** the following lights are on:
MSIV AC Logic lights on Panel H12-P623.
MSIV DC Logic lights on Panel H12-P622.
Lights are on.

SAT/UNSAT*

NOTE: Procedure step 17 should be marked N/A.

Step 11 – Reset MSL radiation monitors and ensure proper operation.
MSL rad monitors reset and proper operation verified.

SAT/UNSAT*

Step 12 – Reset Off-Gas (SJAE) radiation monitors and ensure proper operation.
SJAE rad monitors reset and proper operation verified.

SAT/UNSAT*

Transfer RPS Bus B From Normal to Alternate Power

Step 13 – Reset reactor building radiation monitors on Panel H12-P606.

Depresses the RESET push button on 2-D12-RM-K609A, observes red light extinguishes and confirms proper operation.

Depresses the RESET push button on 2-D12-RM-K609B, observes red light extinguishes and confirms proper operation

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

PROMPT: Inform performer as the Unit CRS that the procedure will be completed by another operator.

Step 17 – Unit CRS notified RPS Bus B has been transferred to Alternate supply per 2OP-3.0 and another operator is completing the remaining actions.

Unit CRS notified.

SAT/UNSAT*

TERMINATING CUE: When RPS Bus B is re-energized from the Alternate Source, RPS SYS B TRIP, the Radiation Monitors and PCIS Group isolations have been reset per OP-03, this JPM is complete.

TIME COMPLETE: _____

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

Transfer RPS Bus B From Normal to Alternate Power

Validation Time: 11 Minutes (approximate).

Time Taken: _____ Minutes

APPLICABLE METHOD OF TESTING

Performance:	Simulate	___	Actual	<u>X</u>	Unit:	<u>2</u>
Setting:	Control Room	___	Simulator	<u>X</u>	In-Plant:	___
Time Critical:	Yes	___	No	<u>X</u>	Time Limit	<u>N/A</u>
Alternate Path:	Yes	___	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Comments: _____

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

RPS MG Set B spurious trip has occurred and cannot be restarted.

INITIATING CUE:

The Unit CRS, with the SM's permission, has directed that you energize RPS Bus B from the alternate source IAW 2OP-03 so that the Reactor Building Ventilation can be started and inform him when the applicable procedure section is complete.



DUKE ENERGY
BRUNSWICK TRAINING SECTION

JOB PERFORMANCE MEASURE

2014 NRC
SIM 7G

LESSON TITLE: Manual Transfer of Bus E3 from the Normal Feeder to the DG3

LESSON NUMBER: LOT-SIM-JP-050-B01

REVISION NO: 7

Robert Bolin 07/18/14

PREPARER DATE

Lou Sosler 07/18/14

TECHNICAL REVIEWER DATE

Rusty Brewer 09/11/14

LINE REVIEW/VALIDATOR DATE

Jerry Pierce 09/15/14

Facility Representative DATE

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

REVISION SUMMARY

7	Updated to new JPM format.
6	Added additional setup instructions to establish ~1600KW on E3. Added prompt for initial amperage on E3 before Step 2. Removed Rev. number form References. Added Time Required for Completion and Time Taken blanks on page 9.

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

RELATED TASKS:

262016B101

Complete a Control Room Manual Transfer of Emergency Bus Supply from Normal Feeder to Diesel Generator per OP-50.1

K/A REFERENCE AND IMPORTANCE RATING:

264000 A4.04 3.7/3.7

Ability to manually operate and/or monitor in the control room: Manual start, loading, and stopping of emergency generator.

REFERENCES:

0OP-50.1, Emergency Diesel Generator Power System Operating Procedure

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2, Supp. 1):

6 - Electrical Distribution

SETUP INSTRUCTIONS

A. Initial Conditions:

Any IC w/o DG auto start signal

- Start DG3 in Control Room Manual.
- Place DG3 Output Breaker (AI5) Synch Switch to ON.
- Adjust DG3 output voltage to less than E3 bus voltage
- Adjust DG frequency so that the Synch Scope is rotating slowly in the SLOW direction.
- Place DG3 Output Breaker (AI5) Synch Switch to OFF.
- Place RHRSW Pump A in service @ 4000gpm flow through the RHR heat exchanger. Start 2A NSW Pump. (Running these pumps places 1600 KW on Bus E3)

B. Malfunctions:

None

C. Overrides:

None

D. Triggers

None

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to performer)

1. The applicable procedure section **WILL** be provided to the trainee, once it is demonstrated he/she knows the correct procedure.
 2. Prior to the first JPM of the JPM set, provide the JPM briefing contained in NUREG-1021, Appendix E, or similar briefing (for non-regulated exams) to the trainee(s).
 3. This JPM will be performed on the Simulator for Unit 2.
 4. Critical Step Basis
 - a) Prevents Task Completion
 - b) May Result in Equipment Damage
 - c) Affects Public Health and Safety
 - d) Could Result in Personal Injury
-

Read the following to the JPM performer.

TASK CONDITIONS:

1. E3 is energized from BOP Bus 2D.
2. DG3 is running in Control Room Manual.
3. The Load Dispatcher has been notified that E3 load will be shifted to DG3.
4. An AO is stationed at DG3.
5. An AO is stationed at compartment AI2 to monitor amperage.
6. Bus E3 is being placed on the diesel generator to facilitate work on the master supply breaker from Bus 2D.

INITIATING CUE:

You are directed by the Unit CRS to perform the Control Operator actions associated with the manual transfer of E3 from the Normal Feeder to DG3 IAW 0OP-50.1, Diesel Generator Emergency Power System Operating Procedure. Notify the Unit CRS when all required actions are complete.

PERFORMANCE CHECKLIST

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

Step 1 - Obtain current revision of OOP-50.1, Section 6.3.5.

Current revision of OOP-50.1, Section 6.3.5. is obtained.

SAT/UNSAT

TIME START: _____

NOTE: The AVAIL light indicates the DG is running at proper speed and voltage.
The NO LOAD light indicates the DG output breaker is open.

PROMPT: If asked, respond as an AO that you are observing amperage at Compartment AI2 on E3. Reading approximately 300 amps.

Step 2 – Confirm AVAIL and NO LOAD lights are illuminated for DG3.

DG3 Avail and No Load lights are verified on.

SAT/UNSAT

NOTE: The generator voltage is monitored on diesel generator voltage output meter and emergency bus voltage is assumed to be the equivalent of the normal feeder supply.

Step 3 – Adjust DG3 voltage to slightly greater than Bus E3 voltage with the Auto Voltage Regulator.

DG3 voltage adjusted. Should indicate ~4160V.

SAT/UNSAT

Step 4 – Place synchroscope for DG3 output breaker (AI5) to ON.

DG3 synchroscope turned on.

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

Step 5 – Adjust DG3 speed with the GOVERNOR control switch until the synchroscope is rotating slowly in the FAST direction.

DG3 governor switch is adjusted until the synchroscope is rotating slowly in the FAST direction (clockwise)

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

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

Step 6 – Adjust DG3 output voltage to match running-incoming AC voltage (Bus E3 voltage) using the Auto Voltage Regulator.

DG3 voltage adjusted until they are match.

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

NOTE: After the output breaker is closed, the diesel should be loaded quickly to prevent a reverse power trip from occurring.

Step 7 – When the synchroscope is at 12 o'clock then close the DG output breaker and observe the following actions to occur:

- a. Generator output breaker closes
- b. Synchroscope remains at 12 o'clock

DG3 output breaker closed when the synchroscope is at "12 o'clock" and observes the generator output breaker is closed light indication and synchroscope remains at the 12 o'clock position.

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

Step 8 – Raise DG3 load to between 900-1000 KW by momentarily placing the Governor Switch to RAISE.

DG3 load is raised to 900 – 1000 KW.

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

Step 9 – Place synchroscope to OFF.

Synchroscope is placed in OFF.

SAT/UNSAT

Step 10 – While raising DG load, maintain generator kvars approximately one-half the KW load, using Voltage adjusting rheostat

Voltage adjust is manipulated to maintain kvars ~one-half the KW load.

SAT/UNSAT

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

PROMPT: After the performer raises generator load to ~1600KW, inform them that there is zero amperage on the normal supply.

Step 11 – Raise generator load by momentarily placing the GOVERNOR motor control switch in RAISE, thus decreasing the normal supply amperage as reported by the AO.
Generator load is raised to ~1600KW, and zero amps reported.

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

Step 12 – When zero amperage is reported then place and hold the control switch (Bus 2D to Bus E3) in TRIP until both MSTR and SLAVE breakers indicate open.
2AD1 and A12 breakers are open.

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

Step 13 – Unit CRS is notified that DG3 is supplying E3.
Unit CRS notified.

SAT/UNSAT

TERMINATING CUE: When DG3 is supplying E3 and the normal supply breakers have been opened then this JPM is complete.

TIME COMPLETED: _____

NOTE: Comments required for any step evaluated as UNSAT.

COLLECT AND CONTROL ALL JPM EXAM MATERIALS FOR EXAM SECURITY.

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT.

- | | |
|--|------------------------|
| A. CORE 4 | SAT / UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute / Two Minute Rule | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc) | SAT / UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT / UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking). | SAT / UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT / UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT / UNSAT/ NE |
| G. Electrical Safety and Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT / UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT / UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT / UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT / UNSAT/ NE |

Manual Transfer of Bus E3 from the Normal Feeder to the DG3

Validation Time: 15 Minutes (approximate)

Time Taken: _____ Minutes

APPLICABLE METHOD OF TESTING

Performance:	Simulate:	_____	Actual:	<u>X</u>	Unit:	<u>2</u>
Setting:	In-Plant	_____	Simulator:	<u>X</u>	Admin:	_____
Time Critical:	Yes	_____	No	<u>X</u>	Time Limit:	<u>N/A</u>
Alternate Path:	Yes	<u> </u>	No	<u>X</u>		

EVALUATION

Performer: _____

JPM Results: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Comments: _____

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. E3 is energized from BOP Bus 2D.
2. DG3 is running in Control Room Manual.
3. The Load Dispatcher has been notified that E3 load will be shifted to DG3.
4. An AO is stationed at DG3.
5. An AO is stationed at compartment AI2 to monitor amperage.
6. Bus E3 is being placed on the diesel generator to facilitate work on the master supply breaker from Bus 2D.

INITIATING CUE:

You are directed by the Unit CRS to perform the Control Operator actions associated with the manual transfer of E3 from the Normal Feeder to DG3 IAW 00P-50.1, Diesel Generator Emergency Power System Operating Procedure. Notify the Unit CRS when all required actions are complete.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**2014 NRC
SIM 8H**

LESSON TITLE: PASS Gaseous Sample Source Alignment

LESSON NUMBER: LOT-SIM-JP-015-01

REVISION NO: 0

Robert Bolin

PREPARER 07/18/14

DATE

Lou Sosler

TECHNICAL REVIEWER 07/18/14

DATE

Derek Pickett / Bruce Leitch

LINE REVIEW/VALIDATOR 07/18/14

DATE

Jerry Pierce

Facility Representative 08/15/14

DATE

Revision Summary:

REV. No.	REVISION SUMMARY
0	New JPM developed for the 2014 Initial NRC Exam

RELATED TASKS:

298202B501, Align The PASS Gaseous Sample Source Per OP-15

K/A REFERENCE AND IMPORTANCE RATING:

295038 EA1.05 3.0/3.5

Ability to operate and/or monitor the Post accident sample system (PASS) as they apply to HIGH OFF-SITE RELEASE RATE.

REFERENCES:

2OP-15 Sampling System Operating Procedure

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123 Rev. 2 Supp. 1):

9 – Radioactivity Release (based on 295038)

SIMULATOR SETUP

IC-11 (suggested) or any power IC

Special Instructions

RPV < 166 inches with Group 6 isolation.

2OP-15 Section 5.2 actions performed.

Take snap if desired for ease of subsequent setup

SAFETY CONSIDERATIONS:

None

EVALUATOR NOTES: (Do not read to performer)

1. The applicable procedure section **WILL** be provided to the performer.
 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 performer.
 3. Critical Step Basis(s)
 - a) Prevents Task Completion
 - b) May Result in Equipment Damage
 - c) Affects Public Health and Safety
 - d) Could Result in Personal Injury
-

Read the following to the JPM performer.

TASK CONDITIONS:

1. An accident has occurred.
2. Postaccident Sampling System Startup IAW 2OP-15 Section 5.2 has been performed for gaseous samples.
3. H₂-O₂ Monitor, CAC-AT-4409, is operable.
4. E&RC has notified Operations that gas samples are required to be taken from the 50 foot of the Drywell.

INITIATING CUE:

The Unit CRS directs you align the PASS system for gas sampling of the 50 foot of the drywell IAW 2OP-15, Section 8.1, PASS Gaseous Sample Source Alignment, and notify the CRS when the PASS system is aligned.

PERFORMANCE CHECKLIST

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

Step 1 – Obtain copy of 2OP-15, Sampling System Operating Procedure, Section 8.1.
Copy of 2OP-15, Sampling System Operating Procedure, Section 8.1 is obtained.

SAT/UNSAT

TIME START _____

NOTE: Initial conditions given for the JPM state that 2OP-15 Section 5.2 was completed and that the CAC-AT-4409 is operable.

Step 2 – Verify initial conditions of 2OP-15, Sampling System Operating Procedure, Section 8.1 are met
Given conditions state that the PASS system startup has been performed.

SAT/UNSAT

NOTE: The sample switch for the CAC-AT-4410 should be verified to be in one of the three off positions. As this switch is already in the off position it is not critical to the JPM. Placing the XU-79 Standby switch to the off position would inop this piece of equipment and would be considered a failure.

Step 3 – Ensure H₂-O₂ Monitor, CAC-AT-4410 in OFF.
On the XU-51 Panel verifies that the H₂-O₂ Monitor CAC-AT-4410 control switch is in one of the three off positions.

SAT/UNSAT

Step 4 - Select H₂-O₂ Monitor, CAC-AT-4409, sample point 3, Drywell 50'.
On the XU-51 Panel ensures that the H₂-O₂ Monitor CAC-AT-4409 control switch is in #3 position

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

Step 5 – At H₂-O₂ Monitor, CAC-AT-4409, depress START SAMPLE switch.
START SAMPLE switch depressed.

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

PASS Gaseous Sample Source Alignment

Step 6 – Verify H₂-O₂ Monitor, CAC-AT-4409 Start Sequence verified by observing:

- Sample point #3 sample valve opens
- RED START SAMPLE light comes on
- RED MSDRN ACTIVE light comes on
- After 20 to 40 seconds, MSDRN ACTIVE light goes off, green MSDRAIN STANDBY light comes on.

CAC-AT-4409 Start sequence verified.

SAT/UNSAT*

Step 7 – Inform the CRS that the PASS system is aligned for gas sampling of the 50 foot of the drywell.

CRS acknowledge the information using 3-way communications

SAT/UNSAT

TERMINATING CUE: When the examinee has performed PASS system alignment for gas sampling of the 50 foot of the drywell and started the sample pump the JPM is complete.

TIME COMPLETE: _____

* Comments required for any step evaluated as UNSAT.

WORK PRACTICES:

Comments are required for any step evaluated as UNSAT

- | | |
|--|-----------------------|
| A. CORE 4 | SAT/ UNSAT/ NE |
| 1. Task Preview / Pre-Job Briefs | |
| 2. Take-A-Minute | |
| 3. Correct Component Verification (CCV), Validate Assumptions | |
| 4. Procedure and Work Instruction Use and Adherence (PU&A) | |
| B. Communications (proper content, repeat backs, 3 step communications, etc.) | SAT/ UNSAT/ NE |
| C. STAR (Use of Stop, Think, Act, Review) | SAT/ UNSAT/ NE |
| D. Peer Checking (if performer requests or discusses peer checking) | SAT/ UNSAT/ NE |
| E. Proper Equipment Use (observe starting limitations, throttle valve closures, etc.) | SAT/ UNSAT/ NE |
| F. Safety Compliance (use of PPE, knowledge of safety equipment, etc.) | SAT/ UNSAT/ NE |
| G. Electrical Safety And Arc Flash Protection Compliance (refer to SAF-NGGC-2175, as applicable) | SAT/ UNSAT/ NE |
| H. Security Compliance (controlled area entry and exit, key control, etc.) | SAT/ UNSAT/ NE |
| I. Proper Tool Use (proper tool for the job, calibration dates, etc.) | SAT/ UNSAT/ NE |
| J. Radiation Protection (ALARA, understanding and use of RWP, frisking, etc.) | SAT/ UNSAT/ NE |

COMMENTS:

PASS Gaseous Sample Source Alignment

Validation Time: 10 Minutes (approximate).

Time Taken: _____ Minutes

APPLICABLE METHOD OF TESTING

Performance:	Simulate	___	Actual	<u>X</u>	Unit:	<u>2</u>
Setting:	Control Room	___	Simulator	<u>X</u>	In-Plant:	___
Time Critical:	Yes	___	No	<u>X</u>	Time Limit	<u>N/A</u>
Alternate Path:	Yes	___	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass _____ Fail _____

Remedial Training Required: Yes _____ No _____

Comments: _____

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. An accident has occurred.
2. Postaccident Sampling System Startup IAW 2OP-15 Section 5.2 has been performed for gaseous samples.
3. H₂-O₂ Monitor, CAC-AT-4409, is operable.
4. E&RC has notified Operations that gas samples are required to be taken from the 50 foot of the Drywell.

INITIATING CUE:

The Unit CRS directs you align the PASS system for gas sampling of the 50 foot of the drywell IAW 2OP-15, Section 8.1, PASS Gaseous Sample Source Alignment, and notify the CRS when the PASS system is aligned.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**NRC 2014
IN-PLANT 9I**

LESSON TITLE: SEP-09 CRD Flow Maximization – Reactor Building Accessible

LESSON NUMBER: AOT-OJT-JP-300-K01

REVISION NO: 2

Robert Bolin
PREPARER 07/18/14
DATE

Lou Sosler
TECHNICAL REVIEWER 07/18/14
DATE

Derek Pickett
LINE REVIEW/VALIDATOR 07/18/14
DATE

Jerry Pierce
Facility Representative 08/15/14
DATE

RELATED TASKS:

200085B504

Maximize CRD Flow with the Reactor Building Accessible Per SEP-09

K/A REFERENCE AND IMPORTANCE RATING:

295009 AA1.02 4.0 / 4.0

Ability to operate or monitor the CRD System as it applies to low reactor water level.

REFERENCES:

0EOP-01-SEP-09, Rev 7

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2, Supp. 1):

SF 2 (as defined by 295009)

SAFETY CONSIDERATIONS:

1. Use caution in the vicinity of operating equipment.
 2. Hard hat, safety glasses and hearing protection are required in the Reactor Building.
 3. Ensure good ALARA practices while in Reactor Building.
-

EVALUATOR NOTES: (Do not read to performer)

1. The applicable marked up 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 either Unit.
 4. Critical Step Basis(s)
 - a. Prevents Task Completion
 - b. May Result in Equipment Damage
 - c. Affects Public Health and Safety
 - d. Could Result in Personal Injury
-

Read the following to the JPM performer.

TASK CONDITIONS:

1. A Loss Of Coolant accident is in progress on Unit _____.
2. The Unit SCO has determined that CRD Flow is required to be maximized IAW OEOP-01-SEP-09.
3. The CRD System is in operation with one CRD pump in service.
4. The Reactor Building is accessible.
5. Two CRD pump operation is desired (both CRD suction and drive water filters are available).

INITIATING CUE:

You are directed by the Unit SCO to perform the Auxiliary Operator actions associated with maximizing CRD flow to the reactor vessel on Unit _____ using two pump operation in accordance with SEP-09 Section 1, and inform him when the required actions are complete.

PERFORMANCE CHECKLIST

Step 1 – Perform Take A Minute to review task and conditions at the job site.

As a minimum Identifies correct location and any safety hazards in the area.

SAT/UNSAT

TIME START _____

NOTE: The items in () are B Train designations.

NOTE: Designation for Unit One CRD System is C11 and designation for Unit Two CRD system is C12.

NOTE: Task conditions stated that two-pump operation is desired and that both CRD suction filters and both CRD drive water filters are available.

PROMPT: Indicate valve positions when requested by the examinee as necessary throughout this JPM. Indicate status of suction and drive filters as “As-Seen”.

Step 2 – Place the standby CRD pump suction filter in service as follows:

- a. Ensure that the standby CRD Pump Suction Filter A(B) Drain Valve, CO-V315(V318) is CLOSED.
CO-V315(V318) is verified to be closed by attempting to rotate the handwheel in the clockwise direction.

SAT/UNSAT*

- b. Ensure that the standby CRD Pump Suction Filter A(B) Vent Valve, CO-V314(V317) is CLOSED.
CO-V314(V317) is verified to be closed by attempting to rotate the handwheel in the clockwise direction.

SAT/UNSAT*

- c. Ensure that the standby CRD Pump Suction Filter A(B) Inlet Isolation Valve, CO-V305(V307) is OPEN.
CO-V305(V307) is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

SAT/UNSAT*

PROMPT: When the examinee simulates vent valve V314(V317) OPEN, inform him/her that 60 secs. has elapsed.

- d. OPEN the standby CRD Pump Suction Filter A(B) Vent Valve, CO-V314(V317) for ~60 secs. and then CLOSE the valve.
CO-V314(V317) is opened by turning the handwheel in the counter-clockwise direction. Flow will be established for ~60 secs. and then the handwheel is rotated in the clockwise direction until full resistance is felt.

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

- e. OPEN the standby CRD Pump Suction Filter A(B) Outlet Isolation Valve, CO-V308(V309).
CO-V308(V309) is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

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

- Step 3 - OPEN CRD pumps suction filters bypass valve, CO-V306.
CO-V306 is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

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

- Step 4 - Place the standby CRD drive water filter in service as follows:

- a. Ensure that the standby Drive Water Filter A(B) Drain Valve, F023A(B) is CLOSED.
F023A(B) is verified to be closed by attempting to rotate the handwheel in the clockwise direction.

SAT/UNSAT*

- b. Ensure that the standby Drive Water Filter A(B) Vent Valve, F022A(B) is CLOSED.
F022A(B) is verified to be closed by attempting to rotate the handwheel in the clockwise direction.

SAT/UNSAT*

- c. Ensure that the standby Drive Water Filter A(B) Inlet Isolation Valve, F020A(B) is OPEN.

F020A(B) is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

SAT/UNSAT*

PROMPT: When the examinee simulates vent valve F022A(F022B)OPEN, inform him/her that 60 secs. has elapsed.

- d. OPEN the standby Drive Water Filter A(B) Vent Valve, F022A(B) for ~60 secs. and then CLOSE the valve.

F022A(B) is opened by turning the handwheel in the counter-clockwise direction. Flow will be established for ~60 secs. and then the handwheel is rotated in the clockwise direction until full resistance is felt.

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

- e. OPEN the standby Drive Water Filter A(B) Outlet Isolation Valve, F021A(B).

F021A(B) is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

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

Step 4 - Contact the main control room and inform them that the second CRD pump is ready to be started.

Control room notified.

SAT/UNSAT*

PROMPT: Inform examinee that second CRD pump has been started and that the CRD Flow Controller is in Manual. The CO has directed him to throttle charging water header throttle valve F034 to achieve maximum flow, and that you will inform the examinee if charging header pressure drops below 950 psig. (Allow F034 to be fully opened).

PROMPT: Inform examinee as the CO that charging water pressure is rising if the valve is throttled closed.

NOTE: The charging header isolation valve (F034) is normally throttled to prevent pump runout on a scram. The valve must be throttled **open** to maximize flow.

Step 5 – Open the Charging Water Header Throttle Valve, F034, as directed by Control Room Operator.

F034 is opened by turning the handwheel in the counter-clockwise direction until full resistance is felt.

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

PROMPT: When F034 has been simulated fully open, inform examinee that the Control Room reports charging water pressure at 960 psig, that CST level is 22 feet and that make up from the MUD tank is not necessary at this time.

Step 6 - Contact the main control room and inform them you have completed the AO actions for CRD Flow Maximization with two CRD pumps, Reactor Building Accessible.

Control room notified that AO portions are complete.

SAT/UNSAT*

TERMINATING CUE: AO actions for CRD Flow Maximization with two CRD pumps and Reactor Building accessible per 0EOP-01-SEP-09 are complete.

TIME COMPLETED _____

NOTE: Comments required for any step evaluated as UNSAT

REVISION SUMMARY:

REVISION NUMBER	REVISION SUMMARY
2	Updated to new JPM template.

Validation Time: 15 Minutes (approximate).

Time Taken: _____

APPLICABLE METHOD OF TESTING

Performance:	Simulate	<u>X</u>	Actual	___	Unit:	<u>1 / 2</u>
Setting:	In-Plant	<u>X</u>	Simulator	___	Admin	___
Time Critical:	Yes	___	No	<u>X</u>	Time Limit	<u>N/A</u>
Alternate Path:	Yes	___	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass ___ Fail ___

Remedial Training Required: Yes ___ No ___

Comments:

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

TASK CONDITIONS:

1. A Loss Of Coolant accident is in progress on Unit _____.
2. The Unit SCO has determined that CRD Flow is required to be maximized IAW 0EOP-01-SEP-09.
3. The CRD System is in operation with one CRD pump in service.
4. The Reactor Building is accessible.
5. Two CRD pump operation is desired (both CRD suction and drive water filters are available).

INITIATING CUE:

You are directed by the Unit SCO to perform the Auxiliary Operator actions associated with maximizing CRD flow to the reactor vessel on Unit _____ using two pump operation in accordance with SEP-09 Section 1, and inform him when the required actions are complete.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**NRC 2014
IN-PLANT 10J**

LESSON TITLE: Secure the Condensate System IAW 0AOP-32.0 - Pumps Fail To Trip

LESSON NUMBER: AOT-OJT-JP-302-E03

REVISION NO: 3

Robert Bolin
PREPARER 07/18/14
DATE

Lou Sosler
TECHNICAL REVIEWER 07/18/14
DATE

Derek Pickett
LINE REVIEW/VALIDATOR 07/18/14
DATE

Jerry Pierce
Facility Representative 08/15/14
DATE

RELATED TASKS:

200612B504 Perform Actions to Secure the Condensate System per 0AOP-32.0

K/A REFERENCE AND IMPORTANCE RATING:

295016 AA1.06 Ability to operate and/or monitor the following as it they apply to
Control Room Abandonment-Reactor Water Level 4.0/4.1

REFERENCES:

0AOP-32.0

TOOLS AND EQUIPMENT:

Pipe wrench to remove pipe cap

SAFETY FUNCTION (from NUREG 1123, Rev. 2, Supp. 1):

7 (based on 295016)

SAFETY CONSIDERATIONS:

1. Inform SM/CRS of JPM performance prior to commencing In-plant JPM.
2. Use caution around plant equipment
3. PPE for removing fuses IAW SAF-NGGC-2175, Electrical Safety And Arc Flash Protection

TASK	RUBBER GLOVES	INSULATED TOOLS	HAZARD CATEGORY
REMOVING/INSTALLING CONTROL POWER FUSES/KNIFE SWITCHES	√		0
HAZARD CATEGORY	Category 0 100% Untreated Natural Fabric Long sleeve shirt and pants along with undergarments made from natural fabric		

EVALUATOR NOTES: (Do not read to performer)

1. The applicable marked up 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 either Unit.
4. Removal of fuses may be discussed, opening of breaker door not required.
5. Remote Shutdown equipment for the Station 3 operator is the following:
 - a) A copy AOP-32.0, Plant Shutdown From Outside Control Room
 - b) A set sound-powered phones
 - c) A spare 9-volt battery for sound-powered phone headset amplifier
 - d) Two sound-powered phone extension cords (25' each)
 - e) Thirty Unit 1 and thirty-two Unit 2 keys, Serial Number T112
 - f) A pipe wrench
 - g) A small Phillips head screwdriver (for battery replacement)
6. Critical Step Basis(s)
 - a. Prevents Task Completion
 - b. May Result in Equipment Damage
 - c. Affects Public Health and Safety
 - d. Could Result in Personal Injury

Read the following to the JPM performer.

TASK CONDITIONS:

1. The Control Room Supervisor has directed entry into 0AOP-32.0, Plant Shutdown from Outside the Control Room, and evacuation of the Control Room.
2. All immediate actions of 0AOP-32.0 are complete.
3. Remote shutdown equipment has been distributed and communications between remote shutdown stations is established.
4. This task will be performed on Unit _____. (Specified by the examiner)

INITIATING CUE:

You are directed by the Control Room Supervisor to secure the Unit ____ Condensate System IAW 0AOP-32.0 step 4.2.13. You are to inform the CRS when this action is complete.

PERFORMANCE CHECKLIST

Step 1 – Perform Take A Minute to review task and conditions at the job site.
As a minimum Identifies correct location and any safety hazards in the area.

SAT/UNSAT

NOTE: The items in () are Unit Two designations. If no () given, items are the same for both Units. The examinee should perform only the items for one Unit.

TIME START _____

Step 2 – **CLOSE** the following rack isolation valves on Turbine Building 20' Breezeway Instrument Rack, IR-TB-2, **AND RECORD** on Attachment 8(9), Unit 1(2) Contingency Action Equipment Status:

- COD-PT-30-1, Rack Isolation Valve To COD-PT-30, COD-PSL-31, and COD-PS-21.
- COD-PI-32-1, Rack Isolation Valve To COD-PI-32 AND COD-PS-160.
- COD-PI-33-1, Rack Isolation Valve To COD-PI-33 AND COD-PS-161.
- COD-PI-34-1, Rack Isolation Valve To COD-PI-34 AND COD-PS-162.

Rack isolation valves are closed by turning in the clockwise direction until full resistance is obtained and the appropriate attachment is marked for each valve being closed.

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

NOTE: A pipe wrench will be needed to remove cap, which is part of the remote shutdown equipment for the Station 3 operator.

Step 3 - **Ensure** the common drain header on the instrument rack 1R-TB-2 is uncapped.
Common drain header 1R-TB-2 cap is removed by rotating the cap in the counter-clockwise direction until it is removed from piping.

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

Secure the Condensate System IAW 0AOP-32.0 - Pumps Fail To Trip

Step 4 – **OPEN** the following drain valves to trip the Condensate Booster Pumps on low suction pressure **AND RECORD** on Attachment 8(9), Unit 1(2) Contingency Action Equipment Status:

- COD-PT-30-6, Instrument Drain Valve To COD-PT-30, COD-PSL-31, and COD-PS-21.
- COD-PI-32-6, Instrument Drain Valve To COD-PI-32 and COD-PS-160.
- COD-PI-33-6, Instrument Drain Valve To COD-PI-33 and COD-PS-161.
- COD-PI-34-6, Instrument Drain Valve To COD-PI-34 and COD-PS-162.

Opens drain valves by rotating in the counter-clockwise direction until full resistance is obtained.

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

PROMPT: When asked whether the condensate booster pumps tripped, inform operator that no change occurred to the pump parameters on the associated rack.

NOTE: The operator should only remove the control power fuses and operate the breakers for the Unit designated in the cue. The switchgear should not be opened to evaluate this step, the operator should be given the picture of a typical 4 kV breaker to identify the fuses to be pulled. This note also applies to step 7 of this JPM.

PROMPT: If asked, the indicating lights for the 1(2)A and 1(2)B Condensate Booster Pumps indicate that the red light is lit and the green light is off on the breakers. The 1(2)C condensate Booster Pumps have the green light lit and the red light off.

NOTE: The 1(2)C condensate Booster Pump is not critical as it is not running.

Step 5 – **IF** the Condensate Booster Pumps did **NOT** trip, **THEN REMOVE** the following control power fuses **AND DEPRESS** the breaker cabinet *TRIP* button:

Cond. Booster Pump	Location	Compt.
1(2)A	4160 Bus 1(2)C	AC1
1(2)B	4160 Bus 1(2)D	AD9
1(2)C	4160 Bus 1(2)C	AC2

Opens the breaker cubicle door and in the bottom right corner of the upper portion of the breaker removes the fuses and then trips breaker and verifies the local trip indicator indicates tripped.

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

Secure the Condensate System IAW 0AOP-32.0 - Pumps Fail To Trip

PROMPT: When checking whether the condensate booster pump discharge valves *COD-V4, COD-V5 and COD-V6* are closed, inform the operator that all discharge valve lights indicate green when checked at the MCCs or if checked locally the valves indicate closed.

Step 6 – **ENSURE** the following valves are closed:

- COD-V4, Condensate Booster Pump A Discharge Valve, at MCC 1(2)TD Compt. CP1, OR local valve position indication.
- COD-V5, Condensate Booster Pump B Discharge Valve, at MCC 1(2)TB Compt. CF4, OR local valve position indication.
- COD-V6, Condensate Booster Pump C Discharge Valve, at MCC 1(2)TD Compt. CP2, OR local valve position indication.

Ensures all Condensate Booster Pump discharge valves are closed by verifying the green lights are illuminated and the red lights are not illuminated OR by verifying that the position indicator on the valve stem indicates closed.

SAT/UNSAT

Step 7 – **REMOVE** the following Condensate Pump control power fuses **AND DEPRESS** the breaker cabinet *TRIP* button:

Condensate Pump	Location	Compt.
1(2)A	4160 Bus 1(2)D	AD3
1(2)B	4160 Bus 1(2)C	AC4(7)
1(2)C	4160 Bus 1(2)D	AD2

Opens the breaker cubicle door and in the bottom right corner of the upper portion of the breaker removes the fuses and then trips breaker and verifies the local trip indicator indicates tripped.

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

TERMINATING CUE: When Condensate has been secured this JPM is complete.

TIME COMPLETED _____

NOTE: Comments required for any step evaluated as UNSAT

REVISION SUMMARY:

REVISION NUMBER	REVISION SUMMARY
3	Added NOTE for Unit 2 designation in the ().
2	Updated to reflect new procedure steps of 0AOP-32.0 R56. Added Duke Energy Progress image to cover page. Updated work practices to current plant expectations.

Secure the Condensate System IAW 0AOP-32.0 - Pumps Fail To Trip

Validation Time: 20 Minutes (approximate).

Time Taken: _____

APPLICABLE METHOD OF TESTING

Performance:	Simulate	<u>X</u>	Actual	___	Unit:	<u>1 / 2</u>
Setting:	In-Plant	<u>X</u>	Simulator	___	Admin	___
Time Critical:	Yes	___	No	<u>X</u>	Time Limit	<u>N/A</u>
Alternate Path:	Yes	<u>X</u>	No	___		

EVALUATION

Performer: _____

JPM: Pass ___ Fail ___

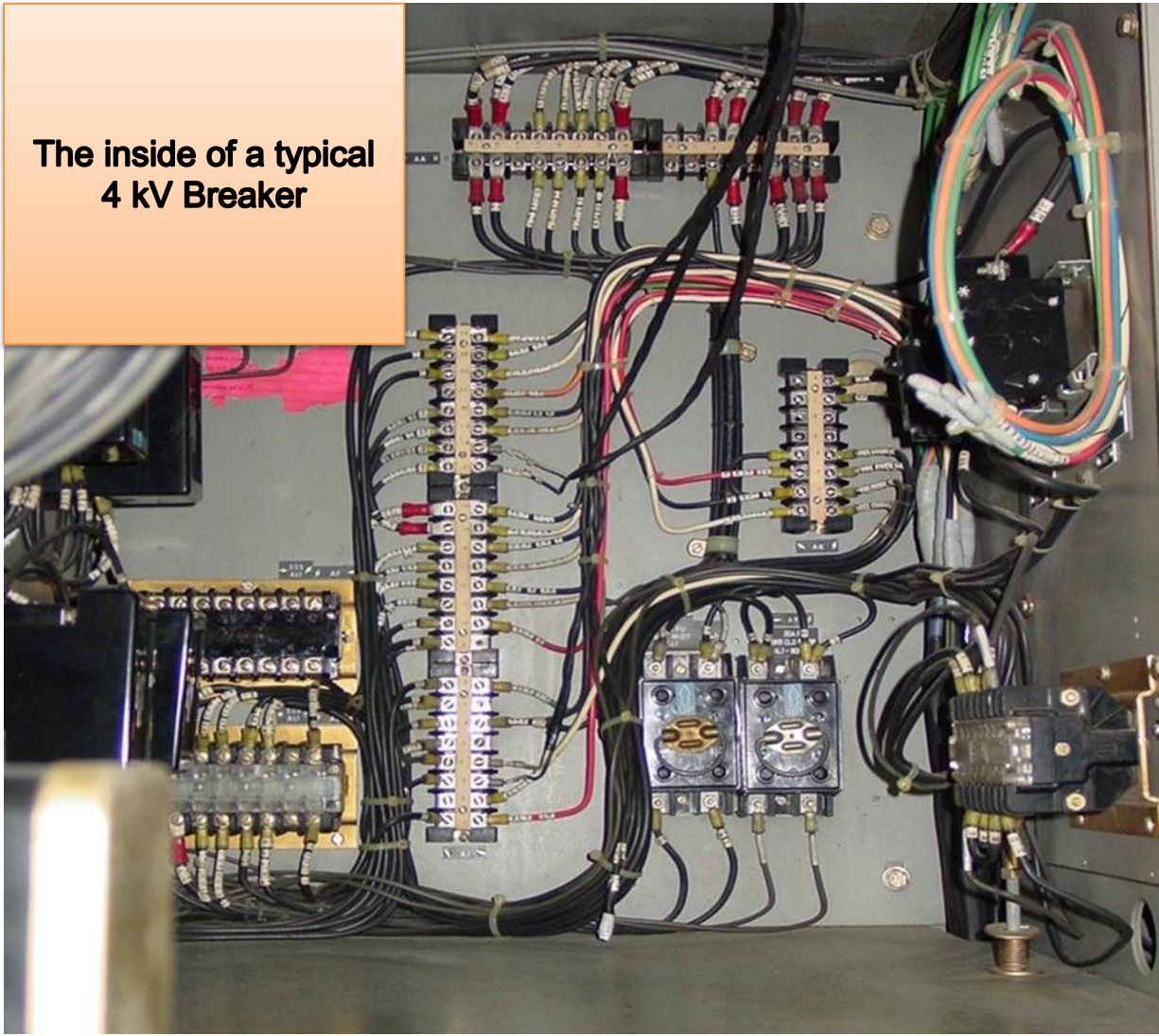
Remedial Training Required: Yes ___ No ___

Comments:

Comments reviewed with Performer

Evaluator Signature: _____ Date: _____

The inside of a typical
4 kV Breaker



TASK CONDITIONS:

1. The Control Room Supervisor has directed entry into 0AOP-32.0, Plant Shutdown from Outside the Control Room, and evacuation of the Control Room.
2. All immediate actions of 0AOP-32.0 are complete.
3. Remote shutdown equipment has been distributed and communications between remote shutdown stations is established.
4. This task will be performed on Unit _____. (Specified by the examiner)

INITIATING CUE:

You are directed by the Control Room Supervisor to secure the Unit ____ Condensate System IAW 0AOP-32.0 step 4.2.13. You are to inform the CRS when this action is complete.



**DUKE ENERGY PROGRESS
BRUNSWICK NUCLEAR PLANT
JOB PERFORMANCE MEASURE**

**NRC 2014
IN-PLANT 11K**

LESSON TITLE: Setting Service Air Dryer Sweep Value to Zero

LESSON NUMBER: AOT-OJT-JP-302-K01

REVISION NO: 0

<u>Robert Bolin</u> PREPARER	<u>07/18/14</u> DATE
<u>Lou Sosler</u> TECHNICAL REVIEWER	<u>07/18/14</u> DATE
<u>Derek Pickett</u> LINE REVIEW/VALIDATOR	<u>07/18/14</u> DATE
<u>Bruce Leitch</u> LINE REVIEW/VALIDATOR	<u>07/18/14</u> DATE
<u>Jerry Pierce</u> Facility Representative	<u>08/15/14</u> DATE

Setting Service Air Dryer Sweep Value to Zero

RELATED TASKS:

200504B504

Perform Emergency Actions Associated with a Pneumatic (Air/Nitrogen) System Failure per AOP-20.

K/A REFERENCE AND IMPORTANCE RATING:

Gen 2.1.30 4.4 / 4.0

Ability to locate and operate components, including local controls.

300000 A2.01 2.9/2.8

Ability to (a) predict the impacts of air dryer and filter malfunctions on the Instrument Air System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations.

REFERENCES:

0AOP-20.0, Rev 42

TOOLS AND EQUIPMENT:

None

SAFETY FUNCTION (from NUREG 1123, Rev. 2, Supp. 1):

8 – Plant Service Systems (300000 - Instrument Air)

Setting Service Air Dryer Sweep Value to Zero

SAFETY CONSIDERATIONS:

1. Use caution in the vicinity of operating equipment.
 2. Hard hat, safety glasses and hearing protection are required in the plant.
 3. Ensure good ALARA practices while in the plant.
-

EVALUATOR NOTES: (Do not read to performer)

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. Critical Step Basis(s)
 - a. Prevents Task Completion
 - b. May Result in Equipment Damage
 - c. Affects Public Health and Safety
 - d. Could Result in Personal Injury
-

Read the following to the JPM performer.

TASK CONDITIONS:

1. A loss of pneumatics has occurred.
2. 0AOP-20.0 is being executed.
3. The temporary air compressor has been placed in service.

INITIATING CUE:

You are directed by the Unit Two SCO to perform 0AOP-20.0, Pneumatic (Air/Nitrogen) System Failures, Attachment 3, Setting Service Air Dryer(s) Maximum Sweep Value to Zero, on 2A Air Dryer and inform the CRS when the required actions are complete.

Setting Service Air Dryer Sweep Value to Zero

PERFORMANCE CHECKLIST

Step 1 – Perform Take A Minute to review task and conditions at the job site.
As a minimum Identifies correct location and any safety hazards in the area.

SAT/UNSAT

TIME START _____

Step 2 – Identify applicable Dryer Control System display cabinet.
Circles 2-SA-2A-AIR-DRY-PNL on step 1 of the Attachment 3.

SAT/UNSAT*

NOTE: The cabinet is not locked, the use of anything (i.e. screwdriver, a key, etc) will turn the key mechanism to allow the cabinet door to open.

NOTE: DIP switch #9 is located inside the Dryer Control System display cabinet. DIP switch #9 is the second switch from the bottom, located between the door and circuit board.

PROMPT: When the performer is going to open the cabinet, give them the pictures, as needed, of the inside of the cabinet to demonstrate operation of the Dip Switch.

Step 3 - Place DIP SWITCH #9 to ON.
DIP switch is in the on position when the switch is switched away from the circuit board.

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

Step 4 – Depress MODE (F1) key until CONFIGURE page is displayed.
The MODE (F1) key is depressed until the CONFIGURE page is displayed on the Dryer Control System display.

SAT/UNSAT*

Step 5 - Depress PAGE (F2) key until CONFIGURE PAGE 2 of 2 is displayed.
The PAGE (F2) key is depressed until the CONFIGURE PAGE 2 of 2 is displayed on the Dryer Control System display.

SAT/UNSAT*

Setting Service Air Dryer Sweep Value to Zero

Step 6 – Depress ENTER (F5).
The ENTER (F5) key is depressed.

SAT/UNSAT*

NOTE: Values are adjusted by using the +(F3) and -(F4) keys. The nominal value for the setting is 90.

Step 7 - Adjust MAXIMUM SWEEP VALUE to 0(zero) with the +(F3) and -(F4) keys.
Adjusts the MAXIMUM SWEEP VALUE to zero (from 90) using the -(F4) key.

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

Step 8 - Place DIP SWITCH #9 to OFF.
DIP switch is in the on position when the switch is switched away from the circuit board.

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

Step 9 - Inform control room actions for 0AOP-20.0, Attachment 3 for Service Air Dryer 2A service air dryer maximum sweep value to zero are complete.
Acknowledge receipt of the information from the performer using proper 3-way communications.

SAT/UNSAT*

TERMINATING CUE: 0AOP-20.0, Attachment 3, Setting Service Air Dryer(s) Maximum Sweep Value to Zero, actions are completed, this JPM is complete.

TIME COMPLETE: _____

NOTE: Comments required for any step evaluated as UNSAT

Setting Service Air Dryer Sweep Value to Zero

REVISION SUMMARY:

REVISION NUMBER	REVISION SUMMARY
0	New JPM.

Setting Service Air Dryer Sweep Value to Zero

Validation Time: 12 Minutes (approximate).

Time Taken: _____

APPLICABLE METHOD OF TESTING

Performance:	Simulate	<u>X</u>	Actual	___	Unit:	<u>2</u>
Setting:	In-Plant	<u>X</u>	Simulator	___	Admin	___
Time Critical:	Yes	___	No	<u>X</u>	Time Limit	<u>N/A</u>
Alternate Path:	Yes	___	No	<u>X</u>		

EVALUATION

Performer: _____

JPM: Pass ___ Fail ___

Remedial Training Required: Yes ___ No ___

Comments: _____

Comments reviewed with Performer

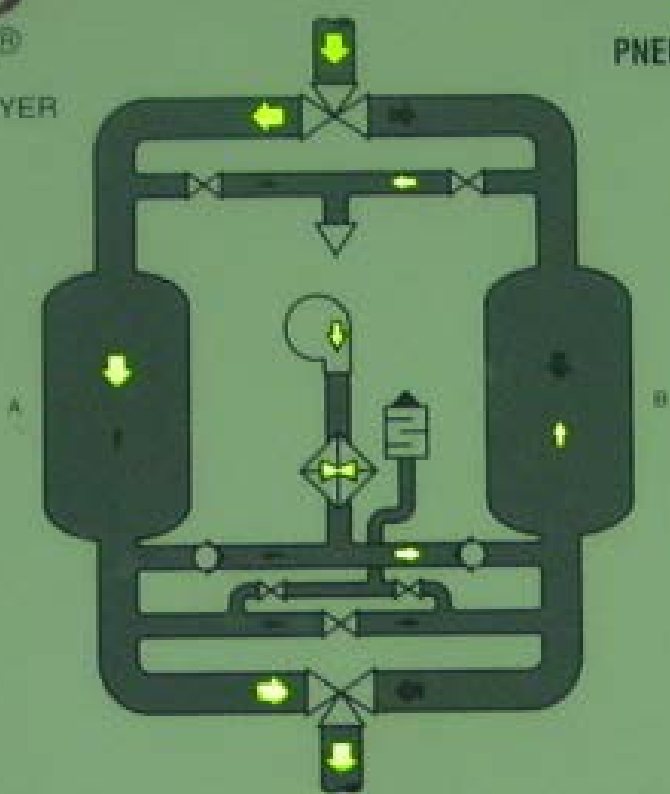
Evaluator Signature: _____ Date: _____

CAB
AMLOC®

ENERGY SAVER DRYER



PNEUMATIC PRODUCTS



DO NOT OPERATE PRIOR TO REVIEWING TECHNICAL MANUAL



WARNING

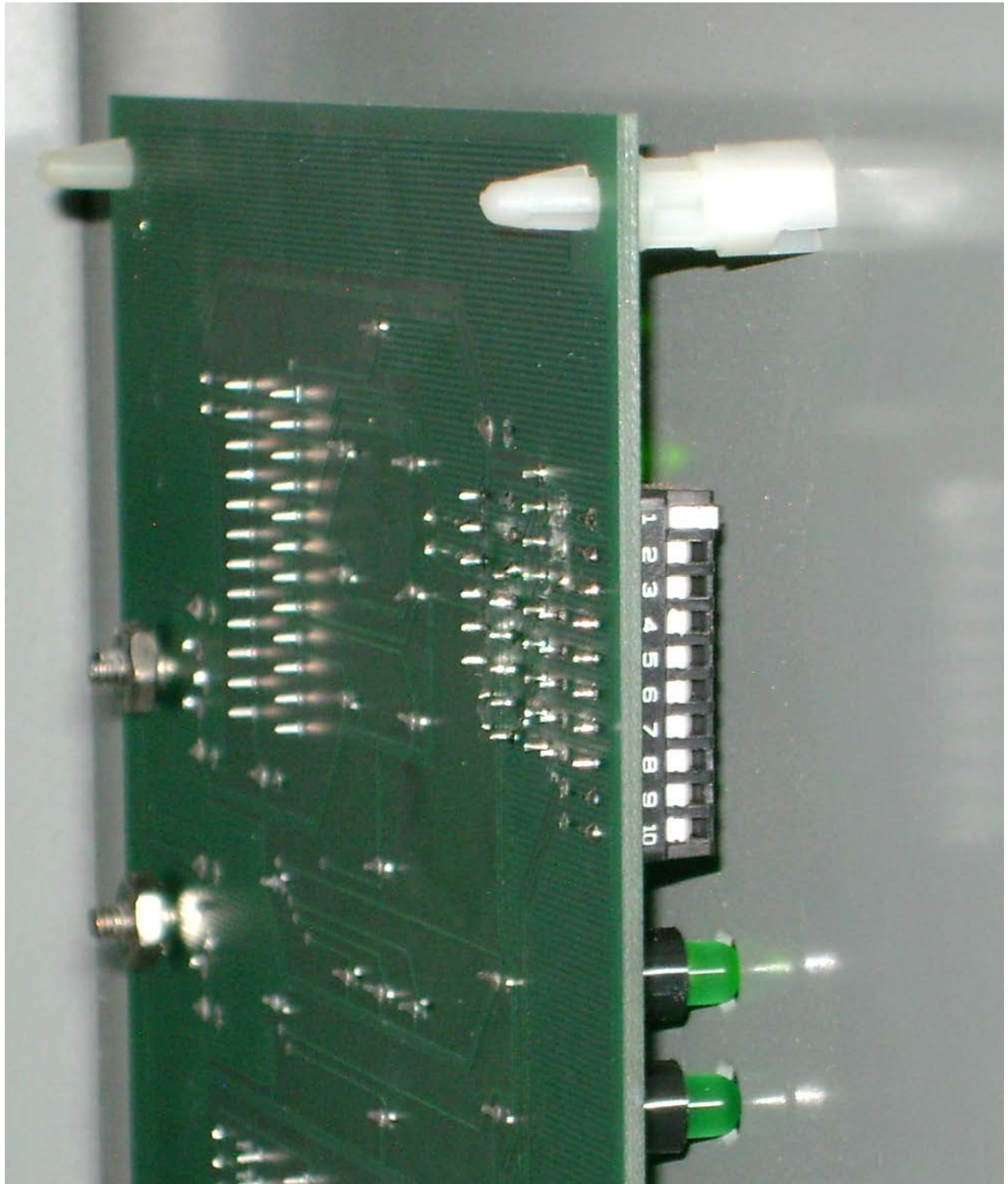
```
>Status:      1 of 2  
Normal  
Message -press ENTER
```



ALARM

MODE F1	PAGE F2	+	-	ENTER F5	ESC F6
					ALARM RESET





TASK CONDITIONS:

1. A loss of pneumatics has occurred.
2. 0AOP-20.0 is being executed.
3. The temporary air compressor has been placed in service.

INITIATING CUE:

You are directed by the Unit Two SCO to perform 0AOP-20.0, Pneumatic (Air/Nitrogen) System Failures, Attachment 3, Setting Service Air Dryer(s) Maximum Sweep Value to Zero, on 2A Air Dryer and inform the CRS when the required actions are complete.