OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: A.C. Electrical Distribution

TASK: Transfer 4KV Group Buses To The Alternate Power Supply (SPT to APT)

TASK NUMBER: N0620110101

JPM NUMBER: 16-01 NRC Sim-g

ALTERNATE PATH: [X]

K/A NUMBER: 062 A2.04

IMPORTANCE FACTOR: 3.1 (RO) 3.4 (SRO)

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-SO.4KV-0008, Rev. 13 (checked 12-15-17)
S2.OP-AR.ZZ-0009, Rev 27

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 10 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: R Chan Rudolph Che **Date:** 12-15-17
Instructor

Validated By: N/A R 12-15-17 **Date:** N/A R
SME or Instructor

Approved By: McHugh **Date:** 12/15/17
Training Department

Approved By: **Date:** 12/15/17
Operations Department MYERS

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:

GRADE: **SAT** **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

REVISION HISTORY

JPM NUMBER: 16-01 NRC Sim-g

Rev #	Date	Description	Validation Required
00	9-29-17	Added revision history and simulator setup pages. Editorial comments from IP 71111.11 FASA.	Yes
01	12-15-17	Updated to reflect procedure change to S2.OP-SO.4KV-0008, Rev. 13 that corrected a typographical error on P&L 3.3 that could confuse the operator in response to the malfunction.	No

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: A.C. Electrical Distribution

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TASK NUMBER: N0620110101

SIMULATOR IC: IC-246

MALFUNCTIONS / REMOTES:

1. Reset the simulator to IC-246 (IC-258 used as baseline)
2. Verify the following actions in the Summary/ET Trigger Lists:
   a. **ET-1: KC509PC0 - 2BGGD 2G Group Bus Feeder Close, INSERT MALF: EL0142 - Loss of 2G 4160 V Group Bus.**
3. This malfunction will simulate a loss of the 2G Group Bus only and result in the loss of one (1) RCP (24 RCP). Based on S2.OP-SO.4KV-0008, Precautions and Limitations 3.3, the crew should respond to OHA J-39 when it does NOT clear following bus transfer. The OHA ARP will direct you to J-38 to TRIP the Reactor and GO TO EOP-TRIP-1.
4. Check APT voltage the same as the Group bus voltage pre-req 2.3.3
5. This completes the setup for this JPM.

OVERRIDES: None

SPECIAL INSTRUCTIONS:

- **Provide** marked up hard copy of S2.OP-SO.4KV-0008, **Rev. 13** to candidate. **DO NOT USE** the copy in the simulator.
- Setup to only deenergize one (1) Group Bus, THEN the operator will receive OHA J-39, 4KV GRP BUS XFER FAIL.
- The ARP for J-39 will direct operator J-38 for response.
- OHA J-38 states: IF ANY RCP Trips THEN:
  - TRIP Reactor
  - GO TO EOP-TRIP-1

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: A.C. Electrical Distribution

TASK: Transfer 4KV Group Buses To The Alternate Power Supply (SPT to APT)

TASK NUMBER: N0620110101

INITIAL CONDITIONS:

- 18% power, 160 MWe, BOL.
- The Main Generator was synchronized 10 minutes ago.
- Steam Dumps are in MS Pressure Mode-Auto set at 970 psig.
- Rod Control is in Manual (D-147) until Group Buses are transferred.
- Group Buses are currently powered from the Station Power Transformers (SPT).

INITIATING CUE:

- You are the Plant Operator.
- The CRS directs you to **TRANSFER** all 4KV Group Buses from their respective Station Power Transformers (SPT) to the Aux Power Transformers (APT) IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer in the following order:
    1. 2F IAW section 5.2
    2. 2G IAW section 5.3
    3. 2H IAW section 5.4
    4. 2E IAW section 5.1
- All pre-requisites are completed SAT.

Successful Completion Criteria:
1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

Task Standard for Successful Completion:

1. Transfers 2F 4KV Group bus from SPT to APT.
2. Trips Reactor IAW ARP following de-energizing of 2G 4KV Group Bus

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step) (# Sequential Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		PROVIDE a copy of S2.OP-SO.4KV-0008, **Rev. 13** to the operator. **Evaluator's Note: DO NOT USE** the copy in the simulator due to a typographical error on P&L 3.3 that may confuse the operator in response to the malfunction.			
	CUE:	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME:**_____			
	P&L	**Note**: The operator may also review the OHA ARPs prior to starting the JPM.	Operator reviews Precautions and Limitations. **Evaluator's Note**: P&L 3.3 will be applicable when the 2G 4KV Bus deenergizes: When transferring a group Bus from SPT to APT, OHA J-39, GROUP BUS XFER FAIL, will illuminate then clear on bus transfer (expected response). OHA J-39 annunciator response is applicable when the alarm does NOT clear following bus transfer.		
	5.2	**Transferring 2F 4KV Group Bus from 22 SPT to 2 APT**			

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step) (# Sequential Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.2.1	**ENSURE** all Overhead Annunciators for 2 APT are clear.	Checks OHA Windows and determines all Overhead Annunciators for 2 APT are clear.		
	5.2.2	**ENSURE** 2A APT voltage is 4.22 - 4.36KV.	Checks 2A APT reading on 2CC3 and ensures 2A APT voltage is 4.22 - 4.36KV.		
	5.2.3	IF Auxiliary Power Unit Isolation Transfer is tripped, THEN **RESET** Auxiliary Power Unit Isolation Transfer (UIT).	Determines Auxiliary Power Unit Isolation Transfer is not tripped from control console indication.		
*	5.2.4	**PRESS** the Mimic Bus 2F GROUP BUS INFEED 2BFGD BREAKER pushbutton, AND **ENSURE** console bezel 2BFGD MIMIC BUS INTLK CLOSE SELECTION illuminates.	**Depresses Mimic Bus 2F GROUP BUS INFEED 2BFGD BREAKER pushbutton and verifies console bezel 2BFGD MIMIC BUS INTLK CLOSE SELECTION is Illuminated.**		

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*	5.2.5	***PRESS** control console 2BFGD CLOSE pushbutton, AND **ENSURE** the following: A. *22FSD is OPEN. B. *2BFGD is CLOSED. C. *2F 4KV Group Bus voltage is 4.22 - 4.36KV. D. Console bezel 2BFGD MIMIC BUS INTLK CLOSE SELECTION is extinguished.	**Depresses control console 2BFGD CLOSE pushbutton and verifies the following:** A. **22FSD OPEN bezel is illuminated.** B. **2BFGD CLOSED bezel is illuminated.** C. **2F 4KV Group Bus voltage is 4.22 - 4.36KV.** D. Console bezel 2BFGD MIMIC BUS INTLK CLOSE SELECTION is extinguished.		
	5.3	**Transferring 2G 4KV Group Bus from 22 SPT to 2 APT**			
	5.3.1	**ENSURE** all Overhead Annunciators for 2 APT are clear.	Checks OHA Windows and determines all Overhead Annunciators for 2 APT are clear.		
	5.3.2	**ENSURE** 2A APT voltage is 4.22 - 4.36KV.	Checks 2A APT reading on 2CC3 and ensures 2A APT voltage is 4.22 - 4.36KV.		
	5.3.3	IF Auxiliary Power Unit Isolation Transfer is tripped, THEN **RESET** Auxiliary Power Unit Isolation Transfer (UIT).	Determines Auxiliary Power Unit Isolation Transfer is not tripped from control console indication.		

NAME: _____

DATE: _____

SYSTEM: A.C. Electrical Distribution

TASK: Transfer 4KV Group Buses To The Alternate Power Supply (SPT to APT)

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*	5.3.4	**PRESS** Mimic Bus 2G GROUP BUS INFEED 2BGGD BREAKER pushbutton, AND **ENSURE** console bezel 2BGGD MIMIC BUS INTLK CLOSE SELECTION illuminates.	**Depresses Mimic Bus 2G GROUP BUS INFEED 2BGGD BREAKER pushbutton, AND verifies console bezel 2BGGD MIMIC BUS INTLK CLOSE SELECTION is illuminated.**		
		ALTERNATE PATH STARTS HERE:			

OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: A.C. Electrical Distribution

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step) (# Sequential Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.3.5	***PRESS** control console 2BGGD CLOSE pushbutton, AND **ENSURE** the following: A. *22GSD is OPEN. B. *2BGGD is CLOSED. C. *2G 4KV Group Bus voltage is 4.22 - 4.36KV. D. Console bezel 2BGGD MIMIC BUS INTLK CLOSE SELECTION is extinguished.	Operator determines 2G 4KV Group bus did not transfer and announces several unexpected OHA alarms. The following OHA alarms are applicable to the loss of 2G 4KV bus and will provide the operator with the required actions: J-8 (2G 4KV GRP BUS DIFF/OVRLD), J-38 (4KV GRP BUS UNDRVOLT), J-39 (4KV GRP BUS XFER FAIL), and D-31 (24 RCP BKR OPEN/FLO LO). **Cue**: If requested to dispatch an operator to inspect the 4KV group Bus, state; the CRS will send an operator to investigate. Operator identifies that OHA ARPs for J-38 or D-31 requires tripping the Reactor and going to EOP-TRIP-1 (OHA response are provided in next steps). **Cue**: If operator informs CRS of action to trip the reactor, state; take actions per the alarm response procedure. **Operator TRIPs the Reactor** .		

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	OHA ARP J-39	**4KV GRP BUS XFER FAIL** 3.0 **OPERATOR ACTIONS** **GO TO** OHA J-38 response	IF the operator refers to this ARP, THEN GOES TP ARP for J-38 for response.		
*	OHA ARP J-38	**4KV GRP BUS UNDRVOLT** **3.0 OPERATOR ACTIONS:** 3.5 IF ANY RCP trips, THEN: A. **TRIP** Reactor B. **GO TO** 2-EOP-TRIP-1	IF the operator refers to this ARP, THEN the operator determines that Step 3.5 is applicable and performs the following: **Operator TRIPs the Reactor.**		

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*	OHA ARP D-31	**24 RCP BKR OPEN/FLO LO** **3.0 OPERATOR ACTIONS:** 3.5 IF Reactor Coolant System flow degradation exists, THEN: A. **TRIP** the Reactor B. **STOP** 24 RCP C. IF RCP shutdown was due to RCP Seal Leakoff ≥ 6 gpm, THEN simultaneously **PERFORM** the following: ▪ Between 3-5 minutes after stopping 24 RCP, **CLOSE** 24CV104, SEAL LEAKOFF. ▪ **GO TO** 2-EOP-TRIP-1 D. **GO TO** 2-EOP-TRIP-1	IF the operator refers to this ARP, THEN the operator determines that Step 3.5 is applicable and performs the following: **Operator TRIPs the Reactor.** Note: Stopping 24 RCP is not required due to the bus de-energizing.		

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	CUE:	**JPM is Complete** **RECORD** the STOP TIME. **STOP TIME:**_____	**Terminate the JPM when the Rx trip has been initiated.**		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM #: 16-01 NRC Sim-g

NOTE: All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating Cues are properly identified.

_____ 6. Task standards identified and verified by SME review.

_____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

_____ 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify Cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

_____ 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor:_____ Date: _____

SME/Instructor:_____ Date: _____

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INITIATING CUE:

- You are the Plant Operator.
- The CRS directs you to **TRANSFER** all 4KV Group Buses from their respective Station Power Transformers (SPT) to the Aux Power Transformers (APT) IAW S2.OP-SO.4KV-0008, 4KV Group Buses Power Supply Transfer in the following order:
    1. 2F IAW section 5.2
    2. 2G IAW section 5.3
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- All pre-requisites are completed SAT.