OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

TASK NUMBER: N1140230401

JPM NUMBER: 19-01 NRC Sim-f

ALTERNATE PATH: [ ]

K/A NUMBER: 015 A4.03

IMPORTANCE FACTOR: 3.8 (RO) 3.9 (SRO)

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-SO.RPS-0001, Rev. 6 (checked 1-13-20)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 8 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: **R. Chan** **Instructor** **Date: 1-13-20**

Validated By: **Moore / Klein** **SME or Instructor** **Date: 1-13-20**

Approved By: **N/A** **Training Department** **Date:**

Approved By: **N/A** **Operations Department** **Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY: _____

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE
REVISION HISTORY

JPM NUMBER: 19-01 NRC Sim-f

Rev #	Date	Description	Validation Required
00	9-17-19	015 K/A A4.03: Ability to manually operate and/or monitor in the control room: Trip bypasses	Yes

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

TASK NUMBER: N1140230401

SIMULATOR IC: IC-205

MALFUNCTIONS:

1. Reset the simulator to the above IC #.
2. Verify the following events on the Summary/ET Trigger Lists:

MALF ID #	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	NI0193A, PR CH N41 Fails H/L	N/A	N/A	N/A	N/A	200

3. This malfunction will simulate a power range NIS channel failing high. The JPM will require the operator to remove the channel from service IAW S2.OP-SO.RPS-0001.

OVERRIDES / REMOTES:

ID #	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
01						

EVENT TRIGGERS:

ET#	Description	Command
1		
2		
3		
4		

SPECIAL INSTRUCTIONS:

- None.

NAME: _____

DATE: _____

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

TASK NUMBER: N1140230401

INITIAL CONDITIONS:

- The Unit 2 is operating at 100% power with no major equipment out of service.
- Power Range NIS Channel 2N41 has failed high.
- The crew has placed rod control in Manual and performed all the required actions in S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction.
- The following OHA Alarms are lit:
  - E-15, PR HI RNG FLUX HI
  - E-31, PR OVRPWR ROD STOP
  - E-39, PR CH DEV
  - E-47, PR NEUT FLUX RATE HI

INITIATING CUE:

- You are the Plant Operator.
- **REMOVE** the failed 2N41 Channel from service IAW **S2.OP-SO.RPS-0001**, Nuclear Instrumentation Channel Trip/Restoration (**see attached pages**).

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 (and NRC concurrence is obtained).

Task Standard for Successful Completion:
1. Removes 2N41 Channel from service by performing Steps 5.1.5.A thru 5.1.5.E correctly IAW S2.OP-SO.RPS-0001.

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	CUE:	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME**:_____			
	5.1	**Placing 2N41 Power Range NI in Tripped Condition IAW S2.OP-SO.RPS-0001**			
	5.1.1	**ENSURE** that tripping of associated bistable(s) will NOT result in an ESF OR RPS actuation	Operator checks 2RP4 panel and ensures tripping bistable will not result in Rx Trip.		
	5.1.2	**ENSURE** 2N41 Channel is NOT selected on NIS Recorder 2NR45	Operator checks 2N41 recorder and ensures not selected on 2N41 recorder.		
	5.1.3	**ENSURE** Rod Control is in Manual	Operator verifies rod control is in Manual.		
	5.1.4	**ENTER** T/S 3.3.1.1, Reactor Trip System Instrumentation for 2N41.	**CUE**: CRS will enter Tech Spec 3.3.1.1 for 2N41.		
		NOTE Steps 5.1.5 through 5.1.7 may be performed in any order	Operator reads note and continues on with procedure.		
	5.1.5	At NI Rack No. 81, **PERFORM** the following:	Operator goes to back of control room (simulator).		

NAME: _____

DATE: _____

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.1.5. A	**PLACE** DETECTOR CURRENT COMPARATOR, UPPER SECTION, switch in PRN41 position AND **ENSURE** the following: ___ CHANNEL DEFEAT lamp illuminates. ___ OHA E-38, UPPER SECT DEV ABV 50% PWR, clears.	**Operator places DETECTOR CURRENT COMPARATOR, UPPER SECTION switch to the PRN41 position.** **Operator verifies CHANNEL DEFEAT lamp is lit.** **CUE**: OHA E-38 is clear. **Note:** OHA E-38 was NOT in prior to tripping channel.		
*	5.1.5. B	**PLACE** DETECTOR CURRENT COMPARATOR, LOWER SECTION, switch in PRN41 position AND **ENSURE** the following: ___ CHANNEL DEFEAT lamp illuminates. ___ OHA E-46, LOWER SECT DEV ABV 50% PWR, clears.	**Operator places DETECTOR CURRENT COMPARATOR, LOWER SECTION switch to the PRN41 position.** **Operator verifies CHANNEL DEFEAT lamp is lit.** **CUE:** OHA E-46 is clear. **Note:** OHA E-46 was NOT in prior to tripping channel.		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	5.1.5. C	**PLACE** POWER MISMATCH BYPASS switch in BYPASS PR N41. (Defeats input to Rod Control)	**Operator places POWER MISMATCH BYPASS switch in BYPASS PR N41 position.**		
*	5.1.5. D	**PLACE** ROD STOP BYPASS switch in BYPASS PR N41 AND **ENSURE** the following: ___ 2RP4 - OVER POWER ROD STOP MANUAL BYPASS, CH I is illuminated. ___ OHA E-31, PR OVERPWR ROD STOP, is clear.	**Operator places ROD STOP BYPASS switch to BYPASS PR N41 position.** **Operator verifies 2RP4 OVER POWER ROD STOP MANUAL BYPASS, CH I is lit.** **CUE:** OHA E-31 is clear.		
*	5.1.5. E	**PLACE** COMPARATOR CHANNEL DEFEAT switch in N41 AND **ENSURE** the following: ___ COMPARATOR DEFEAT lamp is illuminated. ___ OHA E-39, PR CH DEV, is clear.	**Operator places COMPARATOR CHANNEL DEFEAT switch in N41 position.** **Operator verifies COMPARATOR DEFEAT lamp is lit.** **CUE:** OHA E-39 is clear. **CUE: JPM is Complete**		

NAME: _____

DATE: _____

SYSTEM: Instrumentation

TASK: Remove a Power Range Channel from Service IAW S2.OP-SO.RPS-0001

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **STOP TIME**:_____	**Terminate JPM when operator completes Step 5.1.5.E.**		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

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

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

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

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

RC 4. Initial setup conditions are identified.

RC 5. Initiating and terminating Cues are properly identified.

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

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

RC 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. __6___ Date ____1-13-20_____

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

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

N/A 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: R. Chan Date: 1-13-20

SME/Instructor: R. Moore Date: 1-13-20

SME/Instructor: J. Klein Date: 1-13-20

INITIAL CONDITIONS:

- The Unit 2 is operating at 100% power with no major equipment out of service.
- Power Range NIS Channel 2N41 has failed high.
- The crew has placed rod control in Manual and performed all the required actions in S2.OP-AB.NIS-0001, Nuclear Instrumentation System Malfunction.
- The following OHA Alarms are lit:
  - E-15, PR HI RNG FLUX HI
  - E-31, PR OVRPWR ROD STOP
  - E-39, PR CH DEV
  - E-47, PR NEUT FLUX RATE HI

INITIATING CUE:

- You are the Plant Operator.
- **REMOVE** the failed 2N41 Channel from service IAW **S2.OP-SO.RPS-0001**, Nuclear Instrumentation Channel Trip/Restoration (**see attached pages)**.

5.0 PROCEDURE

5.1 **Placing 2N41 Power Range NI in Tripped Condition**

___ 5.1.1 **ENSURE** that tripping of associated bistable(s) will NOT result in an ESF OR RPS actuation.

___ 5.1.2 **ENSURE** 2N41 Channel is NOT selected on NIS Recorder 2NR45.

___ 5.1.3 **ENSURE** Rod Control is in Manual.

___ 5.1.4 **ENTER** T/S 3.3.1.1, Reactor Trip System Instrumentation for 2N41.

NOTE
___ Steps 5.1.5 through 5.1.7 may be performed in any order.

___ 5.1.5 At NI Rack No. 81, **PERFORM** the following:

___ A. **PLACE** DETECTOR CURRENT COMPARATOR, UPPER SECTION, switch in PRN41 position AND **ENSURE** the following:

___ ♦ CHANNEL DEFEAT lamp illuminates.

___ ♦ OHA E-38, UPPER SECT DEV ABV 50% PWR, clears.

___ B. **PLACE** DETECTOR CURRENT COMPARATOR, LOWER SECTION, switch in PRN41 position AND **ENSURE** the following:

___ ♦ CHANNEL DEFEAT lamp illuminates.

___ ♦ OHA E-46, LOWER SECT DEV ABV 50% PWR, clears.

___ C. **PLACE** POWER MISMATCH BYPASS switch in BYPASS PR N41. (Defeats input to Rod Control)

___ D. **PLACE** ROD STOP BYPASS switch in BYPASS PR N41 AND **ENSURE** the following:

___ ♦ 2RP4 - OVER POWER ROD STOP MANUAL BYPASS, CH I is illuminated.

___ ♦ OHA E-31, PR OVERPWR ROD STOP, is clear.

(step continued on next page)

5.1.5 Continued

___ E. **PLACE** COMPARATOR CHANNEL DEFEAT switch in N41 AND **ENSURE** the following:

___ ♦ COMPARATOR DEFEAT lamp is illuminated.

___ ♦ OHA E-39, PR CH DEV, is clear.

___ 5.1.6 At bottom section of Control Rack No. 26, **PLACE** AXIAL FLUX DIFF MONITOR INPUT TEST SWITCH 1 in TEST position.

___ 5.1.7 **PLACE** 2N41 Channel bistables in the tripped condition as follows:

___ A. **OPEN** front door of RACK NO. 2 PROTECTION CH SET I.

___ B. **ENSURE** OHA A-4, RX PROT CH I ON TEST, is illuminated.

___ C. **PLACE** the following bistable test switches in the test (up) position AND **ENSURE** associated alarms and status indications are illuminated:

___ ♦ 2BS-411C

___ ● 2RP4 - OVER TEMPERATURE ΔT, CH I

___ ● 2CC2 - 1/4 OT D/T RX TRIP SETPOINT

___ ♦ 2BS-411D

___ ● 2RP4 - OVER TEMPERATURE ΔT, CH I.

___ ● 2CC2 - OT D/T ROD BLOCK & TURBINE RUNBACK

___ 5.1.8 At POWER RANGE A, N41A Drawer front panel, **REMOVE** both 118V, 5A, AC CONTROL POWER fuses, AND **ENSURE** CONTROL POWER ON lamp is extinguished.

___ 5.1.9 IF active troubleshooting will NOT be performed within 8 hours, OR a power decrease below 10% is planned, OR CRS/SM determines lead lift AND jumper installation is necessary, THEN Direct Maintenance to **COMPLETE** Attachment 1, Section 1.0. **[C0178]**

___ 5.1.10 IF leads were lifted, OR jumpers installed IAW Attachment 1, THEN RECORD Status in Tech Spec Log.