OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Reactor Protection System (RPS)

TASK: Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.

TASK NUMBER: 1130070501

JPM NUMBER: 16-01 NRC IP-j

ALTERNATE PATH: [ ]

K/A NUMBER: 012 A4.06

IMPORTANCE FACTOR: 4.3 (RO) 4.3 (SRO)

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

EVALUATION SETTING/METHOD: In Plant / Simulate

REFERENCES: S1.OP-AB.CR-0001, Rev. 18 (checked 12-14-17)

TOOLS AND EQUIPMENT: JAM Key

VALIDATED JPM COMPLETION TIME: 25 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: R. Chan Rudolph Chan Instructor **Date:** 12-14-17

Validated By: N/A R 12-14-17 SME or Instructor **Date:** N/A

Approved By: Training Department M. Hugh **Date:** 12/15/17

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

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 IP-j

Rev #	Date	Description	Validation Required
00	9-20-17	Added revision history and simulator setup pages. Editorial comments from IP 71111.11 FASA. Incorporated comments from validation.	No
01	12-14-17	Incorporated NRC Prep week comments to perform the task on Unit 1. Revalidation not required based on location of components in the same area on Unit 1. Added cue to address potential arch flash PPE requirements.	No

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Reactor Protection System (RPS)

TASK: Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.

TASK NUMBER: 1130070501

SIMULATOR IC: **N/A**

MALFUNCTIONS / REMOTES: N/A

OVERRIDES: N/A

SPECIAL INSTRUCTIONS:

- **This JPM is located inside the RCA.**
- **Evaluator must have a JAM key to give to operator at start of JPM. Operators do not have individual JAM keys! Check out key #8 at Work Control Center.**
- **Notification to control room will be required when opening panel door in the charging valve alley.**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Protection System (RPS)

TASK: Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.

TASK NUMBER: 1130070501

INITIAL CONDITIONS:

- The **Unit 1** Control Room has been evacuated in accordance with S1.OP-AB.CR-0001, Control Room Evacuation.
- A reactor trip from 100% was initiated prior to evacuating the Control Room, but the reactor failed to trip from the control room.

INITIATING CUE:

- You are the Reactor Operator.
- The CRS directs you to locally trip open the Reactor Trip Breakers and take local control of charging flow by **PERFORMING** Steps 1 thru 9 IAW Attachment 5 of S1.OP-AB.CR-0001, Control Room Evacuation.

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. **Locally OPEN Reactor Trip and Bypass Breakers**
2. **Locally controls 1CV55 to maintain charging flow.**

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
		Lead Evaluator provides blank copy of S1.OP-AB.CR-0001, Control Room Evacuation, Attachment 5, pages 1 & 2 only, **a JAM Key**, and **state: "You have a radio and all other required keys."**			
	CUE:	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME:**_____			
		Operator reviews a copy of S1.OP-AB.CR-0001, Att. 5, and proceeds to El. 84 switchgear room (outside RCA).			
	1.0	**OBTAIN** the following: • One copy of this procedure. • One radio (located in Appendix "R" Cabinet) • Key ring set and tools (JA Master, Breaker Keyswitch, screwdriver and adjustable wrench). • A Security Master Key from the Unit 1 CRS (located on the Unit 1 Security Key Ring)	**Cue**: Operator has been provided all the required items.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
*	2.0	**PROCEED** to Rod Drive MG Set Control Panel (460V Vital Bus Room-El 84'), AND **OPEN** the following breakers: 2.1 Reactor Trip Breaker A 2.2 Reactor Trip Breaker B 2.3 Reactor Trip Bypass Breaker A 2.4 Reactor Trip Bypass Breaker B.	**Operator simulates opening each breaker by removing cover and depressing the TRIP pushbutton until the breaker flag indicates OPEN.** **Cue:** For each breaker that is simulated open, state: the breaker indicates OPEN. **Note:** Operator only opens Reactor Trip Breakers that are currently racked in and closed. Typically the Reactor Bypass Trip Breakers are Open and racked out. So these breakers would be N/A.		
	3.0	**CONFIRM** with the Hot Shutdown Panel Operator (PO) that 11 or 12 Charging Pump is operating.	**Cue:** 11 charging pump is operating.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
	CUE		**Evaluators Note**: The breakers that will be operated have labels that state "**Do Not Operate Controls or Open Covers Without Appropriate PPE. NFPA 78E**". **IF** the operator STOPS and questions whether the breaker can be operated with existing PPE, THEN use the following cue: **Cue:** Your supervisor states that the breakers your will be operating poses NO arc flash hazard and your current PPE is adequate to operate these breakers. (Reference SA-AA-129, page 32, section 4.5.5 step 25 and Table 4 provides basis for this direction)		
	4.0	**PROCEED** to 1AX1AX7X, #13 Charging Pump breaker AND **OPEN** the breaker.	Locates 1AX1AX7X, #13 Charging Pump breaker AND depresses the trip PB to open the breaker. [location: 84' EL. SGWR Room, 1A 460 V MCC] **Cue**: The breaker indicates OPEN.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
	5.0	**PROCEED** to 1C West Valve & Misc 230V Control Center-El 84', AND **OPEN** Breaker 1CY2AX4I, 1CV175-Rapid Borate Stop Valve.	Locates 1C West Valve & Misc 230V Control Center-El 84', and opens Breaker 1CY2AX4I, 1CV175-Rapid Borate Stop Valve, by rotating switch to OFF positon. [location: Inside RCA, 84' EL. Aux Bldg., across from AFW pumps] **Cue**: The breaker is in OFF position.		
	6.0	**NOTIFY** the CRS of the following: 6.1 The Reactor Trip and Bypass breakers are OPEN 6.2 #13 Charging Pump Breaker is OPEN.	**Cue**: CRS understands the Reactor Trip and Bypass breakers are open and #13 Charging Pump Breaker is open.		
	7.0	**CONFIRM** with NEO #1 that 1CV71, Chr Hdr PCV, is isolated (1CV70) and bypassed (1CV73) and that flow is being maintained to RCP seals at flowrate of 6 to 10 gpm to each seal.	Contacts NEO #1 and confirms that 1CV71, Chr Hdr PCV, is isolated (1CV70) and bypassed (1CV73) and that flow is being maintained to RCP seals at flowrate of 6 to 10 gpm to each seal. **Cue:** NEO #1 reports 1CV71, Chr Hdr PCV, is isolated (1CV70) and bypassed (1CV73), and that flow is being maintained to RCP seals at flowrate of 6 to 10 gpm to each seal, currently 8 gpm each.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
			Proceeds to Unit 1 Panel 216-1, Chg Pmps FL & PR Inst Pnl. (84' EL. Aux Bldg, Charging valve Alley) **Note:** Panel 216-1 will alarm in the Control Room. **The Control Room must be notified prior to opening this panel, and when it is secured.**		
	NOTE	The following indications and controls are available for local operation at Unit 1 CVC Chg Pmps FL & PR Inst Pnl, Panel 216-1: ▪ 1CV55 AUTO/MANUAL Selector Switch (1HC-128G No. 11 & 12 Charging Pumps Flow to Regen HX) ▪ 1CV55 Manual HAND/AIR Regulator Control ▪ Charging Pump Flow Indication, 1FI-128A ▪ 11 and 12 Charging Pump Pressure Indication, 1PI-142B ▪ VCT Level Indication 1LT-114.	Operator reads the Note and continues on. **Operator proceeds into the Aux Bldg 84' EL., Charging Pump Alley (RCA entry)** **Note:** Use caution (situational awareness) when entering the Charging Valve Alley for hazards such as low hanging pipes and bump hazards near valve operators.		
	8.0	**TAKE** control of 1CV55, Cent Chg Pmp Flow Cont Valve, by performing the following:			

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
	8.1	**RECORD** the charging flow as indicated on 1FI-128A. _____ gpm indicated on 1FI-128A	Records charging flow from 1FI-128A, Charging Pump Flow Indication. **Note:** Typical charging flow is about 87-89 gpm. However, this could be different based on plant evolutions in progess during the time this JPM is being performed.		
*	8.2	**PLACE** local E/P Bypass Line Selector Valve in Manual.	**Locates local E/P Bypass Line Selector Valve and simulates rotating valve clockwise to Manual position.** **Cue:** E/P Bypass Line Selector Valve is in the Manual position.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
*	8.3	Using the MANUAL hand air operator, **ENSURE** that the flow rate as noted in Step 8.1 is being maintained with 1CV55.	Reads flowrate from 1FI-128A, Charging Pump Flow Indication to ensure the flow rate is maintained with 1CV55. **Cue:** Flow rate has LOWERED 10 gpm from flow rate recorded in Step 8.1. **Operator adjusts the Manual Hand Operator in the counter clockwise direction to LOWER air pressure to OPEN 1CV55 and RAISE charging flow.** **Cue:** Flow on 1FI-128A reads the value recorded in Step 8.1. **IF** operator rotates the hand sender in the clockwise direction, THEN report flow reads 15 gpm LOWER than the flow rate noted in Step 8.1 **Note:** 1CV55, Cent Chg Pmp Flow Cont Valve is fail open valve; air to close. Raises air pressure to lower flow or Lowers air pressure to raise flow.		
	8.4	**OBSERVE** local air pressure indicator to verify local control.	Points out local air pressure indicator. **Cue:** Air pressure on local air pressure indicator is 8 psig.		

SYSTEM: **Reactor Protection System (RPS)**

TASK: **Locally Open Reactor Trip Breakers and Control Charging Flow Following Control Room Evacuation IAW S1.OP-AB.CR-0001.**

* #	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)
	9.0	**NOTIFY** the CRS and STA that Steps 1 through 8 of Attachment 5 are completed.	Cue: CRS and STA understand that steps 1 thru 8 of Attachment 5 are complete.		
	CUE:	**JPM is Complete** **RECORD** the STOP TIME. **STOP TIME:**_____	**Terminate JPM when operator completes Step 9.0.**		

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM#: 16-01 NRC IP-j

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: _____

SME/Instructor:_____ Date: _____

INITIAL CONDITIONS:

- The **Unit 1** Control Room has been evacuated in accordance with S1.OP-AB.CR-0001, Control Room Evacuation.
- A reactor trip from 100% was initiated prior to evacuating the Control Room, but the reactor failed to trip from the control room.

INITIATING CUE:

- You are the Reactor Operator.
- The CRS directs you to locally trip open the Reactor Trip Breakers and take local control of charging flow by **PERFORMING** Steps 1 thru 9 IAW Attachment 5 of S1.OP-AB.CR-0001, Control Room Evacuation.