OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed Open Pressurizer Spray Valve IAW S2.OP-AB.PZR-0001

TASK NUMBER: 1140240401

JPM NUMBER: 19-01 NRC Sim-a

ALTERNATE PATH: [X] **K/A NUMBER:** 010 A4.01

IMPORTANCE FACTOR: 3.7 (RO) 3.5 (SRO)

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

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-AB.PZR-0001, Rev. 18 (checked 6-17-20)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 5 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

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

Validated By: **Kovalcsik / Chapman** **SME or Instructor** **Date: 6-17-20**

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-a

Rev #	Date	Description	Validation Required
00	3-12-18	Added revision history and simulator setup pages. Editorial comments from IP 71111.11 FASA. Incorporated changes to 2-EOP-APPX-1 Rev. 25.	Yes
01	7-19-18	Added step 3.33 if CAS action is taken first. Identified an alternate step at which the JPM can be terminated. These changes do not require re-validation since they do not change the course of actions previously validated that the operator is required to perform to meet the task standard. See Rev. 0 for validator approvals.	No
02	9-17-19	**MODIFIED JPM** that initial failure is with PZR pressure channel failing high then the Alternate Path is one of the spray valves fails to fully close requiring a reactor trip and stopping RCPs. 010 K/A A4.01: Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: PZR spray valve	Yes
03	6-17-20	Incorporated NRC Prep Week comments to modify the alternate path such that the 2PS1 fails fully open and operator can take to manual and close. Modified Task Standard to stops RCS pressure decrease or stops 21 and 23 RCPs.	Yes

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

TASK NUMBER: 1140240401

SIMULATOR IC: IC-201

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	PR0016A, PZR Press Channel 1 fails high	N/A	N/A	N/A	RT-1	2500
02	PR0019A, 2PS1 Spray Valve fails open	N/A	N/A	N/A	ET-5	TRUE

3. These malfunctions will simulate a PZR Pressure channel failing high causing both spray valves to fully open. RCS pressure will rapidly lower. [Alternate Path] When operator takes manual control of MPC and lowers demand to close spray valves, the operator will recognize that the 2PS1 is fully open. The operator will place 2PS1 in manual and close 2PS1.

OVERRIDES / REMOTES:

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

EVENT TRIGGERS:

ET#	Description	Command
5	QB214PRI, MPC Pressure Increase PB	
6	KB214DMI, 2PS1 PZR Spray Control Manual	DMF PR0019A

SPECIAL INSTRUCTIONS:

- Additional instructor to assist in silencing alarms following reactor trip.
- **PROVIDE** Examiner copy of S2.OP-AB.PZR-0001.

NAME: _____

DATE: _____

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

TASK NUMBER: 1140240401

INITIAL CONDITIONS:

- The Unit 2 is operating at 100% power with no major equipment out of service.

INITIATING CUE:

- You are the Reactor Operator.
- Respond to all indications and alarms.
- Your evaluator will respond to all alarms not related to your task.

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. Stops the RCS pressure decrease by closing 2PS1, or Trips the Reactor and stops 21 and 23 RCPs, before an Automatic SI occurs.

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	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:	**Examiner's Note**: Have a copy of S2.OP-AB.PZR-0001 on hand to follow along with candidate.			
	CUE:	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME**:_____			
	CUE:	**Simulator Operator:** Insert **RT-1** on direction from Lead Examiner. **PR0016A** , PZR Pressure Channel 1 fails high	**Examiner's Note**: During validation it took approx. 1 minute and 45 seconds for the Auto RX Trip to occur with NO operator action taken.		

NAME: _____

DATE: _____

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* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	NOTE	**Examiner's Note**: When the PZR Pressure channel failure is inserted, the following actions may be taken by the operator **PRIOR** to entering AB.PZR-0001 first: 1. Place Master Pressure Controller in Manual. 2. Lower demand on MPC (Press Inc PB) to close spray valves 3. Places 2PS1 in Manual and depresses close pushbutton			
	CUE:	The following alarms will come after RT-1 is inserted: • **OHA D-8, RC PRESS HI** • **OHA E-42, 2PR1 1/2 TRIP**	Operator scans the control board and recognizes that PZR Pressure Channel 1 is failed high.		
	NOTE	**Examiner's Note**: IF the operator enters AB.PZR-0001 first, THEN go to **Page 8 for AB.PZR-0001 Steps.** **The steps below are actions taken by the operator from memory based on the rapid RCS pressure decrease with both spray valves open**.			

OPERATIONS TRAINING PROGRAM

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TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*		Operator takes manual control of Master Pressure Controller.	**Operator depresses the MANUAL pushbutton for the Master Pressure Controller (MPC)**		
*		Operator LOWERS demand on MPC to close spray valves. **Simulator Operator**: ENSURE **ET-5** is TRUE when the MPC PRESS INC PB is depressed. This will insert malfunction to fail open 2PS1.	**Operator depresses the PRESS INC pushbutton on the MPC to lower the demand.**		
		ALTERNATE PATH STARTS HERE:	**2PS1 Spray Valve Fails Fully Open**		
		When MPC demand is zero or adjusted for closing both spray valves, the operator recognizes that 2PS1 is fully open.	Operator reports 2PS1 is remains fully OPEN.		

OPERATIONS TRAINING PROGRAM

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TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*		Operator places 2PS1 in Manual and closes 2PS1. **Simulator Operator**: ENSURE **ET-6** is TRUE when 2PS1 MANUAL PB is depressed. This will delete malfunction for failed open spray valve and allow operator to close the 2PS1.	**Operator depresses MANUAL pushbutton for 2PS1 and then depresses the CLOSE pushbutton.** **Note:** 2PS1 valve demand will lower, but It will take a few seconds for the 2PS1 to stroke close. **JPM COMPLETE when 2PS1 is CLOSED**		
		Operator reports 2PS1 is closed and RCS pressure is stable or raising.			
	AB.PZR	**Enters S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction**	Enters **S2.OP-AB.PZR-0001** directly or via OHA D-8 OR E-42 ARP. **Examiner's Note*:*** It is acceptable to attempt closing 2PS1 prior to entering S2.OP-AB.PZR-001.		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.1	**INITIATE** Attachment 1 Continuous Action Summary. IF AT ANY TIME RCS pressure drops to 2000 psig and continues to drop, THEN: 1. **TRIP** the Reactor 2. **GO TO** 2-EOP-TRIP-1, Reactor Trip or Safety Injection, AND **CONTINUE** with this procedure.	Initiates Attachment 1 Continuous Action Summary. **IF** a Manual or Automatic Rx Trips occurs at this point, THEN use the following CUE **CUE: The crew will implement EOP-TRIP-1, CRS directs you to continue performing AB.PZR-0001** **Examiner's Note: IF the operator initiates the CAS here, THEN the operator actions below performed IAW AB.PZR-0001 are Critical Steps:** **1. Trips the Reactor** **2. Stops 21 and 23 RCPs**		
	3.2	Is POPS in service?	No - Determines POPS is not in service by initial conditions or console indications.		
	3.3	Is the controlling Pressurizer Pressure Control Channel (I or III) failed?	YES - Determines Pressurizer Pressure Control Channel I is failed.		
*	3.5	PLACE the Master Pressure Controller in MANUAL	**PLACES MPC in MANUAL (if not previously performed).**		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Pressurizer Pressure Control System

TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	3.6	ADJUST MPC demand signal to be consistent with Attachment 2, to restore pressure to program value. **Simulator Operator**: **ENSURE ET-5** is TRUE when operator places MPC in Manual and depresses the Increase Pressure pushbutton on MPC. This will insert the malfunction for 2PS1 failing open,	**Operator ADJUSTS MPC demand using Attachment 2.** **Examiner's Note**: MPC demand should eventually be adjusted to 0% to close spray valves and turn on PZR heaters.		
	3.6	SELECT the other Pressure Control Channel	Operator selects Channel 3.		
	3.7	RETURN the MPC to AUTO	Operator places MPC in AUTO		
		ALTERNATE PATH STARTS HERE:	**2PS1 Spray Valve did not fully close**		
		2PS1 Spray Valve not fully closed	Operator recognizes 2PS1 is not fully closed based on OPEN indication and 100% demand. **Examiner's Note**: Operator can go back to beginning of procedure or go directly to Step 3.17.		
	3.17	Is a Spray Valve(s) failed? (Refer to Attachment 2 for guidance)	Yes - Determines 2PS1 is NOT fully closed.		

OPERATIONS TRAINING PROGRAM

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TASK: Respond to Failed open Pressurizer Spray Valve IAW AB.PZR-1

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	3.18	**PLACE** the Spray Valve(s) in MANUAL **Simulator Operator**: ENSURE **ET-6** is TRUE if operator depresses CLOSED pushbutton for 2PS1. This will delete malfunction for 2PS1 fail open and allow operator to close the valve.	**Depresses MANUAL PB for 2PS1.**		
*	3.19	**OPERATE** the Spray Valves to control pressure consistent with Attachment 2.	**Depresses the CLOSE PB for 2PS1 and recognizes that 2PS1 demand is lowering and open light has extinguished.** Note: It will take a few seconds for the 2PS1 to stroke close **Operator reports 2PS1 is CLOSED**. **JPM COMPLETE**		
	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:_____**	**JPM is COMPLETE when the 2PS1 is closed.**		

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. __18___ Date ____6-17-20_____

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

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

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

SME/Instructor: R. Chan Date: 6-17-20

SME/Instructor: M. Chapman Date: 6-17-20

SME/Instructor: D. Kovalcsik Date: 6-17-20

INITIAL CONDITIONS:

- The Unit 2 is operating at 100% power with no major equipment out of service.

INITIATING CUE:

- You are the Reactor Operator.
- Respond to all indications and alarms.
- Your evaluator will respond to all alarms not related to your task.