

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-1

Task Title: Perform an RCS Dilution

Task Number: 00401401 01

K/A Reference: 004 A4.12 (3.8, 3.3)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

- 1. The unit is in Mode 3 with preparations in progress for a reactor startup this shift.**
- 2. Chemistry has reported current boron concentration as 870 ppm. Per an ECP prepared by Reactor Engineering, boron concentration must be adjusted to 850 ppm before rod withdrawal begins.**  
**NOTE: Any boron concentration values can be used for this JPM by adjusting the values in the JPM IAW the REM Figures. Ensure that sufficient latitude exists for interpolation between exponential curves when determining critical tasks.**

Task Standard:

**Reduce RCS boron concentration by the specified amount through dilution IAW plant procedures.**

Evaluation 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.**

Required Materials:

**None**

General References:

1. **S2.OP.SO.CVC-0006, "Boron Concentration Control"**
2. **S2.RE.RA.ZZ-0012, "Figures"**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**The unit is in Mode 3 with preparations in progress for a reactor startup this shift.**

Time Critical Task:

**No**

Validation Time:

**15 minutes**

Simulator Setup:

1. **Any HSB IC with Tav<sub>g</sub> approx. 547 °F.**
2. **CVCS Makeup Control Mode Select in AUTO with boron flow setpoint at approximately 7 gpm and primary water flow setpoint at approximately 70 gpm.**

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Operator obtains S2.OP-SO.CVC-0006	<i>NOTE:</i> Category II procedure use requirements apply		
#	2	DEPRESS the Makeup Control Mode Select STOP PB.	Presses the STOP pushbutton, STOP PB light illuminates		
	3	ENSURE following valves in AUTO: <ul style="list-style-type: none"> <li>• 2CV179, PRI WTR FLOW</li> <li>• 2CV181, MAKEUP FLOWPATH</li> <li>• (2CV185, MAKEUP FLOWPATH)</li> <li>• 2CV172, BORIC ACID FLOW</li> </ul>	(2CV185, MAKEUP FLOWPATH only if ALT DIL is used)  Verifies AUTO light illuminated for listed valves		
#	4	OBTAIN Primary Water Flow setpoint for desired dilution rate from REM, Fig. 102.	<i>CUE:</i> Accomplish the dilution over the next 30 minutes period		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
* #	5	ADJUST 2CV179 setpoint to value obtained in previous step.	Adjusts 2CV179 setpoint to 45-67gpm (calculation is 49 gpm)		
#	6	DETERMINE amount of Primary Water required for dilution from REM, Fig. 101	Determines 1400-2000 gals. required (calculation is 1472)		
* #	7	Set Primary Water Flow Register to number of gallons as follows: <ul style="list-style-type: none"> <li>• DEPRESS LIMIT 1 keypad</li> <li>• IF desired value is not displayed, THEN DEPRESS CLR keypad and enter desired value</li> <li>• DEPRESS ENT keypad</li> </ul>	Sets Primary Water Flow Register to 1400-2000 gals		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	8	ENSURE at least one Primary Water Pump in AUTO	Verifies one PW Pump AUTO light is illuminated.		
* #	9	DEPRESS Makeup Control Mode Select DILUTE PB (or ALT DIL if chosen)	DILUTE PB illuminated (or ALT DIL if chosen)		
* #	10	DEPRESS Makeup Control Mode Select START PB	START PB illuminated		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	11	ENSURE following actions occur: <ul style="list-style-type: none"> <li>• 2CV172 CLOSES</li> <li>• PW Pump selected to AUTO, STARTS</li> <li>• 2CV181 OPENS</li> <li>• (2CV185 OPENS)</li> <li>• 2CV179 MODULATES to setpoint flow</li> <li>• Primary Water Flow Register indicates desired flow</li> <li>• IF VCT level increases to 78%, THEN ENSURE letdown diverts to CVCS HUT</li> </ul>	(2CV185, MAKEUP FLOWPATH only if ALT DIL is used)  Verifies proper response		
	12	When the dilution is complete, DEPRESS Makeup Control Mode Select STOP PB	<i>CUE:</i> Assume the Primary Water Flow Register has reached the setpoint  STOP PB illuminated		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	13	ENSURE following actions occur: <ul style="list-style-type: none"> <li>● PW Pump selected for AUTO, STOPS.</li> <li>● 2CV181 CLOSES</li> <li>● (2CV185 CLOSES)</li> <li>● 2CV179 CLOSES</li> </ul>	(2CV185, MAKEUP FLOWPATH only if ALT DIL is used)  Verifies the green light illuminates for the PW Pump in AUTO and 2CV181, 2CV185 and 2CV179 CLOSE		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     NRC H-1    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_                   UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

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**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

- The unit is in Mode 3 with preparations in progress for a reactor startup this shift.
- Chemistry has reported current boron concentration as 870 ppm. Per an ECP prepared by Reactor Engineering, boron concentration must be adjusted to 850 ppm before rod withdrawal begins.

**INITIATING CUE:**

You are the RO. Perform the necessary calculations and adjust RCS boron concentration to 850 ppm over a 30 minutes period.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-2

Task Title: Take Corrective Action For High Activity In The Reactor Coolant

Task Number: 1140270401

K/A Reference: 004 A2.09 (3.0, 3.9)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

1. The unit is at 100% power.
2. An alarm has actuated on 2RP1 Radiation Alarm Annunciator Panel.

Task Standard:

**Shift charging pumps and increase letdown flow rate IAW plant procedures.**

Evaluation 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.

Required Materials:

**None**

General References:

1. S2.OP-AR.ZZ-0015(Q), 2RP1 Radiation Alarm

2. **S2.OP-AB.RAD-0001(Q), Abnormal Radiation**
3. **S2.OP-AB.RC-0002(Q), High Activity in Reactor Coolant System**
4. **S2.OP-SO.CVC.0002(Q), Charging Pump Operation (5.6)**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the RO and are directed to respond to the alarm.**

Time Critical Task:

**No**

Validation Time:

**15 minutes**

Simulator Setup:

1. **Any full power steady state IC.**
2. **Place 23 CCP in service, with 21 and 22 CCPs in standby. Align letdown flow through 45 gpm orifice.**

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	<b>DETERMINE</b> the affected channel by observing indicators, annunciators on 2RP1, RMS Computer, and the Annunciator CRT.	Checks 2RP1, RMS computer, and annunciator CRT. Observes RADIATION ALARM PROCESS in alarm on 2RP1. Determines that 2R31, Letdown Line Failed Fuel monitor in high alarm.		
	2	<u>IF</u> the alarming Monitor is valid, <u>THEN GO TO</u> S2.OP-AB.RAD-0001(Q), Abnormal Radiation.	Refers to S2.OP-AB.RAD-0001.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	3	Is the alarm, warning, or rising indication valid? (EVALUATE the following): <ul style="list-style-type: none"> <li>• Chemistry Sampling</li> <li>• Rising activity on related Radiation Monitors</li> <li>• Maintenance activities in vicinity of radiation detector</li> <li>• Transfer of radioactive resins or other materials in affected area</li> <li>• No indication of failure or fault on affected Radiation Monitor</li> <li>• Radioactive release from Salem or Hope Creek</li> </ul>	Observes increased activity on containment area radiation monitors.  <i>NOTE:</i> May ask Chemistry for RCS activity sample.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	4	<b>ANNOUNCE</b> the following on Plant PA system: <ul style="list-style-type: none"> <li>• Affected Radiation Monitor number and name</li> <li>• Location of Radiation Monitor area with elevated indication</li> </ul>	Makes PA announcement that Unit 2 Letdown Line Failed Fuel radiation monitor 2R31 is in high alarm.		
	5	<b>NOTIFY OS/CRS</b> to REFER to Event Classification Guide, ODCM and Technical Specifications.	Notifies CRS.  <b>CUE:</b> CRS acknowledges communication.		
	6	<b>INITIATE</b> the applicable attachment for affected Radiation Monitor.	Initiates Attachment 1 for 2R31 monitor alarm.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	7	<u>IF</u> 2R31, Letdown Line-Failed Fuel, is the affected monitor, <u>THEN GO TO</u> S2.OP-AB.RC-0002(Q), High Activity in the Reactor Coolant.	Refers to S2.OP-AB.RC-0002(Q), High Activity in the Reactor Coolant.		
	8	<b>INITIATE</b> Attachment 1, Continuous Action Summary.	Refers to Attachment 1.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	9	<p><b>IF AT ANY TIME</b>, Reactor Coolant activity is rising, approaching <u>OR</u> exceeded Technical Specification limits <u>OR</u> as directed by Station Management, <u>THEN</u> as applicable:</p> <ul style="list-style-type: none"> <li>• <b>REDUCE</b> Reactor Power IAW S2.OP-IO.ZZ-0004(Q), Power Operation, to attempt to establish equilibrium.</li> <li>• <b>COMMENCE</b> Power Reduction IAW S2.OP-AB.LOAD-0001(Q), Rapid Load Reduction <u>AND</u> COOLDOWN plant to <math>T_{avg} &lt; 500^{\circ}\text{F}</math>.</li> <li>• <b>REDUCE</b> Reactor Power IAW S2.OP-IO.ZZ-0004(Q), Power Operation, at rate and to power level specified by Assistant Mngr-Ops / Mngr - Salem Ops.</li> </ul>	<p><b>CUE:</b> If asked, Manager – Salem Operations directs maintain current power level while chemistry determines severity of problem and proposes course of action.</p>		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	10	<b>REQUEST</b> Shift Chemistry Technician initiate confirmatory sample analysis of suspected rise in RCS activity. (Gamma Scan)	Contacts Shift Chemistry, requests RCS activity sample.		
	11	<b>REQUEST</b> Radiation Protection initiate surveys to determine if any Plant areas have abnormal radiation levels due to rise in RCS activity.	Contacts Radiation Protection, requests radiation surveys.		
	12	<b>NOTIFY</b> Primary NEOs that high activity in RCS is suspected.	Informs Primary NEOs of suspected high RCS activity.		
	13	Do results of confirmatory sample analysis confirm high or increasing activity in RCS?	<b>CUE:</b> Chemistry reports preliminary scan of RCS sample indicates elevated RCS activity.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	14	<b>NOTIFY OS/CRS</b> to refer to the following: <ul style="list-style-type: none"> <li>• Technical Specifications</li> <li>• Event Classification Guide</li> <li>• NC.NA-AP.ZZ-0071(Q), Fuel Integrity Program</li> </ul>	Informs CRS that procedure directs review of TS, Event Classification Guide and Fuel Integrity Program procedure.		
	15	Is reactor coolant activity below Technical Specification Limits?	<b>CUE:</b> Chemistry reports RCS sample activity level 0.65 uCi/gm Dose Equivalent I-131.  <b>NOTE:</b> RCS activity is less than TS limit. Continues with procedure.		
	16	<b>EVALUATE</b> , with assistance from Shift Chemistry Technician, maximizing Letdown flow and CVCS demineralizer lineup for maximum RCS purification.	<b>CUE:</b> Chemistry requests maximum letdown flowrate.  <b>NOTE:</b> If necessary, as CRS, direct the applicant to align charging and letdown to maximize letdown.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	17	<b>IF</b> 23 Charging Pump in operation, <b>TRANSFER</b> to a Centrifugal Charging Pump IAW S2.OP-SO.CVC-0002(Q), Charging Pump Operation.	Refers to S2.OP-SO.CVC-0002(Q), Charging Pump Operation, Section 5.6, Transfer From 23 Charging Pump to a Centrifugal Charging Pump.		
	18	<b>ENSURE</b> Centrifugal Charging Pump Auxiliary Oil Pump controller is selected to AUTO	<b>CUE:</b> Charging Pump Auxiliary Oil Pump controller is in AUTO.		
	19	<b>ENSURE OPEN:</b> <ul style="list-style-type: none"> <li>• 2CV139, CHARGING MINIFLOW</li> <li>• 2CV140, CHARGING MINIFLOW</li> </ul>	Determines 2CV139 and 2CV140 are open.		
*	20	<b>PLACE</b> 23 Charging Pump in MANUAL.	Places 23 Charging Pump in MANUAL.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	21	<b><u>IF</u></b> 2CV55 is available, <b><u>THEN</u></b> A. <b>ENSURE</b> 2CV55 in MANUAL.	Verifies 2CV55 is in MANUAL.		
	22	B. <b>PLACE</b> 2CA2015, CONTROL AIR SUPPLY TO CV55 BYPASS VALVE, in BYPASS.	Directs NEO to place 2CA2015 in BYPASS.  <i>CUE:</i> NEO reports 2CA2015 has been placed in BYPASS.		
*	23	C. <b>CLOSE</b> 2CV55	Closes 2CV55.		
*	24	D. <b>START</b> a Centrifugal Charging.	Starts 21 or 22 Centrifugal Charging Pump.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	25	E. <b>ENSURE</b> Centrifugal Charging Pump lube oil pressure is 10 psig at Lube Oil Filter Strainer Outlet Pressure Gauge (2PL8486 for 21 or 2PL8487 for 22) as applicable.	<i>CUE:</i> When equipment operator is asked, inform RO/PO that lube oil pressure on running centrifugal charging pump is 19 psig.		
	26	F. <b>ENSURE</b> Auxiliary Oil Pump is no longer operating.	<i>CUE:</i> Auxiliary Oil Pump is no longer operating.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	27	G. Simultaneously <b>PERFORM</b> the following: <ul style="list-style-type: none"> <li>• Slowly <b>DECREASE</b> 23 Charging Pump speed demand.</li> <li>• <b>ADJUST</b> 2CV55 to maintain desired flow.</li> </ul>	Decreases 23 Chg Pump speed demand.  Adjusts 2CV55 to maintain desired flow.		
*	28	H. <b>WHEN</b> 23 Charging Pump Speed Demand is at <b>MINIMUM</b> , <b>STOP</b> 23 Charging Pump.	Stops 23 Charging Pump after reducing speed demand to minimum.		
*	29	I. <b>ADJUST</b> 2CV55 to obtain desired flow.	Adjusts flow by throttling 2CV55 to support maximizing letdown flow.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	30	J. <u>IF</u> normal charging flow is required for current RCS conditions, <u>THEN</u> <b>PLACE</b> 2CA2015, CONTROL AIR SUPPLY TO CV55 BYPASS VALVE, in NORMAL.	Directs NEO to place 2CA2015 in NORMAL.  <i>CUE:</i> NEO reports 2CA2015 has been placed in NORMAL.		
	31	K. <u>IF</u> Pressurizer level will be maintained within normal band, <u>THEN</u> : 1. <b>PLACE</b> Master Flow Controller in AUTO. 2. <b>PLACE</b> 2CV55 in AUTO.	Places Master Flow Controller in AUTO.  Places 2CV55 in AUTO.  <i>NOTE:</i> May leave controllers in manual until letdown flow has been maximized.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	32	L. <b>ENSURE</b> Seal Injection Flow 6-12 gpm to each Reactor Coolant Pump not to exceed 40 gpm total Seal Injection Flow.	Verifies total seal injection flow less than 40 gpm and individual pump injection flows between 6 and 12 gpm. Adjusts if necessary.		
	33	M. <b>THROTTLE</b> 2CC78, SEAL WTR HX CC THROT VALVE, to maintain Seal Water Heat Exchanger outlet temperature 95-100°F on 2TI120	Directs NEO to report heat exchanger CCW outlet temperature.  <i>CUE:</i> NEO reports outlet temperature steady at 97°F.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	34	<p><b>ENSURE</b> Service Water supply to lube oil heat exchanger by checking associated Aux Alarm point change of state:</p> <ul style="list-style-type: none"> <li>• Point #0793, 21 CHG PMP LUBE OIL CLR CONTR VA 2SW185, OFFNORPOS</li> <li>• Point #0804, 22 CHG PMP LUBE OIL CLR CONT VA 2SW199/OFFNORPOS</li> </ul>	<p>Verifies appropriate point state for the running centrifugal charging pump.</p>		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	35	Raise Letdown flow to maximum as follows: A. Take manual control of 2CV18, NON-REGEN HX OUTLET VALVE, <u>AND CONTROL</u> Letdown pressure at $\approx 300$ psig while performing the following: 1. <b>OPEN</b> one 75 gpm orifice: <ul style="list-style-type: none"> <li>• 2CV4 (75 GPM ORIFICE)</li> <li>• 2CV5 (75 GPM ORIFICE)</li> </ul> 2. <b>OPEN</b> 2CV3, 45 GPM ORIFICE 3. <b>ENSURE</b> Letdown flow through Mix Bed is $\leq 130$ gpm.	Places 2CV18 in MANUAL. Adjusts valve to maintain $\sim 300$ psig letdown pressure while aligning letdown orifices.  Opens 2CV4 OR 2CV5.  Opens 2CV3.  Verifies letdown flow rate $\leq 130$ gpm.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	36	RETURN 2CV18 to AUTO.	Places 2CV18 back in AUTO.  <i>TERMINATING CUE:</i> 2CV18 in AUTO. Task is complete.		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:           NRC H-2          

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

## EXAMINEE'S CUE SHEET

INITIAL CONDITIONS:

- The unit is at 100% power.
- An alarm has actuated on 2RP1 Radiation Alarm Annunciator Panel.

INITIATING CUE:

You are the RO and are directed to respond to the alarm.

Facility: **SALEM 1&2**Job Performance Measure No.: **NRC H-3**Task Title: **Perform Actions For A Transfer To Cold Leg Recirculation**Task Number: **1150100501**K/A Reference: **EPE 011 EA1.11 (4.1, 4.1)**Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**A LBLOCA has occurred. All ECCS equipment functioned as designed. The vital buses are powered from the switchyard. The transition to LOCA-3 (from LOCA-1) was just made following actuation of the RWST LO Level alarm. The simulator operator will be the EOP reader.**

Task Standard:

**Transfer to cold leg recirculation in accordance with EOPs.**

Evaluation 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.**

Required Materials:

**None**

General References:

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**1. 2-EOP-LOCA-3, "Transfer to Cold Leg Recirculation"**

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Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the RO/PO. Transfer to cold leg recirculation in accordance with LOCA-3. This task is time critical. IAW the procedure you should close SJ69 within 3 minutes and complete the shift to cold leg recirculation within 11.7 minutes, as evidenced by closing SJ30, SJ1 and SJ2. The clock starts with the reading of the first step.**

Time Critical Task:

**Yes. See initiating cue.**

Validation Time:

**9 minutes**

Simulator Setup:

- 1. Run LBLOCA malfunction from any full power steady state IC.**
- 2. Follow procedures (TRIP-1, LOCA-1, LOCA-3) to align plant as expected up to point where RWST LOW level alarm received.**
- 3. Freeze simulator at point where RWST LOW level alarm in. Snapshot simulator for use on subsequent administration of this JPM.**
- 4. Generate a marked-up copy of LOCA-1 for use by the applicant(s).**

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Operator obtains 2-EOP-LOCA-2	<i>NOTE:</i> Category II procedure use requirements apply <i>NOTE:</i> Provide applicant with marked up copy of 2-EOP-LOCA-2		
	2	Is Containment Recirc Sump level >62%?	<i>Evaluator: Log start time for evaluation of critical time requirements: _____.</i>  Verifies either Ch. A or B Sump Level indication is >62%.		
*	3	Depress "SUMP AUTO ARMED" PB's on 21 and 22SJ44 Bezels	WHITE indicating light energizes and valves stroke OPEN. The RED OPEN indicating light energizes when each valve reaches full stroke.		
	4	Remove lockouts for the following valves: <ul style="list-style-type: none"> <li>• 2SJ67</li> <li>• 2SJ68</li> <li>• 2SJ69</li> </ul>	On RP-4 position the valve lockout switches to: <ul style="list-style-type: none"> <li>• 2SJ67 - RECIRC OVERRIDE CLOSED</li> <li>• 2SJ68 - RECIRC OVERRIDE CLOSED</li> <li>• 2SJ69 - VALVE OPERABLE</li> </ul>		

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	5	Are 21 and 22SJ 44 Open?	Verifies both valves open		
	6	Start 21 and 22 RHR Pump	Verifies both RHR Pumps are running		
* #	7	Close SJ69	SJ69 closed indication		
	8	Reset SI	Verifies GREEN SI RESET PB illuminated on safeguards bezel.		
	9	Reset EMERGENCY LOADING for each SEC	Verifies WHITE EMERGENCY LOADING RESET PB on each DG bezel is illuminated		
	10	Reset 230V CONTROL CENTERS	Verifies WHITE 230V CONTROL CENTER RESET PB on each DG is illuminated.		
*	11	Stop 22 CS PUMP	Depress GREEN STOP PB for 22 CS PUMP and observe that RED START PB light extinguishes.		

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	12	Close 21 and 22RH19 (RHR HX DISCH X- CONN VALVES)	Depress GREEN CLOSE PB on 21 and 22RH19 and observe that RED OPEN PB light extinguishes and GREEN illuminates.  <i>Evaluator: Log stop time for evaluating completion of time critical task: _____ (&lt;3 minutes)</i>		
	13	Stop 23 CHARGING PUMP	23 Charging Pump tagged OOS		
	14	Select appropriate flowpath transition step from TABLE B	Determines that all 4KV Vital Buses are energized and proceeds to Step 11, per TABLE B.		
	15	Is any 4KV Vital Bus energized by DG?	Determines that 4KV Vital Buses are being fed from the switchyard based on breaker position and/or the Mimic Bus.		
	16	Are at least three SW PUMPS running?	Verifies three SW PUMPS are running based on RED START LIGHT illuminated and/or amperage.		

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	17	Are 21 and 22 CCW HXs in service?	Determines 21 and 22 CCW HXs in service by observing CCW outlet temperature and verifying SW flow/valve alignment.		
	18	Are at least two CCW PUMPS running?	Verifies two CCW PUMPS running by observing RED START PB illuminated and/or running amps.		
*	19	Open 21 and 22CC16 (CCW to RHR HX OUTLET VALVES)	Verifies 21 and 22CC16 OPEN by observing RED OPEN PB illuminated. <b>NOTE:</b> Normally AUTO ARMED to open at RWST LO LEVEL SETPT.		
*	20	Close 2SJ67 and 2SJ68 (SI PUMP MINIFLOW VALVES)	Depresses GREEN CLOSE PB on 2SJ67 and 2SJ68, observes RED OPEN PB light extinguish and GREEN CLOSE light illuminate.		
	21	Close 2RH1 and 2RH2 (COMMON SUCTION VALVES)	Verifies GREEN CLOSE PB light on 2RH1 and 2RH2 are illuminated.		

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	22	Open 22SJ45 (RHR DISCHARGE TO CHARGING PUMPS VALVE)	Depresses RED OPEN PB on 22SJ45, observes GREEN CLOSE PB extinguish and RED OPEN PB illuminate.		
*	23	Open 21SJ45 (RHR DISCHARGE TO SI PUMPS VALVE)	Depresses RED OPEN PB on 21SJ45, observes GREEN CLOSE PB extinguish and RED OPEN PB illuminate.		
*	24	Open 21 and 22SJ113 (SI-CHG PUMPS X-OVER VALVES)	Verifies RED OPEN PB illuminated on 21 and 22SJ113. <b>NOTE:</b> Normally AUTO ARMED to open at RWST LO LEVEL SETPT.		
* #	25	Start: • 21 and 22 SI PUMPS • 21 and 22 CHARGING PUMPS	Verifies RED START PB illuminated and/or running amps on 21 and 22 SI and CHARGING PUMPS.		
	26	Remove Lockout for 2SJ30	Removes SJ30 LOCKOUT using switch on RP-4		

#	STEP NO.	STEP ( * = Critical Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	27	Isolate the RWST as follows: <ul style="list-style-type: none"> <li>• CLOSE 2SJ30</li> <li>• CLOSE 2SJ1</li> <li>• CLOSE 2SJ2</li> </ul>	<p>For 2SJ30: Depress the GREEN CLOSE PB, observe the RED OPEN PB light extinguish and the GREEN CLOSE PB illuminate.</p> <p>For 2SJ1 and @SJ2: Select MANUAL by depressing the BLUE PB, depress the GREEN CLOSE PB, observe the RED CLOSE PB light extinguish and the GREEN CLOSE PB illuminate.</p> <p><i>Evaluator: Log stop time for evaluating completion of time critical task _____ (&lt;11.7 minutes)</i></p>		
*	28	Place controllers for recirculation valves 21 and 22RH29 in MANUAL and CLOSE the valves.	<p>On each valve, select MANUAL by depressing the BLUE PB, depress the GREEN CLOSE PB, observe the RED OPEN PB light extinguish and the GREEN CLOSE PB illuminate.</p> <p><b>TERMINATING CUE: 21 and 22RH29 closed</b></p>		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     **NRC H-3**    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

## EXAMINEE'S CUE SHEET

INITIAL CONDITIONS:

A LBLOCA has occurred. All ECCS equipment functioned as designed. The vital buses are powered from the switchyard. The transition to LOCA-3 (from LOCA-1) was just made following actuation of the RWST LO Level alarm. The simulator operator will be the EOP reader.

INITIATING CUE:

You are the RO/PO. Transfer to cold leg recirculation in accordance with LOCA-3. This task is time critical. IAW the procedure you should close SJ69 within 3 minutes and complete the shift to cold leg recirculation within 11.7 minutes, as evidenced by closing SJ30, SJ1 and SJ2. The clock starts with the reading of the firststep.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-4

Task Title: Take Corrective Action For A Reactor Coolant Pump Abnormality  
(Spurious Isolation of RCP Mtr Brg CCW)

Task Number: 1140290401

K/A Reference: 003 A1.05 (3.4, 3.5)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator:  Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**The unit is in Hot Standby at normal operating pressure and temperature.  
The Reactor Trip Breakers are open. Alarms have just actuated on Overhead Annunciator Window D.**

Task Standard:

**Trip RCPs following loss of cooling water flow and verify establishment of natural circulation flow.**

Evaluation 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.**

Required Materials:

None

General References:

1. S2.OP-AR.ZZ-0004, "Overhead Annunciators Window D"
2. S2.OP-AB.RCP-0001, "Reactor Coolant Pump Abnormality"
3. S2.OP-AB.0004, "Natural Circulation"

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the RO/PO. Take actions to address the alarm on Overhead Annunciator Window D. Implement response procedures as required.**

Time Critical Task(s):

1. Implement S2.OP-AB.RC-0001 within 5 minutes of start of JPM.
2. Trip RCPs within 6 minute after determining cooling water flow is lost or within 1 minute after motor bearing temperature exceeds 175°F.

Validation Time:

xxxxx minutes

Simulator Setup:

1. Reset to a hot standby IC.
2. Activate malfunction VL0052 at 0% to fail the RCP Motor Bearing Cooling Water Outlet Valve 2CC136 closed.
3. Freeze simulator when CCW low flow alarm received.
4. Place simulator in RUN after applicant has read and understood initiating cue.
5. Insert Malfunction Malf MS0302, PT-507 fails to xxxx, after ALL RCPs are tripped.

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Operator obtains Procedure AR.ZZ-0004 for Overhead Annunciators Window D. Refers to steps for RCP BRG CLG WTR FLO LO alarm.	<p><i>NOTE:</i> Category II procedure use requirements apply</p> <p><i>NOTE:</i> Operator may choose to go directly to S2.OP-AB.RCP-0001, RCP Abnormality</p>		
	2	Check open following CCW inlet and outlet valves on RCP bearing cooling lines: <ul style="list-style-type: none"> <li>• 2CC117</li> <li>• 2CC118</li> <li>• 2CC136</li> <li>• 2CC187</li> </ul>	<p><i>Evaluator: Log start time for evaluation of critical time requirements: _____.</i></p> <p>Observes 2CC136 is closed. If requested to operate locally, evaluator waits 2 minutes, then cues applicant that valve will not operate locally.</p>		
	3	If CCW Flow cannot be established within 5 minutes or any RCP motor bearing temperature reaches 175°F, THEN GO TO S2.OP-AB.RCP-0001(Q), "RCP Abnormality".	Notes the time of D-20,21,22,23 alarms per BETA CRT.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	4	Monitor RCP bearing temperatures (T0413A, T0414A, T0415A, and T0416A).	Places RCP bearing temperature points on Plant Computer CRT  <i>Note:</i> Should enter AB.RCP-0001 not less than 5 minutes after start of JPM or immediately after exceeding 175°F upper motor bearing temperature. Entering earlier is at examinee's discretion.		
*	5	Implements S2.OP-AP.RC-0001.	Enters S2.OP-AB.RCP-0001.  Note: Time Critical Step		
	6	Initiate Attachment 1 Continuous Action Summary of AP.RC-0001.	Initiates Attachment 1.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	7	<p><u>IF AT ANY TIME</u>, any of the following validated conditions occurs, go to Att. 2, Stopping Reactor Coolant Pumps:</p> <ul style="list-style-type: none"> <li>• Component Cooling water flow is lost to <u>ALL</u> RCPs.</li> <li>• Component Cooling Water flow <u>not</u> restored within 5 minutes of initial loss:                             <ul style="list-style-type: none"> <li>- OHA-D-20, 21 RCP BRG CLG WTR FLO LO</li> <li>- OHA-D-21, 22 RCP BRG CLG WTR FLO LO</li> <li>- OHA-D-22, 23 RCP BRG CLG WTR FLO LO</li> <li>- OHA-D-23, 24 RCP BRG CLG WTR FLO LO</li> </ul> </li> <li>• Motor bearing temp &gt;175°F</li> </ul>	<p>Should "validate" the condition based on D-20, 21, 22, 23 alarms and rising bearing temperatures.</p> <p>Should implement Attachment 2 immediately after noting that &gt;5 minutes have elapsed.</p> <p>All RCPs should be stopped not less than one minute after Motor Bearing Temperature exceeds 175°F.</p> <p><b>Mark the time if Motor Bearing Temp. exceeds 175°F: _____</b></p>		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	8	If reactor trip breakers are open, then stop all reactor coolant pumps.	Stops all RCPs using control board handswitches.  Note: Insert Malf MS0302, PT-507 fails to xxxx over 30 seconds, after RCPs have been tripped.		
	9	If reactor trip breakers are open and all RCPs are stopped and RHR is not in service, then go to AB.RC-0004, "Natural Circulation.	Implements S2.OP-AB.RC-0004.		
	10	Initiate AB.RC-0004, Attachment 1, Continuous Action Summary.	Initiates Attachment 1.		
	11	Start 3 Rod Drive Vent Fans.	Starts additional Rod Drive Vent Fans as needed.		
	12	Start 1 Shield Vent Fan.	Verifies RED running light lit on running Shield Vent Fan.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	13	Start 2 Nozzle Support Vent Fans in the proper combination: <ul style="list-style-type: none"> <li>• 21 and 22 or</li> <li>• 21 and 24 or</li> <li>• 23 and 24 or</li> <li>• 22 and 23</li> </ul>	Verifies 2 Nozzle Support Vent Fans are running in the proper combination.		
	14	Start at least 3 CFCUs in high speed.	Verifies at least 3 CFCUs in high speed operation.  Note: Maximum of 4 CFCUs in high speed at one time.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	15	<p>Check natural circulation occurring as indicated by <b>all</b> of the following:</p> <ul style="list-style-type: none"> <li>• RCS subcooling &gt;0°F</li> <li>• SG pressures stable or dropping</li> <li>• RCS WR Hot Leg temps stable or dropping</li> <li>• CET temperatures stable or dropping</li> <li>• RCS WR Cold Leg temps at saturation temp for SG pressure</li> </ul>	<p>Determines that WR Hot Leg and CET temperatures are increasing. Takes manual control of steam dumps or atmospheric dumps and lowers CET and WR Hot Leg temperatures.</p> <p><b>Terminating Cue:</b></p> <p><b>Operator opens Steam Dumps in manual and observes hot leg and CET temperature decrease</b></p>		



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**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

The unit is in Hot Standby at normal operating pressure and temperature. The Reactor Trip Breakers are open. Alarms have just actuated on Overhead Annunciator Window D.

**INITIATING CUE:**

You are the RO/PO. Take actions to address the alarm on Overhead Annunciator Window D. Implement response procedures as required.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-5

Task Title: Respond to High Containment Sump Level (CFCU Leak)

Task Number: 1150370501

K/A Reference: E15 EA1.1 (2.9, 3.0)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**A large break LOCA has occurred. Operators have implemented the EOPs. The CRS just directed a transition to FRCE-2, "Response to High Containment Sump Level".**

Task Standard:

**Identify and isolate leaking containment fan cooler unit.**

Evaluation 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.**

Required Materials:

**None**

General References:

- 1. 2-EOP-TRIP-1, "Reactor Trip or Safety Injection"**

**2. 2-EOP-FRCE-2, "Response to High Containment Sump Level"**Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the licensed operator assigned to perform FRCE-2, "Response to High Containment Sump Level".**

Time Critical Task(s):**None**Validation Time:**8 minutes**Simulator Setup:

- 1. Reset to IC-1.**
- 2. Enter Malfunctions RC0001A and SW0218, severity 2500, no ramp.**
- 3. Run simulator until containment sump level is >75%. Ensure containment pressure >4psi. If an RWST LO level alarm is reached then perform LOCA-3 until the FRP implementation step is reached.**
- 4. Freeze simulator and snap IC into a temporary location.**

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
		Provide candidate with the Tear-Off Sheet			
	1	Is SW flow to 21-25 CFCUs normal?	Checks SW flow on all CFCU's and determines that #23 is not normal		
*	2	Identify and stop the affected CFCU	Stops 23 CFCU		
*	3	Close SW58 (Inlet Valve) on affected CFCU	Closes 23SW58		
*	4	Close SW72 (Outlet Valve) on affected CFCU	Closes 23SW72		
	5	Is 2FP147 (CIV) open?	Checks RP-5 and answers NO		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	6	Is CCW Surge Tk Level dropping in an uncontrolled or unexplained manner?	Checks level and answers NO		
	7	Is DMST Level dropping in an uncontrolled or unexplained manner as determined by Unit 1 indication?	<i>CUE: NO</i>		
	8	Is PWST Level dropping in an uncontrolled or unexplained manner?	Checks indication and answers NO <i>TERMINATING CUE: PWST level checked.</i>		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:           **NRC H-5**          

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

## EXAMINEE'S CUE SHEET

INITIAL CONDITIONS:

A large break LOCA has occurred. Operators have implemented the EOPs. The CRS just directed a transition to FRCE-2, "Response to High Containment Sump Level".

INITIATING CUE:

You are the licensed operator assigned to perform FRCE-2, "Response to High Containment Sump Level".

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-6

Task Title: Synchronize And Load The Generator

Task Number: 0450040101

K/A Reference: 062 A4.07 (3.1, 3.1)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

- **The main turbine is operating at approximately 1800 rpm, with excitation applied.**
- **Turbine control is in OPER AUTO**
- **500 kV Breaker 1-9 (32X) is isolated and tagged.**

Task Standard:

XXXXXXX

Evaluation 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.**

Required Materials:

None

General References:

**1. S2.OP-SO.TRB-0001 "Turbine Generator Startup Operations"**Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**Starting with Step 5.5.2 of S2.OP-SO.TRB-0001, synchronize the main generator to the grid.**

Time Critical Task(s):**None**Validation Time:**15 minutes**Simulator Setup:

- 1. Reset to IC for generator ready to sync. Turbine must be at 1800 rpm with controls in OPER AUTO and generator excitation applied.**
- 2. Enter Malfunction EL0308, "Generator Fails To Load Automatically".**
- 3. Perform S2.OP-SO.TRB-0001 through Step 5.5.1, completion of Attachment 1, Section 1.0 and 2.0.**
- 4. Tag the 500 kV 1-9 Breaker.**
- 5. Leave turbine speed at a point where minor adjustment is required to get the synchroscope rotating at the correct speed.**

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Candidate reviews procedure	Provide copy of S2.OP-SO.TRB-0001, marked up through completion of Step 5.5.1  <i>Category 1 procedure use requirements apply</i>		
	2	<b>ENSURE</b> 500KV 9-10 (30X) Breaker selected to 9-10 LOCAL	Verifies 500KV 9-10 (30X) Breaker selected to LOCAL		
	3	At 2RP6, <b>SELECT NO. 2</b> UNIT SCOPE TRANSFER Switch to either REGULAR SCOPE or SPARE SCOPE position.	Selects REGULAR (Scope on 1RP4)		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	4	<p><b>MONITOR</b> selected synchroscope while performing the following:</p> <ul style="list-style-type: none"> <li>• <b>DEPRESS SCOPE TEST</b> pushbutton on 500KV BREAKER SECTIONS 1-9 (32X) Bezel.</li> <li>• <b>ENSURE</b> synchroscope hand indicates 12 o'clock.</li> <li>• <b>ENSURE INCOM KV</b> and <b>RUN KV</b> Voltmeters both respond by moving upscale.</li> <li>• <b>RELEASE SCOPE TEST</b> pushbutton.</li> </ul>	<ul style="list-style-type: none"> <li>• Presses and holds the SCOPE TEST button.</li> <li>• Verifies the scope hand indicates 12 o'clock.</li> <li>• Verifies the INCOM KV and RUN KV Voltmeters move upscale.</li> <li>• Releases the SCOPE TEST button.</li> </ul>		
	5	<b>ENSURE</b> MN GEN SYNC PERM BYPASS key lock switch is in NORMAL	Verifies switch in NORMAL		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	6	<u>IF</u> 500KV 1-9 (32X) Breaker is available, <u>THEN</u> :	<i>CUE</i> : The 1-9 Breaker is NOT available.		
	7	<u>IF</u> 500KV 1-9 (12X) Breaker is NOT available, <u>THEN</u> :  <ul style="list-style-type: none"> <li>• <b>SELECT</b> Mimic Bus 500 KV BUS SEC 9-10 BREAKER (30X). <ul style="list-style-type: none"> <li>- <b>ENSURE</b> Mimic Bus pushbutton back light is yellow.</li> <li>- <b>ENSURE</b> 9-10 (10X) bezel MIMIC BUS INTLK CLS SEL back light is illuminated.</li> </ul> </li> <li>• <b>SELECT</b> 9-10 SYNCH POT ON.</li> </ul>	<ul style="list-style-type: none"> <li>• Presses the 500 KV BUS SEC 9-10 BREAKER on Mimic Bus</li> <li>• Verifies the button illuminates yellow.</li> <li>• Verifies the 9-10 MIMIC BUS INTERLOCK CLOSE SEL is illuminated.</li> <li>• Presses the 9-10 SYNCH POT ON button and verifies the button illuminates.</li> </ul>		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	8	If Voltage Regulator Voltage Matching Circuit is available, then select VOLTAGE MATCHING ON	Selects VOLTAGE MATCHING ON		
	9	Maintain Generator Voltage 3-5KV greater than RUN KV (Line Voltage).	Monitors Incoming and Running voltages.		
	10	<b>IF INCOM KV IS &gt;5KV</b> above RUN KV then <ul style="list-style-type: none"> <li>• <b>Select VOLTAGE MATCHING OFF</b></li> <li>• <b>ADJUST</b> Generator Output Voltage to 3-5 KV&gt;RUN KV</li> </ul>	Adjusts Voltage as necessary		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	11	<b>ADJUST</b> turbine speed so that synchroscope is rotating in FAST direction at a rate of 1 revolution in every 25 to 30 seconds.	Adjusts speed to attain correct rate		
	12	<b>REQUEST</b> Systems Operator permission to load Main Generator.	<i>CUE:</i> You have permission to load Main Generator.		
	13	<b>NOTIFY</b> Hope Creek OS/CRS that Unit 2 Generator is to be synchronized to the grid.	<i>CUE:</i> Hope Creek CRS acknowledges.		
	14	<u>IF</u> turbine is in OPER AUTO, <u>THEN:</u>			
	15	<b>ENSURE</b> GV TRACKING METER at 0% (nulled)	Checks meter and adjusts, as necessary		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	16	<u>IF</u> MAIN GEN SYNC PERMISSIVE green indicating light is not illuminating each time synchroscope indicator is near 12 o'clock position, <u>OR</u> is illuminated at any other position of synchroscope, <u>THEN</u> :	Determines the green indicating light is operating properly.		
*	17	When synchroscope is 1 to 2 minutes before 12 o'clock, <b>PRESS CLOSE</b> pushbutton on selected breaker: <ul style="list-style-type: none"> <li>• 1-9 500 KV Breaker</li> <li style="text-align: center;"><u>OR</u></li> <li>• 9-10 500 KV Breaker</li> </ul>	Presses the 9-10 500 KV Breaker button at the proper time and verifies the button illuminates.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	18	<b>SELECT SYNCH POT OFF</b> for selected breaker: <ul style="list-style-type: none"><li>• 1-9 500 KV Breaker</li></ul> <u>OR</u> <ul style="list-style-type: none"><li>• 9-10 500 KV Breaker</li></ul>	Presses the SYNCH POT OFF for the 9-10 breaker and verifies the button illuminates.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	19	<p>If load does not increase to 40-60 MW within 15 secs., then either:</p> <ul style="list-style-type: none"> <li>Select Load Rate 4%/min and raise SETTER 1% above REFERENCE for each 10 MW (not to exceed 4%) utilizing the REF PB.</li> </ul> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>Select TURB MANUAL and raise turbine load to 40-60 MW utilizing the GVA PB</li> <li>Notify OS/CRS</li> <li>When turbine OPER AUTO is available select OPER AUTO under OS/CRS direction</li> </ul>	<p>Recognizes generator did not load and raises load to &gt;0 MW, by either method.</p> <p>NOTE: TURB MANUAL is very sensitive. Use of that method may result in a large load swing.</p>		
	20	<b>IF</b> turbine is in TURB MANUAL.....	Turbine is in AUTO		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	21	<b>ENSURE</b> turbine LOAD CONTROL light is illuminated.	Verifies the Turbine LOAD CONTROL light is illuminated.		
	22	<b>ENSURE</b> REFERENCE and SETTER Displays agree.	Verifies the REFERENCE and SETTER Displays agree.		
	23	<b>ENSURE</b> VOLTAGE MATCHING OFF Bezel illuminated	Verifies VOLTAGE MATCHING OFF		
	24	<b>LOG</b> time of generator synchronization in Narrative Log.	<b>CUE:</b> The time has been logged.		
	25	<b>NOTIFY</b> Electric System Operator that Salem Unit 1 is available for loading.	<b>CUE:</b> The Electric System Operator acknowledges.  <b>TERMINATING CUE:</b> Electric System Operator has been notified.		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     NRC H-6    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

- The main turbine is operating at approximately 1800 rpm, with excitation applied.
- Turbine control is in OPER AUTO
- 500 kV Breaker 1-9 (32X) is isolated and tagged.

**INITIATING CUE:**

Starting with Step 5.5.2 of S2.OP-SO.TRB-0001, synchronize the main generator to the grid.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-7

Task Title: **Align Control Area Ventilation For "Accident - Pressurized Air"**  
**(Manually Actuate CR Accident Pressurized Mode Operation)**

Task Number: 0880080101

K/A Reference: 037.A1.01 (3.2, 3.5)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ . Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**The unit is operating normally at 100% power.**

Task Standard:

**Identify the failure to automatically shift to CR Accident Pressurized Mode Operation and take manual actions to properly align control area ventilation.**

Evaluation 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.**

Required Materials:

**None**

General References:

1. **S2.OP-AR.ZZ-0001, "Overhead Annunciators – Window A**

2. **S2.OP-AB.RAD-0001, "Abnormal Radiation"**
3. **S2.OP-SO.CAV-0001, "Control Area Ventilation Operation"**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the RO/PO. Respond to RMS TRBL alarm (Window OHA A-6).**

Time Critical Task(s):

**None**

Validation Time:

**xxxxx minutes**

Simulator Setup:

1. **Reset to 100% power IC.**
2. **Defeat Auto CR Pressurized Mode (may need to use overrides to place 2R1B monitor in block, defeat some alarms, and to hold manual mode actuation switch in normal position).**
3. **Defeat auto start of 21 and 22 EACS Supply Fans.**
4. **Prevent Damper 2CAA14 from closing on Pressurized Mode actuation.**
5. **Drive Unit 2 Control Area Intake Rad Monitors 2R1B-1 and 1R1B-2 into high alarm (Malf RM0207A????).**

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	<b>DETERMINE</b> the affected channel by observing indicators, annunciators on 2RP1, RMS Computer, and the Annunciator CRT.	Refers to Alarm Procedure S2.OP-AR.ZZ-0001 for OHA A-6, RMS TRBL.  Checks 2RP1, RMS computer, and annunciator CRT. Determines 2R1B-1 AND 1R1B-2 are both in alarm.		
	2	<u>IF</u> 2R1B-1 (Unit 2 Control Room Intake Duct) is the cause of the alarm <u>AND</u> high radiation is indicated, <u>THEN GO TO</u> S2.OP-AB.RAD-0001(Q), Abnormal Radiation.	Goes to S2.OP-AB.RAD-0001, "Abnormal Radiation".  <b>NOTE:</b> May attempt to determine if monitors are operable by performing source check.		
	3	Is the alarm, warning, or rising indication valid?	<b>CUE:</b> Chemistry reports sample of control area intake shows high activity.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	4	<b>ANNOUNCE</b> the following on Plant PA system: <ul style="list-style-type: none"> <li>• Affected Radiation Monitor number and name</li> <li>• Location of Radiation Monitor area with elevated indication</li> </ul>	Makes PA announcement that Unit 2 Control Area Intake radiation monitors 2R1B-1 and 1R1B-2 are in high alarm.		
	5	<b>NOTIFY OS/CRS</b> to REFER to Event Classification Guide, ODCM and Technical Specifications.	Notifies CRS.  <b>CUE:</b> CRS acknowledges communication.		
	6	<b>INITIATE</b> the applicable attachment for affected Radiation Monitor.	Initiates Attachment 1 for 2R1B-1 monitor alarm.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	7	<p><u>IF</u> 2R1B-1 or 2R1B-2, Control Room Intake Duct, is the affected monitor, <u>THEN</u> <b>COORDINATE</b> with Unit 1 NCO to ensure Control Room Ventilation is aligned to ACCIDENT PRESSURIZED mode IAW the following procedures:</p> <ul style="list-style-type: none"> <li>• S2.OP-SO.CAV-0001(Q), Control Room Ventilation Operation</li> <li>• S1.OP-SO.CAV-0001(Q), Control Room Ventilation Operation</li> </ul>	<p>Refers to S2.OP-SO.CAV-0001(Q), Control Room Ventilation Operation.</p> <p>Determines that ventilation did NOT automatically align to ACCIDENT PRESSURIZED mode. Refers to Section 5.6, "Manual Initiation of ACCIDENT PRESSURIZED Mode Operation".</p>		
*	8	<b>PRESS ACCIDENT PRESSURIZED</b> pushbutton at 2RP2	Depresses pushbutton.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	9	<b>ENSURE</b> red ACCIDENT PRESSURIZED lamp illuminates.	Verifies red lamp illuminated.		
	10	<b>ENSURE</b> CONTROL AREA ISOLATION Train A RESET/OPERATE AND CONTROL AREA ISOLATION Train B RESET/OPERATE red lamps are illuminated.	Verifies red lights are illuminated.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	11	<p><u>IF</u> manual initiation of ACCIDENT PRESSURIZED mode operation is <u>NOT</u> initiated due to an accident, <u>THEN NOTIFY</u> Unit 1 NCO to <b>PERFORM</b> the following:</p> <p>a. <b>ENSURE</b> Unit 1 CAACS is aligned to ACCIDENT PRESSURIZED mode of operation IAW S1.OP-SO.CAV-0001(Q), Control Area Ventilation Operation, Exhibit 1 for Component Positions.</p> <p>b. <b>CLOSE</b> the following Chilled Water Isolation Valves at 1RP2: 1CH30 1CH151</p> <p>c. <b>PERFORM</b> Independent Verification of 1CH30 and 1CH151 positions.</p>	<p>Directs Unit 1 NCO to perform actions.</p> <p><b>CUE:</b> Unit 1 NCO acknowledges.</p>		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	12	<b>ENSURE</b> the following lamps illuminated on 2RP2: <ul style="list-style-type: none"> <li>• N° 2 Unit EACS IN OPERATION</li> <li>• N° 1 Unit EACS IN OPERATION</li> <li>• N° 1 Unit EACS INTAKE DAMPERS OPEN</li> </ul>	Verifies lamps illuminated.		
	13	<b>CLOSE</b> the following Chilled Water Isolation Valves at 2RP2: <ul style="list-style-type: none"> <li>• 1CH150 &amp; 2CH30</li> <li>• 1CH117 &amp; 2CH151</li> </ul>	Closes valves. Confirms closed indication.  <b>NOTE:</b> Closing these valves will isolate chilled water to the Penetration Area Cooling Unit and PASS Sampling systems.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	14	<p><b>ENSURE</b> the following damper and component alignments:</p> <ul style="list-style-type: none"> <li>• Components are aligned IAW Exhibit 1 based on the initiating unit and train(s).</li> <li>• <b>IF</b> any component listed on Exhibit 1 is <b>NOT</b> in the <b>ACCIDENT PRESSURIZED</b> position, <b>THEN NOTIFY</b> Maintenance Controls <b>AND REFER TO</b> Step 3.28 , Attachment 3, and Exhibits 2 and 4.</li> </ul>	<p>Determines that Damper 2CAA14 (listed on S2.OP-SO.CAV-0001(Q) Exhibit 1 Page 1 of 2) failed to CLOSE in ACCIDENT PRESSURIZED Mode. Notifies Maintenance Controls to reposition damper.</p> <p><b>CUE:</b> Maintenance Controls acknowledges.</p>		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	15	<b>ENSURE</b> the following damper and component alignments: <ul style="list-style-type: none"> <li>• CAACS fans, EACS fans, and Chilled Water System components are aligned IAW Exhibit 2.</li> </ul>	Observes that neither 21 or 22 EACS Fan started (listed on S2.OP-SO.CAV-0001(Q) Exhibit 2, Page 1 of 2 as Items 6 and 7). Manually starts 21 or 22 EACS Fan.		
	16	<b>PERFORM</b> Independent Verification: <ul style="list-style-type: none"> <li>• 1CH150 &amp; 2CH30 CLOSED</li> <li>• 1CH117 &amp; 2CH151 CLOSED</li> </ul>	Requests independent verification.  <b>CUE:</b> CRS acknowledges. Another operator has been directed to perform an independent verification.		
	17	<b>RECORD</b> charcoal filter hours IAW SC.OP-AP.ZZ-0004(Q), "Cyclic Data Monitoring Program".	<b>TERMINATING CUE:</b> Begins addressing charcoal filter hour logging.		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:           **NRC H-7**          

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

## EXAMINEE'S CUE SHEET

### INITIAL CONDITIONS:

The unit is operating normally at 100% power.

### INITIATING CUE:

You are the RO/PO. Respond to RMS TRBL alarm (Window OHA A-6).

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-8

Task Title: **Perform Actions For Component Cooling Water Restoration**  
**(Start a CCW Pump IAW APPX-1)**

Task Number: 1150420501

K/A Reference: EPE 007.EA1.04 (3.6, 3.7)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**A reactor trip/SI with a loss of off-site power occurred a few minutes ago. It appears that a DBA LOCA has occurred. 2A and 2C 4kV Vital Buses are energized from their respective EDG. 2B 4kV Vital Bus tripped on an electrical fault.**

Task Standard:

**Start a CCW Pump IAW APPX-1.**

Evaluation 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.**

Required Materials:

**None**

General References:

1. **2-EOP-TRIP-1, "Reactor Trip or Safety Injection"**
2. **2-EOP-APPX-1, "xxxxx"**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are the 3<sup>rd</sup> NCO. The CRS has directed you to start one CCW Pump IAW 2-EOP-APPX-1.**

Time Critical Task(s):

**None**

Validation Time:

**10 minutes**

Simulator Setup:

1. **Reset to 100% power IC. Ensure 23 CCW Pump is running.**
2. **Initiate design basis LOCA with loss of offsite power. Set up 4 kV Vital Bus 2B to trip on electrical fault.**
3. **Perform steps of EOP-TRIP-1, up to the CCW Pump Operation Evaluation block.**
4. **Snap an IC for future use.**

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Check 4 kV Bus Status.  Check at least one vital bus energized by station power transformer.	Determines no vital busses powered from station power transformers and takes RNO path.		
	2	Check ECCS and AFW Pump Status.	Determines all ECCS and AFW Pumps running on 2A and 2C Vital Buses.		
	3	Check one CCW Pump running.	Observes that no CCW pumps are running.		
	4	Select a CCW Pump start strategy.	Selects Step 8, 2B Vital Bus deenergized.		
	5	If 2A and 2C Vital Buses energized, then start 23 CCW Pump as follows: <ul style="list-style-type: none"> <li>• Check 23 CCW Pump available</li> </ul>	CUE: 23 CCW Pump was running before the accident and is available.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
#	6	<ul style="list-style-type: none"> <li>Block 2C SEC</li> </ul>	Blocks 2C SEC on 2RP1		
#	7	<ul style="list-style-type: none"> <li>Reset 2C SEC</li> </ul>	Resets 2C SEC on 2RP1		
# *	8	<ul style="list-style-type: none"> <li>Stop 22 CS Pump</li> </ul>	<p><b>CUE:</b> If necessary, as CRS, acknowledge that 22 CS Pump will be stopped.</p> <p>22 CS Pump stopped.</p>		
*	9	<ul style="list-style-type: none"> <li>Start 23 CCW Pump</li> </ul>	23 CCW Pump running.		
#	10	<ul style="list-style-type: none"> <li>Reset Containment Spray</li> </ul>	Resets Train A and Train B Containment Spray.		
# *	11	<ul style="list-style-type: none"> <li>Close 22CS2, 22CS Pump Discharge Valve</li> </ul>	<p>22CS2 closed.</p> <p><b>TERMINATING CUE:</b> Repeat back message form the operator on the status of this evolution, then state "JPM is complete".</p>		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     **NRC H-8**    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_                   UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

A reactor trip/SI with a loss of off-site power occurred a few minutes ago. It appears that a DBA LOCA has occurred. 2A and 2C 4kV Vital Buses are energized from their respective EDG. 2B 4kV Vital Bus tripped on an electrical fault.

**INITIATING CUE:**

You are the 3<sup>rd</sup> NCO. The CRS has directed you to start one CCW Pump IAW 2-EOP-APPX-1.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-9

Task Title: **Take Corrective Action For A Control Room Evacuation****(Locally Close a MSIV (MS167) and Operate the Assoc ARV (MS10))**

Task Number: 1140130401

K/A Reference: APE 068 AA1.01 (4.3, 4.5)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator:  Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

- 1. A Control Room Evacuation has taken place due to a noxious fumes problem.**
- 2. A manual trip was initiated from 100% power.**
- 3. S2.OP-AB.CR-0001 is being utilized to control the plant.**

Task Standard:**Locally close MSIV and operate Atmospheric Relief Valve**Evaluation 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.**

Required Materials:

- Adjustable Wrench**
- Flashlight**

General References:

1. **S2.OP-AB.CR-0001, "Control Room Evacuation"**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**Beginning at Step 7 (Proceed to the Inner Pen Area), perform the actions of S2.OP-AB.CR-0001, Attachment 7. The previous steps have already been completed.**

Time Critical Task(s):**None**Validation Time:**10 minutes**Simulator Setup:**Not Applicable. JPM is performed locally in plant.**

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
		Evaluator provide a marked up copy of S2.OP-AB.CR-0001, Attachment 7	Reviews the procedure.  <b>NOTE:</b> This is a Category I procedure. Work Standards require that the operator refer to the procedure at each step of the task. Individual step documentation shall be complete prior to proceeding to the next step.		
	1	Proceed to 21 SG Press Control Panel, 683-2A. Close 21MS18A/S, A/S to SV587	Closes 21MS18A/S, A/S to SV587 in Panel 683-2A or, after the panel has been located, the Evaluator may elect to provide a <b>CUE:</b> Assume that the valve has been closed		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	2	Proceed to 21 Mn Stm & Trb Bypass Stm Gen Press Cont Pnl 684-2A: <ul style="list-style-type: none"> <li>• PLACE local E/P bypass Line Selector Valve in LOCAL position</li> <li>• Operate hand sender in E/P line to ensure that PL-8907 indicates zero</li> </ul>	21MS10 selector valve to LOCAL  PL-8907 should read zero		
	3	Proceed to 21 SG Press Control Panel, 683-2C. Close 23MS18A/S, A/S to SV585	Closes 23MS18A/S, A/S to SV585 in Pnl 683-2C or, after the panel has been located, the Evaluator may elect to provide a <i>CUE</i> : Assume that the valve has been closed.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	4	At 23MS 18, open the drain cock on the pressure regulator.	Locates and opens drain cock on 23MS18 pressure regulator.  <i>CUE:</i> Assume that the drain cock on 21MS18 pressure regulator has also been opened.		
	5	At 21MS 18, open the drain cock on the pressure regulator.	Locates and opens drain cock on 21MS18 pressure regulator.  <i>CUE:</i> Assume that the drain cock on 21MS18 pressure regulator has also been opened.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	6	Proceed to 23 Mn Stm & Trb Bypass Stm Gen Press Cont Pnl 684-2C: <ul style="list-style-type: none"> <li>• PLACE local E/P bypass Line Selector Valve in LOCAL position</li> <li>• Operate hand sender in E/P line to ensure that PL-8909 indicates zero</li> </ul>	23MS10 selector valve to LOCAL  PL-8909 should read zero		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	7	Fail open 21MS171, MS ISOL VLV; at No. 2 Unit Main Steam Vent VLV Control Panel 688-2A by: <ul style="list-style-type: none"> <li>• Close 2CA1318, SUP TO PNL 688-2A</li> <li>• Close 2CA1319, SUP TO PNL 688-2A</li> <li>• Open drain-cock of pressure regulator for SV275 (inside Panel 688-2A)</li> </ul>	Closes 2CA1318, SUP TO PNL 688-2A  Closes 2CA1319, SUP TO PNL 688-2A  Opens drain cock for pressure regulator  <i>CUE:</i> 21MS167 closed. At this point, assume all other actions of Attachment 7 have been completed and you are ready to make your report to the HSD Panel operator IAW Step 25.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	8	Makes report to HSD Panel Operator	<i>CUE:</i> Since we are presently located in the Inner Pen Area, utilizing the controls of 21 or 23MS10, demonstrate how you would have throttled open 22 or 24MS10 if the steps had actually taken us to the Outer Pen.		
*	9	OPERATE hand sender in E/P line to increase pressure indicated on PL-8907.	Operates hand sender to raise air pressure.  <i>TERMINATING CUE:</i> Reports 21MS10 open.		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     **NRC H-9**    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

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**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

1. A Control Room Evacuation has taken place due to a noxious fumes problem.
2. A manual trip was initiated from 100% power.
3. S2.OP-AB.CR-0001 is being utilized to control the plant.

**INITIATING CUE:**

Beginning at Step 7 (Proceed to the Inner Pen Area), perform the actions of S2.OP-AB.CR-0001, Attachment 7. The previous steps have already been completed.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-10

Task Title: Perform Actions For A Loss Of All AC Power  
(Locally Isolate Seal Injection)

Task Number: 1150140501

K/A Reference: EPE 055 EA2.03 (3.9, 4.7)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator: √ Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

**I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.**

Initial Conditions:

**A loss of all AC power has occurred. The unit was operating normally at full power prior to the event.**

Task Standard:

**Locally isolate seal injection per Step 27 of LOPA-1.**

Evaluation 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.**

Required Materials:

**None**

General References:

- 1. EOP-LOPA-1, Loss of All AC Power**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You are directed to locally isolate RCP Seal Cooling per Step 27 of EOP-LOPA-1.**

Time Critical Task(s):**None**Validation Time:**xxxxx minutes**Simulator Setup:**None**

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	1	Provide a copy of LOPA-1, Sheet 2.	Refers to LOPA-1, Sheet 2, Step 27.		
*	2	Locally close CV83, SEAL WATER FILTER INLET	Locates CV83 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction.		
*	3	Locally close CV89, SEAL WATER FILTER INLET	Locates CV89 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
*	4	Locally close CV95, SEAL WATER FILTER BYPASS.	Locates CV95 in 84 ft elevation Aux Bldg in Seal Water Injection Filter Valve Room. Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction.		
*	5	Locally close CV116, SEAL WATER TO VCT VALVE.	Locates CV116 in 78 ft elevation Mech Pen Area SG B/D HX Area. Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction.		
*	6	Locally close CV131, RCP THERMAL BARRIER VALVE.	Locates CV131 in 78 ft elevation Mech Pen Area SG B/D HX Area. Closes valve by depressing and holding motor operator declutch lever and turning handwheel in clockwise direction.		

#	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
	7	<b>NOTIFY</b> Control Room that RCP Seal Cooling has been isolated.	Informs control room that RCP Seal Cooling has been isolated.  <i>TERMINATING CUE:</i> Control room has been informed that RCP Seal Cooling has been isolated.		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     **NRC H-10**    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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Examinee Response: \_\_\_\_\_

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Result:           SAT \_\_\_\_\_                   UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

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**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

A loss of all AC power has occurred. The unit was operating normally at full power prior to the event.

**INITIATING CUE:**

You are directed to locally isolate RCP Seal Cooling per Step 27 of EOP-LOPA-1.

Facility: SALEM 1&amp;2

Job Performance Measure No.: NRC H-11

Task Title: Perform an Authorized Release of Radioactive Liquid Waste to the Circ  
Water System from 21 CVCS Monitor Tank

Task Number: 0685030101

K/A Reference: 068 A4.02 (3.2, 3.1)

Method of testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: \_\_\_\_\_

Classroom: \_\_\_\_\_ Simulator:  Plant: \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

The unit is at 100% power. A discharge of the 21 CVCS Monitor Tank has been directed. Recirculation of the monitor tank has been completed. Chemistry has authorized a maximum allowable release rate of 225 gpm.

Task Standard:

Discharge 21 CVCS Monitor Tank to Unit 1 CW via Unit 2 Service Water using #21 CCW Heat Exchanger.

Evaluation 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.

Required Materials:

Personnel Protective Equipment

General References:

1. **S2.OP-SO.WL-0001, "Release of Radioactive Liquid Waste From 21 CVCS Monitor Tank"**

Applicability:

EO \_\_\_\_\_

RO   √  SRO   √  Initiating Cue:

**You have been directed to perform a release of 21 CVCS Monitor Tank to Unit 1 Circ Water via Unit 2 Service Water using #21 CCW Heat Exchanger. All initial conditions have been satisfied.**

Time Critical Task(s):**None**Validation Time:**15 minutes**Simulator Setup:**Not Applicable. JPM is performed locally in plant.**

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
		Operator obtains S2.OP-SO.WL-0001, Rev 20, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank.	Proper procedure obtained		
#	1	Verify Service Water flow through 21 CCW HX.	<p>Determines flow thru 21 CCW HX.</p> <p><b>CUE:</b> When SW flowmeter is located, inform operator that it indicates &gt;500 gpm.</p> <p>Determines Circulating Water Pumps are running.</p> <p><b>CUE:</b></p>		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
#	2	ENSURE CLOSED the following valves: 2WL115, WASTE DISCHARGE HDR X-CONN VLV 2WL49, WMT PMP DISCHARGE STOP 2WL156, WASTE DISCHARGE HDR FLUSH VLV 2WL185, WMHT DISCH V – OVBD 2WL51, LIQUID RELEASE STOP VALVE 2WL53, WMT PMP RECIRC WMTS ISOL V 2WL56, WMT TO WHUT STOP VLV	Locates and verifies valves closed.		
# *	3	UNLOCK and OPEN 2WL50, LIQUID WASTE OVERBOARD STOP VALVE.	Locates and opens valve.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
# *	4	UNLOCK and OPEN 21SW222, WASTE DISPOSAL OVERBOARD VLV TO 21 DISCHARGE HDR.	Locates and opens valve.		
#	5	Verify 2R18 operability.	Requests NCO to verify 2R18 operable.  <i>CUE:</i> NCO reports 2R18 verified operable.		



# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
# *	7	Notify the Control Room/CRS that the 2R18 Monitor cannot be placed into service as required by Prerequisite 2.3 because the 21WR165 valve cannot be opened.	<p>Notifies the Control Room/CRS that procedure step cannot be completed as written.</p> <p><i>CUE:</i> As CRS, Inform the candidate that to stop further actions and return to the control room. JPM is complete.</p> <p><i>CUE:</i> If the candidate continues without notifying the Control Room/CRS of the inability to open 21WR165, terminate the JPM when the Independent Verification step is reached.</p>		
#	8	ENSURE LOCKED CLOSED 21SW468, 21 SW RM CLR RETURN HDR X-TIE ISOL VLV. ENSURE LOCKED OPEN 21SW472, 21 SW RM CLR RET HDR ISOL VLV.	Locates valve and verifies locked closed.		

# *	STEP NO.	STEP (* = Critical Step) (# = Sequential Step)	STANDARD	EVAL S / U	COMMENTS (Req'd for UNSAT Evaluation)
#	9	Independent Verification performed IAW Attachment 2, step 4.1.1.	<p><b>CUE:</b> Independent Verification completed with no problems noted.</p> <p><b>TERMINATING CUE:</b> 2WR165 failed to open as required OR Independent Verification step completed.</p>		

**VERIFICATION OF COMPLETION**

Job Performance Measure Number:     **NRC H-11**    

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Date Performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Number of Attempts: \_\_\_\_\_

Time to Complete: \_\_\_\_\_

Follow up Question: \_\_\_\_\_

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\_\_\_\_\_  
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Examinee Response: \_\_\_\_\_

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\_\_\_\_\_

Result:           SAT \_\_\_\_\_           UNSAT \_\_\_\_\_

Examiner's Signature and Date: \_\_\_\_\_

**EXAMINEE'S CUE SHEET****INITIAL CONDITIONS:**

The unit is at 100% power. A discharge of the 21 CVCS Monitor Tank has been directed. Recirculation of the monitor tank has been completed. Chemistry has authorized a maximum allowable release rate of 225 gpm.

**INITIATING CUE:**

You have been directed to perform a release of 21 CVCS Monitor Tank to Unit 1 Circ Water via Unit 2 Service Water using #21 CCW Heat Exchanger. All initial conditions have been satisfied.