JOB PERFORMANCE MEASURE

STATION: Hope Creek

	2019 NRC **JPM A**

Copy _____ of _____

SYSTEM: Main Generator

TASK NUMBER: 3450030101/4000370401

TASK: Synchronize and Load the Main Generator/Respond To A Turbine Generator Malfunction

JPM NUMBER: 305H-JPM.MA002   **REVISION:** 03

SAP BET: NOH05JPMA02E

K/A NUMBER: 262001 A4.04   **IMPORTANCE FACTOR:**   RO: 3.6   SRO: 3.7

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.MA-0001 Rev. 65   HC.OP-AR.ZZ-0014 Rev. 42

                     HC.OP-AB.BOP-0002 Rev. 17

TOOLS, AND EQUIPMENT: None

                                ESTIMATED COMPLETION TIME: _____ 15 _____ Minutes

         TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ N/A _____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

                             ACTUAL COMPLETION TIME: _____ **Minutes**

           ACTUAL TIME CRITICAL COMPLETION TIME: _____ N/A _____ **Minutes**

REASON IF UNSATISFACTORY:

        EVALUATOR: _____   **DATE:** _____
                                Signature

JOB PERFORMANCE MEASURE

SYSTEM: Main Generator

TASK NUMBER: 3450030101/4000370401

TASK: Synchronize and Load the Main Generator/Respond To A Turbine Generator Malfunction

INITIAL CONDIITONS:

1. A plant startup from a forced outage is in progress.
2. The Main Generator and Transformer have been placed in standby.
3. Main Turbine is operating at 1800 rpm.
4. Unit Protection Lockout Relays (5)86UR and (5)86UB have been reset.
5. Load Dispatcher/System Operator has been notified of impending loading.
6. The Fire Water System is in-service.
7. The Switchyard has been aligned IAW Section 5.4 of HC.OP SO.MA 0001.
8. 1EGTIC-2625 is in AUTO with setpoint at 95°F.
9. HC.OP-SO.MA-0001 is complete up to and including step 5.2.11.
10. TBEO and YDEO have been briefed and are standing by to support synchronization.

INITIATING CUE:

> **SYNCHRONIZE** <u>AND</u> **LOAD** the Main Generator IAW HC.OP-SO.MA-0001.
> **PERFORM** the initial synchronization using the 500KV BS6-5 breaker.
> **MAINTAIN** Load Set at 30% to support four hour soak for required testing.

JPM NUMBER:	MA002	NAME:
REV NUMBER:	03	DATE:

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
CUE:	**PROVIDE** the operator the initiating cue, the marked-up copy of HC.OP-SO.MA-0001, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.2.12.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that "all precautions and limitations are satisfied."**			
<u>NOTE</u>	Rapidly changing main generator armature currents may cause the following DEHC diagnostic alarms shortly after synchronizing the main generator to the grid: S1_P240 <R> SLOT 17 VGEN DIAGNOSTIC ALARM S1\XVGENR0S17_A DIAG S1_P241 <R> SLOT 18 VGEN DIAGNOSTIC ALARM S1\XVGENR0S18_A DIAG S1_P242 <S> SLOT 17 VGEN DIAGNOSTIC ALARM S1\XVGENS0S17_A DIAG S1_P243 <S> SLOT 18 VGEN DIAGNOSTIC ALARM S1\XVGENS0S18_A DIAG S1_P244 <T> SLOT 17 VGEN DIAGNOSTIC ALARM S1\XVGENT0S17_A DIAG S1_P245 <T> SLOT 18 VGEN DIAGNOSTIC ALARM S1\XVGENT0S18_A DIAG	Operator reads and initials Note.		
<u>**CAUTION**</u>	After synchronization and closing a Generator Breaker, Load Setpoint should be increased to 30% IMMEDIATELY. If the following steps are not completed or expected indications received, the CRS should consider tripping the Main Turbine and ensuring the Generator is isolated from the 500 Kv System and the Turbine is coasting down.	Operator reads and initials Caution.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
5.2.12	**PERFORM** the following to synchronize the Main Generator using Manual Load Control: A. SELECT Control , Speed-Load	***#On DEHC HMI, operator selects Control, Speed-Load,** and initials Step.		
NOTE	Ramp Rate will indicate 20 %/min until breaker is closed. Upon breaker closure, ramp rate will be 60%/min for 2 seconds (2% load). Ramp Rate will then go to setpoint entered.	Operator reads and initials Note.		
	B. **SELECT** Load Set, Ramp Rate AND **ENTER** 10%/min	***#On DEHC HMI, operator selects Load Set, Ramp Rate and enters 10%/min** and initials Step.		
NOTE	1-XIL-6741D SYNCH WINDOW green light turns on when SYNCHROSCOPE point passes thru the 12 o'clock position. AND line/bus voltage is within the normal operating range AND synchroscope rotation is < 3 RPM.	Operator reads and initials Note.		
	C. **SELECT** Load Set, Manual Adj.: Raise OR Lower until pointer on SYNCHROSCOPE is moving slowly in the FAST direction. (10C651D)	***#On DEHC HMI, operator selects Load Set, Manual Adj. and presses: Raise OR Lower until the pointer on the UNIT SYNCHRONIZING SYNCHROSCOPE is moving slowly in the FAST direction** and initials Step.		
	D. **IF** the SYNCH WINDOW green light does NOT turn on as described in the note above, THEN **REQUEST** permission from SM/CRS to bypass the synch check relay AND **GO TO** Step 5.2.13.	Operator observes SYNCH WINDOW green light turns on and marks Step as N/A.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
NOTE	The sub-steps of Step 5.2.12.E should be performed in order AND in rapid succession. Placekeeping is NOT required UNTIL AFTER the performance of Step 5.2.12.E.	Operator reads and initials Note.		
	E. **PERFORM** the following sub-steps in order AND in rapid succession): • WHEN the SYNCHROSCOPE Pointer is at 2 minutes before 12 O'clock position, AND the SYNCH WINDOW green light is illuminated, THEN **CLOSE** BS 6-5 (BS 2-6) Breaker.	***#Operator closes BS 6-5 by pressing the BS 6-5 CLOSE pushbutton** WHEN the SYNCHROSCOPE Pointer is at 2 minutes before 12 O'clock position, AND the SYNCH WINDOW green light is illuminated; observes the BS 6-5 CLOSE light illuminate and the TRIP light extinguish; and initials Step.		
	• IMMEDIATELY **SELECT** Load Set: Setpoint AND **ENTER** 30%.	***#On the DEHC HMI, operator selects Load Set, Setpoint and enters 30%** and initials Step.		
ACTION:	**WHEN LOAD SET is raised TRIGGER ET-1.**			
	• IMMEDIATELY **OBSERVE** the following: • Bypass Valves close as Generator loads to 30 % Load Set	On the DEHC HMI, operator observes bypass valves sequentially close and initials Step..		
	• Generator phase current increases	Operator observes Main Generator phase current increases and initials Step.		
	• MW load and MVAR load increases	Operator observes MW load and MVAR load increases. and initials Step.		
	• Synchroscope pointer steady at 12 o'clock position	Operator observes UNIT SYNCHRONIZING SYNCHROSCOPE pointer steady at 12 o'clock position. and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	OHA D3-C5 TURBINE GENERATOR VIB HI			
CUE:	**Acknowledge any RO alarm reports.**			
CUE:	**Inform the operator to "Take any required actions."**			
Examiner Note:	**The operator may proceed directly to HC.OP-AB.BOP-0002**			
	Operator refers to procedure HC.OP-AR.ZZ-0014, Attachment C5.	Operator obtains procedure HC.OP-AR.ZZ-0014.		
	HC.OP-AR.ZZ-0014, OVERHEAD ANNUNCIATOR WINDOW BOX D3			
1.	**DETERMINE** bearing(s) in alarm CRIDS points A2519 - A2530. <u>IF</u> unable to determine on CRIDS <u>OR</u> Main Control Room System 1 computer, <u>THEN</u> **DISPATCH** an operator to Panel 10C366 to monitor vibration IAW Attachment C5-1.	Operator determines Bearing #10 vibration is in alarm. Operator may dispatch a building operator to the #10 bearing.		
CUE:	**As Turbine Building Operator, REPORT "strong vibrations felt at the bearing."**			
2.	**ENTER** HC.OP-AB.BOP-0002(Q), Main Turbine.	Operator notifies CRS to enter HC.OP-AB.BOP-0002.		
CUE:	**As CRS acknowledge operator notification to enter BOP-0002.**			
<u>NOTE</u>	Journal Vibration should be validated on the velocity X and Y probes in System 1 AND on an adjacent bearing when possible.	Operator reads and initials Note.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
3.	<u>IF</u> a valid Journal Vibration exceeds the following, immediately **PRESS** Main Turbine TRIP PBs.	***RO trips Main Turbine using both MAIN TURBINE TRIP push buttons on 10C651D after reaching 12mils.**		
	HC.OP-AB.BOP-0002, MAIN TURBINE			
Examiner Note:	**The operator may take either the Immediate Operator Actions, OR the Retainment Override actions. Annotate appropriately.**			
	IMMEDIATE OPERATOR ACTIONS **CONDITION** Bearing 1–10 Vibration ≥12 mils @ 1800 RPM ⠀⠀⠀Bearing 11–12 Vibration ≥8 ⠀⠀⠀mils @ 1800 RPM **ACTION** A.⠀⠀<u>IF</u> Reactor Power is ⠀⠀⠀≥18%** ⠀⠀⠀<u>THEN</u> LOCK the Mode ⠀⠀⠀Switch in Shutdown. B.⠀⠀**IMMEDIATELY TRIP** the ⠀⠀⠀Main Turbine.	Operator determines that bearing 10 is ≥12 mils @ 1800 RPM. ***Operator immediately trips the Main Turbine by depressing both TRIP push buttons on 10C651D after reaching 12mils** and initials Action. Examiners Note: Since reactor power is <18% the reactor SHOULD NOT be scrammed.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	RETAINMENT OVERRIDE **CONDITION** III. Bearing 1–10 Vibration ≥11 mils @ 1800 RPM * Bearing 11–12 Vibration ≥7 mils @ 1800 RPM * **ACTION** III,A <u>IF</u> Reactor Power is ≥18%** <u>THEN</u> **PERFORM** the following:… III.B **IMMEDIATELY TRIP** the Main Turbine.	Examiner's Note: Reactor Operators are directed to carry out RETAINMENT OVERRIDE ACTIONS. ***Operator trips the Main Turbine by depressing both TRIP push buttons on 10C651D after reaching 11 mils** and initials Action. Examiners Note: Since reactor power is <18% the reactor SHOULD NOT be scrammed.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator synchronizes and loads the Main Generator, then responds to a turbine generator malfunction in accordance with HC.OP-AB.BOP-0002, or HC.OP-AR.ZZ-0014.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: MA002   **NAME:** _____

REV NUMBER: 03   **DATE:** _____

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

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_____

_____

RESPONSE: _____

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_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: MA002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	3/20/2019	Modified formatting of steps due to procedure revisions. Editorial	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: MA002   **REV#:**   03

TASK: Synchronize and Load the Main Generator/Respond To A Turbine Generator Malfunction

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥3.0 (LOR); or ≥2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: MA002   **REV#:** 03

INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to an IC with the Main Turbine rolling at 1800 rpm, and ready to synchronize the Main Generator through Step 5.2.12 of HC.OP-SO.MA-0001.
	ENSURE that Turbine Load Set Ramp Rate is set to 5% on the DEHC HMI.
	ENSURE that any screen OTHER THAN $\boxed{\text{CONTROL}}$; $\boxed{\text{SPEED-LOAD}}$ is selected on both DEHC HMIs.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)

Initial	Description
	MARK-UP HC.OP-SO.MA-0001 through Step 5.2.11.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
		Event code: A2534_V <= 30
		Description: BPV POSITION =<30%

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction TU1510 to 20.0 in 60 on event 1	Turbine bearing #10 vibration high
	None	None	Insert malfunction TU1509 to 5.5 in 120 on event 1	Turbine bearing #9 vibration high
	None	None	Insert malfunction TU1511 to 5.0 in 120 on event 1	Turbine bearing #11 vibration high

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A plant startup from a forced outage is in progress.
2. The Main Generator and Transformer have been placed in standby.
3. Main Turbine is operating at 1800 rpm.
4. Unit Protection Lockout Relays (5)86UR and (5)86UB have been reset.
5. Load Dispatcher/System Operator has been notified of impending loading.
6. The Fire Water System is in-service.
7. The Switchyard has been aligned IAW Section 5.4 of HC.OP-SO.MA-0001.
8. 1EGTIC-2625 is in AUTO with setpoint at 95°F.
9. HC.OP-SO.MA-0001 is complete up to and including step 5.2.11.
10. TBEO and YDEO have been briefed and are standing by to support synchronization.

INITIATING CUE:

SYNCHRONIZE <u>AND</u> **LOAD** the Main Generator IAW HC.OP-SO.MA-0001.

PERFORM the initial synchronization using the 500KV BS6-5 breaker.

MAINTAIN Load Set at 30% to support four hour soak for required testing.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Core Isolation Cooling

TASK NUMBER: 2000290501

TASK: Reduce Torus Level Using RCIC System

2019 NRC JPM B	Copy _____ of _____

JPM NUMBER: 305H-JPM.BD006　　　　　　　　　**REVISION:** 09

SAP BET: NOH05JPBD06E

K/A NUMBER: 295029 EA1.04　　　　　　**IMPORTANCE FACTOR:**　RO: 3.4　　SRO: 3.5

ALTERNATE PATH: ☐

APPLICABILITY:　　　　　　**RO** ☒　　　　　　　　**SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-EO.ZZ-0317, Rev. 5

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____17_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____　　**GRADE: SAT** ☐　　**UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____　　　**DATE:** _____
　　　　　　　　　　　　Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Core Isolation Cooling

TASK NUMBER: 2000290501

TASK: Reduce Torus Level Using RCIC System

INITIAL CONDIITONS:
1. The plant was at 100% power when a loss of Feedwater resulted in a reactor scram.
2. The reactor is shutdown, with condensate maintaining RPV level and bypass valves controlling pressure.
3. 'B' RHR is in Suppression Pool cooling.
4. Due to a valve lineup error, Suppression Chamber water level was raised to >78.5" with water from the CST.
5. The valve lineup error has been corrected.
6. EOP-102 is being implemented.
7. Normal means of level reduction through Torus Water Cleanup and RHR are not available.
8. The Chemistry Department has been notified that low quality water will be added to the CST.
9. The CST has sufficient room to accommodate the letdown.
10. An operator is standing by to perform field manipulations.
11. Rad Pro has locked down the Torus Room.

INITIATING CUE:

   COMMENCE Suppression Pool Level Reduction using RCIC IAW HC.OP-EO.ZZ-0317 to a target level of 76".

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> **INFORM** operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.1.		
5.1.1.	**ENSURE** that all prerequisites have been satisfied IAW Section 2.1 of this procedure.	Operator ensures that all prerequisites have been satisfied, and initials Step.		
CUE:	<u>IF</u> excessive time is taken reviewing prerequisites, <u>THEN</u> **INFORM** operator that all are satisfied.			
5.1.2.	**OPEN** HV-F031 RCIC PMP SUCT FROM SUPPRESSION POOL ISLN MOV.	***Operator presses the HV-F031 OPEN pushbutton,** observes the red OPEN light illuminates and green CLSD light extinguishes, and initials Step.		
5.1.3.	**ENSURE** HV-F010 RCIC PMP SUCT from CST ISLN MOV closes.	Operator observes the green HV-F010 CLSD light illuminates and red OPEN light extinguishes.		
<u>**NOTE**</u>	The performance of Steps 5.1.4 and 5.1.5 allows the operator to open HV-F022 Test BYP TO CST ISLN MOV and HV-F011 COMMON TEST LINE TO CST ISLN MOV while HV-F031 RCIC PMP Suct from Suppression Pool Isln MOV is open. In order to maintain control of the Relay that is removed in the next step, it should be placed in the bag provided in the EOP 317 Implementation Kit, and turned over to the SM/CRS.	Operator reads and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.1.4.	At Panel H11-P621, RCIC RELAY Vertical Board, rear, BAY A, **REMOVE** Relay E51A-K37 VALVE E51-F031 POSITION MONITOR (**SEE** Attachments 2, 3, and 4), <u>AND</u> **REPLACE** with dummy relay from EOP-317 Implementation kit.	***Operator directs field operator to perform steps 5.1.4,** and initials Step. Note: Steps 5.1.4 through 5.1.6 could be directed to be performed all at once.		
CUE:	**Respond as appropriate to the directed performance of Steps 5.1.4-6.**			
<u>**NOTE**</u>	The performance of Steps 5.1.5 and 5.1.6 allows the operator to open HV-F011 COMMON TEST LINE TO CST ISLN MOV with F042 PMP SUC FROM SUPP CHAMBER ISLN open.	Operator reads and initials NOTE.		
5.1.5.	At Panel H11-P620, HPCI Relay Vertical Board, rear, Bay A, **LIFT**, **SEPARATE** <u>AND</u> **TAPE** the two leads from relay terminal position T1 of relay E41A-K76 (**SEE** Attachments 2, 5, and 6).	***Operator directs field operator to perform steps 5.1.5,** and initials Step.		
5.1.6.	At Panel H11-P620, HPCI RELAY Vertical Board, front **INSTALL** a Jumper between test panel terminals labeled, E41A-K43 M2 and R2 (**SEE** Attachment 7).	***Operator directs field operator to perform steps 5.1.6,** and initials Step.		
CUE:	**TRIGGER ET-1 and REPORT steps 5.1.4 – 5.1.6 are complete.**			
5.1.7.	**THROTTLE OPEN** HV-F022 RCIC TEST BYP TO CST ISLN VLV approximately 9 to 10 seconds.	***Operator presses the HV-F022 INCR pushbutton for ≈9-10 seconds,** observes the red OPEN light illuminates, and initials Step.		
5.1.8.	**START** OP219 BAROMETRIC CONDENSER VAC TK VACUUM PUMP.	***Operator presses the OP219 START pushbutton,** observes the red OP219 RUNNING light illuminates and green STOPPED light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.1.9.	**OPEN** HV-F046 LUBE OIL COOLER WTR ISLN VLV.	***Operator presses the HV-F046 OPEN pushbutton,** observes the red OPEN light illuminates and green CLSD light extinguishes, and initials Step.		
<u>**NOTE**</u>	Open HV-F045 and HV-F011 simultaneously to provide a flow path for the pump. This will reduce the probability of a turbine overspeed or pump discharge piping overpressurization.	Operator reads and initials NOTE.		
<u>**CAUTION**</u>	**To prevent possible bearing damage and exhaust check valve "chatter", RCIC Turbine speed should be maintained ≥ 2150 rpm. [CD-815D]** **During operation of RCIC, the turbine shall be "tripped" immediately IF any of the following are noted:** • **Excessive vibration** • **Excessive oil temperature** • **Sudden drop in oil pressure** • **or other unusual operating conditions** **Performing the following step...** **RCIC Flow Control in Man is extremely sensitive. FIC-R600 should be kept in AUTO when injecting to the RPV as much as possible. Reducing the system's flow below 75% of its rated value (< 450 gpm) promotes the likelihood of control system instability. If control system instability occurs, FIC-R600 should be placed in manual mode. [70041838] …**	Operator reads and initials CAUTION.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.1.10.	**SIMULTANEOUSLY OPEN** HV-F045 TURB MN STM SUP ISLN V (PB must be held depressed until valve is fully opened) <u>AND</u> HV-F011 HPCI & RCIC COMMON TEST RETURN ISLN VLV.	***Operator simultaneously presses <u>AND</u> holds the HV-F045 OPEN pushbutton, AND presses the HV-F011 OPEN pushbutton,** observes the red OPEN lights illuminate and green CLSD lights extinguish for HV-F045 AND HV-F011, then releases the HV-F045 OPEN pushbutton and initials Step. Examiner Note: It is NOT critical the Operator fully open the HV-F045 on the initial attempt. It is critical to ultimately fully open the HV-F045.		
5.1.11.	**THROTTLE** HV-F022 RCIC TEST BYP TO CST ISLN VLV as necessary to establish desired system discharge pressure and turbine speed.	***Operator presses the HV-F022 INCR and/or DECR pushbuttons as necessary to establish desired system discharge pressure and turbine speed,** and initials Step. Examiner Note: It is critical to open the HV-F022 and maintain RCIC Turbine speed IAW CAUTION requirements.		
5.1.12.	IF desired, **ADJUST** RCIC Pump flow as follows: A. <u>WITH</u> FIC-R600 in AUTO • **ADJUST** FIC-R600 using LOWER SETPOINT (RAISE SETPOINT) to desired flow. • <u>IF</u> required to operate with reduced system flow <u>AND</u> Control System Instability occurs, <u>THEN</u> **TRANSFER** to MAN by pressing MAN Pushbutton, <u>AND</u> **ADJUST** FIC-R600 to desired flow using the up and down arrows.	Operator presses the FIC-R600 Setpoint Raise/Lower pushbuttons as necessary to establish desired system discharge flow, and initials Step		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	B. WITH FIC-R600 in MAN, **ADJUST** FIC-R600 to desired flow using the up and down arrows.	Operator presses the FIC-R600 UP/DOWN arrow pushbuttons as necessary to establish desired system discharge flow IF FIC-R600 is in MAN, and initials Step		
5.1.13.	VERIFY CLOSED the following: • HV-F025 RCIC STM TRAP ISLN VLV	Operator observes the OPEN light extinguishes and CLOSED light illuminates for HV-F025, and initials Step.		
	• HV-F026 RCIC STM TRAP ISLN VLV	Operator observes the OPEN light extinguishes and CLOSED light illuminates for HV-F026, and initials Step.		
	• LV-F005 VAC TNK LVL VLV	Operator observes the OPEN light extinguishes and CLOSED light illuminates for LV-F005, and initials Step.		
	• HV-F004 CNDS PMP DRN VLV	Operator observes the OPEN light extinguishes and CLOSED light illuminates for HV-F004, and initials Step.		
5.1.14.	WHEN flow has settled, **ADJUST** the rate of Suppression Chamber level reduction by increasing or decreasing the FIC-R600 setpoint.	Operator observes flow indication on FIC-R600 settles, and initials Step.		
CUE:	WHEN torus level has been reduced by at least 0.2 inches, OR WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP time. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator commences Suppression Pool Level Reduction using RCIC IAW HC.OP-EO.ZZ-0317 to a target level of 76".

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BD006   **NAME:**

REV NUMBER: 09   **DATE:**

QUESTION:

_____

_____

_____

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RESPONSE:

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION:

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RESPONSE:

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_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BD006

REVISION HISTORY

Rev #	Date	Description	Validation Required?
09	8/2/2016	Revised format. Made changes to cues. Added @ and description in Comments. Revised procedure revision number. Editorial changes only. No changes to Operator actions. No validation required.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BD006   **REV#:** 09
      TASK: Reduce Torus Level Using RCIC System

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: BD006   **REV#:**   09

INITIAL CONDITIONS:

I.C.	
Initial	

_____	**INITIALIZE** the simulator to 100% power, MOL.
_____	**SCRAM** the plant; reduce pressure setpoint to 550#.
_____	Implement EOP-101 and AB-000 to stabilize conditions.
_____	**PLACE** B RHR in Suppression Pool Cooling
_____	**RAISE** Suppression Pool level to ≈80" using Remote CS01 thru CS04

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)

Initial	Description
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote EP04 to BYPASS on event 1	EP04 EOP-317, HV-F022/HV-F031 interlock for RCIC

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was at 100% power when a loss of Feedwater resulted in a reactor scram.
2. The reactor is shutdown, with condensate maintaining RPV level and bypass valves controlling pressure.
3. 'B' RHR is in Suppression Pool cooling.
4. Due to a valve lineup error, Suppression Chamber water level was raised to >78.5" with water from the CST.
5. The valve lineup error has been corrected.
6. EOP-102 is being implemented.
7. Normal means of level reduction through Torus Water Cleanup and RHR are not available.
8. The Chemistry Department has been notified that low quality water will be added to the CST.
9. The CST has sufficient room to accommodate the letdown.
10. An operator is standing by to perform field manipulations.
11. Rad Pro has locked down the Torus Room.

INITIATING CUE:

COMMENCE Suppression Pool Level Reduction using RCIC IAW HC.OP-EO.ZZ-0317 to a target level of 76".

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Safety and Auxiliaries Cooling Water System (SACS)

TASK NUMBER: 3080050101

TASK: Transfer TACS To The Standby SACs Loop

JPM NUMBER: 305H-JPM.EG010   **REVISION:** 00

SAP BET: NOH05JPEG10E

K/A NUMBER: 400000 A4.01   **IMPORTANCE FACTOR:** RO: 3.1   SRO: 3.0

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.EG-0001, REV. 56

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____ 22 _____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____ N/A _____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: **N/A** Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
          Signature

JOB PERFORMANCE MEASURE

SYSTEM: Safety and Auxiliaries Cooling Water System (SACS)

TASK NUMBER: 3080050101

TASK: Transfer TACS To The Standby SACs Loop

INITIAL CONDIITONS:

1. TACS cooling is to be swapped to SACS loop B.
2. Section 5.6 of HC.OP-SO.EG-0001 has been completed through Step 5.6.5. (Refer to the provided HC.OP-SO.EG-0001.)

INITIATING CUE:

COMPLETE the transfer of TACS to the standby SACS loop in accordance with Section 5.6 of HC.OP-SO.EG-0001, and **PLACE** SACS Pump CP210 in standby. An additional Main Control Room operator is not available at this time.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>**IF excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.**</u>			
5.6.1.	**ENSURE** all prerequisites of Section 2.6 are satisfied.	Operator completes Attachment 1, Section 2.0, prior to performing any part of this procedure.		
5.6.6.	<u>IF</u> standby SACS Loop A(B) is to be placed in service from the Main Control Room Panel (10C651A), <u>THEN</u> **PERFORM** the following: A. OBSERVE Loop A(B) Pump A(B) OR C(D), REMOTE push-button is OFF.	Operator observes that the Loop B Pump B Remote push-button is OFF, and initials Step.		
	B. **PLACE** Loop A(B) Pump A(B) <u>OR</u> C(D) in MAN control.	***#Operator presses the Loop B Pump B MAN push-button**, and initials STEP.		
	C. **PRESS** the AP210(BP210) OR CP210(DP210) START pushbutton <u>AND</u> **PERFORM** the following:	***#Operator presses the BP210 START pushbutton,** and initials STEP.		
NOTE	If 30 seconds after starting a SACS Pump, the pump differential pressure is low, the pump will automatically trip.	Operator reads and initials NOTE.		
	1. **OBSERVE** the LOOP A(B) PUMP A(B) <u>OR</u> C(D), LOW DIFF PRESS light extinguishes.	Operator observes that the Loop B Pump B LOW DIFF PRESS light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. <u>IF</u> HV-2491A(B), SACS LOOP A(B) HEAT EXCHANGER INLET ISOLATION VLV, <u>OR</u> HV-2494A(B), SACS LOOP A(B) HEAT EXCHANGER INLET ISOLATION VLV, are closed, <u>THEN</u> **OBSERVE** the auto opening.	Operator determines that this Step is N/A, and marks N/A.		
	3. <u>THROTTLE</u> OPEN EG-HV-2512A(B) to ensure minimum flow requirements of ≈9000 gpm SACS flow through the RHR HX.	***#Operator throttles open EG-HV-2512B to ensure minimum flow requirements of ≈9000 gpm SACS flow through the RHR HX,** and initials Step.		
5.6.7.	<u>IF</u> desired, <u>THEN</u> **STATION** an operator at Panel 10C650A in the Main Control Room to cycle EG-HV-2512A(B), RHR HX OUTLET VALVES.	N/A	N/A	N/A
5.6.8.	**REFER** TO Steps 5.6.4.C <u>AND</u> 5.6.5.C AND OPEN the TACS Isolation Valves (HV2522/HV2496) in the standby loop which required the most amount of time to stroke fully open.	***#Operator presses the OPEN pushbutton for HV2522/2496D,** and initials Step.		
NOTE	The following are positive indications that the remaining TACS Isolation Valves in the standby loop are opening: …	Operator reads and initials NOTE.		
5.6.9.	**OPEN** TACS Isolation Valves in the standby loop NOT opened in Step 5.6.8 <u>AND</u> OBSERVE positive indication that both valves are opening.	***#Operator presses the OPEN pushbutton for HV2522/2496B,** and initials Step.		
CAUTION	The following steps need to be performed expeditiously or Head Tank sluicing may cause a TACS isolation and Head Tank overflow.	Operator reads and initials CAUTION.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@

5.6.10.	WHEN positive indication is noted that the remaining TACS Isolation Valves in the standby loop have started to open, THEN **PERFORM** the following AND **INITIAL** Attachment 1:
	
	• **PRESS** AND **HOLD** the CLOSE PB until the following valves on the SACS Loop being removed from service indicate closed:
	  o HV-2522B(A), TACS INBD SPLY/RTN VLV
	  o HV-2496B(A), TACS INBD SPLY/RTN VLV
		*#**Operator presses, and holds, the CLOSE pushbutton for HV2522/2496A until they indicate closed,**
		
		and initials Step.		

	• IF required, **ADJUST OPEN** HV-2512B(A), RHR HX OUTLET VALVE, to obtain ≈4500 gpm SACS flow through the RHR HX, (on the SACS Loop being removed from service) to establish minimum flow requirements.	*#**Operator adjusts OPEN HV-2512A to obtain ≈4500 gpm SACS flow through the RHR HX,** and initials Step		
	• **PRESS** AND **HOLD** CLOSE PB until EG-HV-2512A(B), RHR HX OUTLET VALVE, (on the SACS Loop being placed in service) indicates closed.	*#**Operator presses, and holds, the CLOSE pushbutton for HV-2512B until the valve is closed,** and initials Step.		

	• **CLOSE** the following valves on the SACS Loop being removed from service:
	  o HV-2522D(C), TACS OUTBD SPLY/RTN VLV
	  o HV-2496D(C), TACS OUTBD SPLY/RTN VLV
		Operator presses, and holds, the CLOSE pushbutton for HV2522/2496C until they indicate closed, and initials Step.		

	PERFORM the following to place the SACS Loop B(A) in standby: A. **PRESS** the BP210(AP210) OR DP210(CP210) STOP pushbutton.	*#**Operator presses the CP210 STOP pushbutton,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	B. **THROTTLE** EG-HV-2512B(A) to ensure minimum flow requirements of ≈4500 gpm SACS flow through the RHR HX.	***#Operator throttles open EG-HV-2512A (if required) to ensure minimum flow requirements of ≈4500 gpm SACS flow through the RHR HX,** and initials Step.		
	C. **POSITION** SACS Heat Exchanger Inlet Isolation Valve associated with SACS Pump removed from service as directed by SM/CRS:	Operator asks CRS for direction on SACS Heat Exchanger Inlet Isolation Valves.	N/A	N/A
CUE:	**Respond as the CRS to leave SACS Heat Exchanger Inlet Isolation Valve EG-HV-2494B open.**			
	• SACS Pump B(A) EG-HV-2491B(A)	Operator marks as N/A.		
	• SACS Pump D(C) EG-HV-2494B(A)	Operator initials Step.		
NOTE	Placing the stopped SACS Pump in AUTO will start the pump, if its associated Control Room OR the 1E Panel Room (TSC) Chiller is in-service in AUTO. (AP414-AP210, BP414-BP210, AP400-CP210, AND BP400-DP210)	Operator reads and initials NOTE.		
5.6.12.	IF the Control Room OR 1E Panel Room (TS) Chiller is in service with its Chill Water Circ pump in AUTO, AND the associated SACS pump is in STBY alignment, THEN **PLACE** the chiller Circ Pump in MAN.	***#Operator presses CHW CIRC PUMP AP400 MAN push-button,** and initials Step		
5.6.13.	**PLACE** all SACS Pumps are in AUTO.	***#Operator places all SACS Pumps in AUTO,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE	If the SACS Demineralizer inlet valves were in the closed position when step 5.6.2 was performed, Chemistry should be contacted about whether the SACS Demineralizers should be placed in service.	Operator reads and initials NOTE.		
5.6.14.	IF a SACS pump has been started OR stopped, THEN **PERFORM** the following: A. **OPEN** 1-EG-V909, A SACS DEMIN INLET VALVE. B. **OPEN** 1-EG-V912, B SACS DEMIN INLET VALVE.	Operator directs equipment operator to open 1-EG-V909 and 1-EG-V912, and initials step.		
CUE:	**State that 1-EG-V909 and 1-EG-V912 are open.**			
5.6.15	**REQUEST** CRS to update EOOS for the current SACS pump lineup.	Operator requests that the CRS to update EOOS for the current SACS pump lineup.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator transfers of TACS to the standby SACS loop in accordance with Section 5.6 of HC.OP-SO.EG-0001.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: EG010   **NAME:**

REV NUMBER: 00   **DATE:**

QUESTION:

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RESPONSE:

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION:

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RESPONSE:

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RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EG010

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	2/19/2019	New JPM.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: EG010   **REV#:** 00
      TASK: Transfer TACS To The Standby SACs Loop

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: EG010   **REV#:** 00

INITIAL CONDITIONS:

I.C.

Initial	

           INITIALIZE the simulator to 100% power, TACS on SACS Loop A.

           ENSURE SSW AP502 and DP502 are running; BP502 and DP502 are in standby.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)

Initial	Description

           MARKUP Section 5.6 of HC.OP-SO.EG-0001 has been completed through Step 5.6.5(including annotating the pumps, valves, and appropriate loops operated). ENSURE HV2522/2496D are annotated for the longest operating time.

           COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. TACS cooling is to be swapped to SACS loop B.

2. Section 5.6 of HC.OP-SO.EG-0001 has been completed through Step 5.6.5. (Refer to the provided HC.OP-SO.EG-0001.)

INITIATING CUE:

COMPLETE the transfer of TACS to the standby SACS loop in accordance with Section 5.6 of HC.OP-SO.EG-0001, AND **PLACE** SACS Pump CP210 in standby.

An additional Main Control Room operator is not available at this time.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2019 NRC JPM D

Copy _____ of _____

SYSTEM: Core Spray

TASK NUMBER: 2090030501

TASK: Manually Start the Core Spray System

JPM NUMBER: 305H-JPM.BE005 **REVISION:** 14

SAP BET: NOH05JPBE05E

K/A NUMBER: 209001 A4.01 **IMPORTANCE FACTOR:** RO: 3.8 SRO: 3.6

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Attachment 5; Rev. 31

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____10_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: ___N/A___ Minutes

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JPM PERFORMED BY: _____ **GRADE:** **SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: ___N/A___ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Core Spray

TASK NUMBER: 2090030501

TASK: Manually Start the Core Spray System

INITIAL CONDIITONS:
1.   The plant has experienced a loss of all offsite power coincident with a small break LOCA.
2.   A and C Emergency Diesel Generators have failed to start.
3.   HPCI has just tripped.
4.   Reactor pressure is approximately 500 psig and lowering.
5.   Reactor level is approximately -75 inches and lowering.

INITIATING CUE:

RESTORE reactor level to between RPV Level 2 to Level 8 band with B Core Spray Loop. The simulator is in FREEZE until you are ready to begin.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains/locates procedure HC.OP-AB.ZZ-0001, Attachment 5, Page 2 of 2.	Operator obtains the correct procedure.		
	_____/_____ **Date/Time**	Operator enters Date and Time in the appropriate spaces.		
<u>**NOTE**</u>	Loss of 1BD481, 1DD481, 1BD482, or 1DD482 may affect controls and indication.	Operator reads and initials NOTE.		
1.0	<u>IF</u> an Initiation Signal is present, <u>THEN</u> **PERFORM** the following:	Operator determines that an Initiation Signal is present based on: overhead annunciators B3-A3/A4, CORE SPRAY PUMP B/D AUTO START, are in alarm, LOGIC B(D) INITIATION lights are lit on 10C650A, etc.		
A.	**ENSURE** B Core Spray Pump is running.	Operator observes the B Core Spray Pump is NOT running. ***Operator depresses the BP206 START push button,** observes that B Core Spray Pump is running, and initials Step.		
B.	**ENSURE** D Core Spray Pump is running.	Operator observes the D Core Spray Pump is not running. ***Operator depresses the DP206 START push button,** observes that D Core Spray Pump is running, and initials Step.		
C.	**ENSURE** HV-F015B is CLOSED.	Operator observes that HV-F015B is CLOSED, and initials Step.		
D.	**ENSURE** HV-F004B is OPEN.	Operator observes that HV-F004B is OPEN, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
E.	<u>WHEN</u> REACTOR PRESSURE is <461 psig, <u>THEN</u> **ENSURE** HV-F005B is OPEN.	Operator observes Reactor Pressure lowers to <461 psig, and that HV-F005B did NOT open. ***#Operator depresses the HV-F005B OPEN push button,** observes the HV-F005B red OPEN light illuminates and the green CLSD light extinguishes, and initials Step.		
CUE:	**Repeat back status of Core Spray HV-F005B (if necessary).**			
F.	**ENSURE** the HV-F031B CLOSES when flow is >775 gpm, <u>AND</u> OPENS when flow is <775 gpm.	Operator observes Core Spray System B flow on FI-R601B to be >775 gpm AND HV-F031B is still open, ***#Operator depresses the HV-F031B CLOSE push button,** observes the HV-F031B green CLSD light illuminates and the red OPEN light extinguishes. and initials Step.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator restores reactor level to between RPV Level 2 to Level 8 band with B Core Spray Loop

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BE005   **NAME:** _____

REV NUMBER: 14   **DATE:** _____

QUESTION: _____
_____
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_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

REVISION HISTORY

Rev #	Date	Description	Validation Required?
14	10/1/2018	Added CRIDS point out of scan to Simulator Setup. Modified Initial Conditions. Editorial	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BE005   **REV#:** 14
            TASK: Manually Start the Core Spray System

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: BE005   **REV#:**   14

INITIAL CONDITIONS:

I.C.	
Initial	

_____	**INITIALIZE** to any 100% power IC
_____	**ENSURE** associated Schedule file open and running
_____	**INSERT** contents of Schedule file
_____	**ENSURE** associated Events file open
_____	**PLACE** simulator in Run
_____	**ENTER VALUE of 1** to CRIDS point D3638
_____	**PLACE** Mode Switch in Shutdown
_____	**INHIBIT** ADS
_____	**INSERT** Events 1, 2, 3
_____	**MODIFY** MS01 as necessary to ensure approximately 500 psig at -75 inches.
_____	**ENSURE** Reactor water level drops to approximately -75 inches **REDUCE** Reactor pressure to approximately 500 psig. Established severity of MSO1 at 7% when at these conditions.
_____	**PLACE** simulator in Freeze

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)

Initial	Description
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
	4	Event code: ZDCS31CB Description: HV-F031B Close PB pressed // Deletes stuck open min-flow valve.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction DG02A	Diesel generator A failure
	None	None	Insert malfunction DG02C	Diesel generator C failure
	None	None	Insert malfunction HP03	HPCI turbine trip
	None	None	Insert malfunction CS03B	Core spray HV-F005B fail to auto open
	None	None	Insert malfunction CS04B	Core spray pump B fail to auto start
	None	None	Insert malfunction CS04D	Core spray pump D fail to auto start
	None	None	Insert malfunction EG12 on event 1	Loss of all off site power
	None	None	Insert malfunction RR31A1 to 10.00000 on event 2	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RR31A2 to 7 on event 2	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction MS01 to 7.00000 on event 3	Steam line break in drywell

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote RH19B to FAIL_CLOSE	RH19 HV-F017B RHR INJ VALVE
	None	None	Insert remote RH19D to FAIL_CLOSE	RH19 HV-F017D RHR INJ VALVE

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 8S29_B_LO to OFF	HV-F031B CLOSED (LO)
	None	None	Insert override 8S29_C_LO to On	HV-F031B OPEN (LO)
	None	None	Insert override 8S29_B_LO to ON on event 4	HV-F031B CLOSED (LO)
	None	None	Insert override 8S29_C_LO to On on event 4 delete in 20	HV-F031B OPEN (LO)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant has experienced a loss of all offsite power coincident with a small break LOCA.
2. A and C Emergency Diesel Generators have failed to start.
3. HPCI has just tripped.
4. Reactor pressure is approximately 500 psig and lowering.
5. Reactor level is approximately -75 inches and lowering.

INITIATING CUE:

RESTORE reactor level to between RPV Level 2 to Level 8 band with B Core Spray Loop.

The simulator is in FREEZE until you are ready to begin.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod and Drive Mechanism

TASK NUMBER: 2010090201

TASK: Exercise A Control Rod

| | 2019 NRC JPM E | Copy _____ of _____ |

JPM NUMBER: 305H-JPM.BF014   **REVISION:** 00

SAP BET: NOH05JPBF11E

K/A NUMBER: 201003 A2.06   **IMPORTANCE FACTOR:** RO: 3.0   SRO: 3.1

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.BF-0001 Rev. 31

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____33_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                              Signature

JOB PERFORMANCE MEASURE

SYSTEM: Control Rod and Drive Mechanism

TASK NUMBER: 2010090201

TASK: Exercise A Control Rod

INITIAL CONDIITONS:
1.   The Plant is operating at 100% power.
2.   Maintenance was performed on the position indication circuit of rod 14-23
3.   The maintenance is complete.
4.   As part of the retest requirements, performance of HC.OP-ST.BF-0001 Control Rod Drive Exercise – Monthly is required for control rod 14-23 only.
5.   The "ON DUTY" Reactor Engineer has been notified that control rod 14-23 will be exercised IAW HC.OP-ST.BF-0001.
6.   Use CRIDS for OD-7 control rod positions.
7.   The Reactor Engineer has approved exercising rod 14-23 at 100% power.

INITIATING CUE:

   EXERCISE control rod 14-23 IAW HC.OP-ST.BF-0001.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, marked-up copy of HC.OP-ST.BF-0001, copy of RE Weekly Guidance <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> **INFORM** operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.		
5.1	**LOG** test start time in the Control Room log(s).	Operator requests the procedure be logged in the Control Room log and initials Step.		
CUE:	**The start time for HC.OP-ST.BF-0001 for retest of rod 14-23 only, has been logged in the Control Room log.**			
5.2	**ENSURE** all prerequisites of Section 2.0 are satisfied.	Operator ensures that all prerequisites have been satisfied and initials Step.		
CUE:	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**			
5.3	**ENSURE** Attachment 1, Section 1.0 has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.	Operator observes Attachment 1, Section 1.0 has been completed <u>AND</u> Retest is indicated and initials Step.		
5.4	**OBTAIN** a computer printout of the current Control Rod positions. (e.g. OD-7)	Operator displays OD-7 from CRIDS terminal and initials Step.		
CUE:	**Provide operator printout of OD-7 from CRIDS.**			
5.5	**OBSERVE** proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods.	Operator reviews the requirement to observe proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6	**SELECT** the next Control Rod <u>AND</u> **RECORD** or verify the initial Control Rod position on Attachment 2.	***#Operator presses ROD SELECT MODULE 14-23 pushbutton,** records the initial rod position on Attachment 2, and initials Step.		
5.7	<u>IF</u> Control Rod is at position 00, **RECORD** final Control Rod position on Attachment 2. All other blocks are N/A for this rod.	Operator determines that this step is N/A and marks Step N/A.		
5.8	**OBSERVE** approximately 6 gpm total flow through both the insert <u>AND</u> withdraw Stabilizing Valves as indicated on CRID's point B2117. **[70044199]**	Operators observes approximately 6 gpm total flow through both the insert <u>AND</u> withdraw Stabilizing Valves as indicated on CRID's point B2117 and initials Step.		
<u>NOTE</u>	The following two steps will exercise the 1-BF-V138, Cooling Water Header Check Valve, as required by T/S 4.0.5. If a "failed position" is encountered when a single notch insertion is attempted, an alternate position may be selected to insert the rod, provided that guidance is obtained from Reactor Engineering. In this situation the remarks section of Attachment 3 should document the alternate position utilized.	Operator reads NOTE and initials Note.		
5.9	**INSERT** the selected Control Rod one notch (or as directed by Reactor Engineering) <u>AND</u> **PERFORM** the following: **[T/S 4.1.3.1.2, T/S 4.1.3.7]**	***#Operator momentarily presses the ROD MOTION CONTROLS INSERT pushbutton,** and initials Step.		
5.9.1	**ENSURE** proper operation of the RPIS.	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY, RWM, or CRIDS indicates control rod movement to position 06, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.9.2	IF a Control rod is inadvertently positioned at other than the desired position, THEN IMPLEMENT the associated guidance contained in the Reactor Engineering Weekly Guidance AND CONTACT Reactor Engineering.	Operator determines that this step is N/A and marks Step N/A.		
5.9.3	IF the control rod does not insert to the next notch after one attempt, PERFORM the following: …	Operator determines that this step is N/A and marks Step N/A.		
5.9.4	INDICATE the condition of RPIS indication on Attachment 2.	Operator then indicates the RPIS indication is SAT on Attachment 2, and initials Step.		
5.10	IF the position recorded in Step 5.6 is an intermediate position, THEN PERFORM Step 5.10.1, OTHERWISE, GO TO Step 5.10.2 to return the control rod to its original position: …	Operator determines the position recorded in Step 5.6 is at an intermediate position, continues at step 5.10.1 and initials Step.		
5.10.1	WITHDRAW the inserted Control Rod to its initial position AND PERFORM the following: A. INDICATE the Check Valve Inservice Test condition on Attachment 2. [T/S 4.0.5]	*#Operator momentarily presses the ROD MOTION CONTROLS WITHDRAW pushbutton, observes that the control rod settles into the original position, records SAT for the Check Valve Inservice Test on Attachment 2, and initials Step.		
	B. RECORD the final Control Rod position AND ENTER initials for performance/verification on Attachment 2.	Operator records the final Control Rod position and initials for performance on Attachment 2, and initials Step.		
	C. GO TO Step 5.11	Operator proceeds to Step 5.11, and initials Step.		
5.11	REPEAT Steps 5.6 through 5.10 for each of the remaining Control Rods.	Operator determines that this step is N/A and marks Step N/A.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	Instructor Note: Ensure ET-2 triggers when 14-23 returned to 08.	Operator observes, and reports, OHA CRD HYDR UNIT TEMP HI (C6-C3) is in alarm, and refers to Step 5.12 and HC.OP-AR.ZZ-0011.		
CUE:	**Acknowledge the report, as the CRS.**			
HC.OP-AR.ZZ-0011				
	OPERATOR ACTION: 1. **CHECK** Cooling Water Flow at 63 gpm. <u>IF</u> not, **ADJUST** FIC-R600 as necessary. (DRIVE WATER PC STA) (10C651C)	Operator determines that Cooling Water Flow indicates approximately 63 gpm. Operator refers to D3019.		
HC.OP-AR.ZZ-0022				
D3019	OPERATOR ACTION: 1. **DISPATCH** an operator to Control Rod Drive Panel 10C007 to respond to alarm on Temperature Recorder 1BF-TR-R018 IAW HC.OP-AR.BF-0001(Q), <u>AND</u> determine which CRD mechanism(s) are in alarm state.	Operator dispatches an Equipment Operator to determine the CRD in alarm at the local panel. Following the report back from the Equipment Operator, the operator proceeds to Step 5.12.		
CUE:	**Respond as the Equipment Operator.** **Report that Control Rod 14-23 is in alarm and indicating approximately 360F.** **Examiner Note: Insert Remote Function AN30 to NORM to acknowledge OHA.**			
5.12	<u>IF</u> during the course of control rod exercising, high temperatures are experienced on a control rod that has been exercised, **PERFORM** the following:	Operator determines that this Step is applicable.		
<u>NOTE</u>	Affected control rod may be exercised only twice to clear the high temperature condition.	Operator reads NOTE, and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.12.1	**REPEAT** Steps 5.6 through 5.10 for the affected control rod.	***#Operator returns to repeat Steps 5.6 through 5.10 for control rod 14-23** and initials Step. Examiner Note: Operator may ask for temperature indication following 1 repeat, or after 2 repeats.		
CUE:	**Provide operator additional copies of HC.OP-ST.BF-0001 IF requested.**			
	Examiner Note: Operator performs Steps 5.6-5.10 once or twice. Annotate on this JPM as appropriate.			
5.6	**SELECT** the next Control Rod AND **RECORD** or verify the initial Control Rod position on Attachment 2.	***#Operator observes ROD SELECT MODULE 14-23 is selected,** records the initial rod position on Attachment 2, and initials Step.		
5.7	IF Control Rod is at position 00, **RECORD** final Control Rod position on Attachment 2. All other blocks are N/A for this rod.	Operator determines that this step is N/A and marks Step N/A.		
5.8	**OBSERVE** approximately 6 gpm total flow through both the insert AND withdraw Stabilizing Valves as indicated on CRID's point B2117. **[70044199]**	Operators observes approximately 6 gpm total flow through both the insert AND withdraw Stabilizing Valves as indicated on CRID's point B2117 and initials Step.		
NOTE	The following two steps will exercise the 1-BF-V138, Cooling Water Header Check Valve, as required by T/S 4.0.5. If a "failed position" is encountered when a single notch insertion is attempted, an alternate position may be selected to insert the rod, provided that guidance is obtained from Reactor Engineering. In this situation the remarks section of Attachment 3 should document the alternate position utilized.	Operator reads NOTE and initials Note.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.9	**INSERT** the selected Control Rod one notch (or as directed by Reactor Engineering) <u>AND</u> **PERFORM** the following: **[T/S 4.1.3.1.2, T/S 4.1.3.7]**	***#Operator momentarily presses the ROD MOTION CONTROLS INSERT pushbutton,** and initials Step.		
5.9.1	**ENSURE** proper operation of the RPIS.	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY, RWM, or CRIDS indicates control rod movement to position 06, and initials Step.		
5.9.2	<u>IF</u> a Control rod is inadvertently positioned at other than the desired position, <u>THEN</u> **IMPLEMENT** the associated guidance contained in the Reactor Engineering Weekly Guidance <u>AND</u> **CONTACT** Reactor Engineering.	Operator determines that this step is N/A and marks Step N/A.		
5.9.3	<u>IF</u> the control rod does not insert to the next notch after one attempt, **PERFORM** the following: …	Operator determines that this step is N/A and marks Step N/A.		
5.9.4	**INDICATE** the condition of RPIS indication on Attachment 2.	Operator then indicates the RPIS indication is SAT on Attachment 2, and initials Step.		
5.10	<u>IF</u> the position recorded in Step 5.6 is an intermediate position, <u>THEN</u> **PERFORM** Step 5.10.1, <u>OTHERWISE</u>, **GO TO** Step 5.10.2 to return the control rod to its original position: …	Operator determines the position recorded in Step 5.6 is at an intermediate position, continues at step 5.10.1 and initials Step.		
5.10.1	**WITHDRAW** the inserted Control Rod to its initial position <u>AND</u> **PERFORM** the following: A. **INDICATE** the Check Valve Inservice Test condition on Attachment 2. **[T/S 4.0.5]**	***#Operator momentarily presses the ROD MOTION CONTROLS WITHDRAW pushbutton,** observes that the control rod settles into the original position, records SAT for the Check Valve Inservice Test on Attachment 2, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	B. **RECORD** the final Control Rod position <u>AND</u> **ENTER** initials for performance/verification on Attachment 2.	Operator records the final Control Rod position and initials for performance on Attachment 2, and initials Step.		
	C. **GO TO** Step 5.11	Operator proceeds to Step 5.11 after the high temperature condition is clear, and initials Step.		
	Examiner Note: Operator should ask the Equipment Operator for a status of Control Rod 14-23 high temperature after the first or second repeat.			
CUE:	**Respond as the Equipment Operator.** **Report that Control Rod 14-23 alarm is clear and indicating approximately 220F.** **Examiner Note: Remove Malfunction CD11.**			
5.12.2	<u>IF</u> control rod temperature remains > 350°F after cycling two times, **PERFORM** the following:	Operator determines that this Step is N/A since, temperature alarm condition is <350F on the Control Rod 14-23, and marks Step as N/A.		
5.12.3	**COMPLETE** Attachment 2.	Operator completes Attachment 2, and initials Step.		
CUE:	**Request status of high temperature condition on Control Rod 14-23. Acknowledge the report, as the CRS. PROVIDE Terminating Cue.**			
CUE:	<u>WHEN</u> operator informs you the task is complete, Control Rod 14-23 high temperature condition is clear, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator responds to a high temperature condition on Control Rod 14-23 IAW HC.OP-ST.BF-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BF014   **NAME:** _____

REV NUMBER: 00   **DATE:** _____

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

_____

RESULT: **SAT**   ☐   **UNSAT**   ☐

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT**   ☐   **UNSAT**   ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BF014

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	3/25/2019	Modified JPM BF011.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BF014   **REV#:** 00

          TASK: Exercise A Control Rod

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥3.0 (LOR); or ≥2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: BF014   **REV#:** 00

INITIAL CONDITIONS:

	I.C.
Initial	

_____	**INITIALIZE** the simulator to 100% power, MOL.
_____	**SELECT** rod 02-19 on the Rod Select Module.
_____	**ENSURE** CRD Drive Water pressure 260-270 psid.
_____	**ENSURE** associated Schedule file open and running.
_____	**ENSURE** associated Events file open.

	PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
Initial	Description

_____	**ENSURE** copy of HC.OP-ST.BF-0001 is available, marked up for rod 14-23 only.
_____	**OBTAIN** printout of OD-7.
_____	**OBTAIN** a copy of RE Weekly guidance to support control rod testing.
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET		
	1	Event code:	lcvposb(59) <= 96
		Description:	14-23 AT 06
	2	Event code:	ET_ARRAY(1) & lcvposb(59) >= 128
		Description:	14-23 RETURNED TO 08

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CD11 after 45 on event 2	CRD high temperature

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is operating at 100% power.

2. Maintenance was performed on the position indication circuit of rod 14-23

3. The maintenance is complete.

4. As part of the retest requirements, performance of HC.OP-ST.BF-0001 Control Rod Drive Exercise – Monthly is required for control rod 14-23 only.

5. The "ON DUTY" Reactor Engineer has been notified that control rod 14-23 will be exercised IAW HC.OP-ST.BF-0001.

6. Use CRIDS for OD-7 control rod positions.

7. The Reactor Engineer has approved exercising rod 14-23 at 100% power.

INITIATING CUE:

EXERCISE control rod 14-23 IAW HC.OP-ST.BF-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Primary Containment Instrument Gas

	2019 NRC JPM F

Copy _____ of _____

TASK NUMBER: 3780050501

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

JPM NUMBER: 305H-JPM.KL003   **REVISION:** 06

SAP BET: NOH05JPKL03E

K/A NUMBER: 223001 A4.11   **IMPORTANCE FACTOR:** RO: 3.1   SRO: 3.0

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.COMP-0002, Rev. 8

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____12_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: ___N/A___ Minutes

---

JPM PERFORMED BY: _____ **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: ___N/A___ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
                               Signature

JOB PERFORMANCE MEASURE

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 3780050501

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

INITIAL CONDIITONS:
1. The plant is operating at 100 percent power.
2. An inadvertent Channel "A" isolation signal has occurred.

INITIATING CUE:

RESTORE Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, PRIMARY CONTAINMENT INSTRUMENT GAS, Subsequent Action D.

JPM NUMBER:	KL003	NAME:	
REV NUMBER:	06	DATE:	

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue. AFTER the Operator repeats back the Initiating Cue, PLACE the simulator in RUN, AND ENTER START TIME. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains procedure HC.OP AB.COMP-0002.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be Subsequent Operator Action D.1.		
CONDITION	Inadvertent A Channel Isolation. Date/Time: _____	Operator enters the Date and Time.		
ACTION **NOTE 6**	NOTES: 6. Both PCIG Compressors are placed in STOP to prevent a SAFETY LOCKOUT due to low suction pressure until the suction line up is restored.	Operator reads and initials NOTE.		
D.1	PRESS A and B PCIG Compressors STOP PB.	*Operator presses A PCIG Compressor STOP PB, observes the STOP light is illuminated and START light is extinguished, and initials Step.		
		*Operator presses B PCIG Compressor STOP PB, observes the STOP light is illuminated and START light is extinguished, and initials Step.		
D.2	ENSURE Isolations per Attachment 5 for A Channel.	Operator refers to Attachment 5.		

JPM NUMBER:	KL003	NAME:	
REV NUMBER:	06	DATE:	

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
ATTACHMENT 5				
Note 1	Valves isolate on 1.68 psig DRYWELL PRESSURE, 1 X 10-3 uCi/cc REACTOR BUILDING EXHAUST RADIATION, Core Spray Manual Initiation Pushbutton and -129" Low Reactor Level unless otherwise noted.	Operator reads and initials NOTE.		
	ATTACHMENT 5 PCIG VALVE CHANNEL ISOLATION PCIG VALVE CHANNEL ISOLATIONS (Note 1) VALVE NO. / NOMENCLATURE / CHANNEL KL-HV5152A * / INSTRUMENT GAS SUPPLY HDR A INBD ISLN / A KL-HV5148 / INSTRUMENT GAS CPRSR SUCT INBD ISLN / A KL-HV5172A * / CONT ATMOSPHERE A INSTR GAS EMER SUP / A # ∗ Isolation can be bypassed by ISLN OVRD pushbutton. # Setpoint for Reactor Water Level is -38".	Operator determines the valves that should isolate on a Channel A isolation signal.		
	KL-HV5152A*, INSTRUMENT GAS SUPPLY HDR A INBD ISLN	Operator observes the KL-HV5152A INSTRUMENT GAS SUPPLY HDR A INBD ISLN CLOSE light is illuminated and OPEN light is extinguished, and initials.		
	KL-HV5148, INSTRUMENT GAS CPRSR SUCT INBD ISLN	Operator observes the KL-HV5148 INSTRUMENT GAS CPRSR SUCT INBD ISLN CLOSE light is illuminated and OPEN light is extinguished, and initials.		
	KL-HV5172A*, CONT ATMOSPHERE A INSTR GAS EMER SUP	Operator observes the KL-HV5172A CONT ATMOSPHERE A INSTR GAS EMER SUP CLOSE light is illuminated and OPEN light is extinguished, initials, and returns to ACTION D.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
ACTION D				
NOTE 7	7. Opening of the Reactor Building Post Accident Compressor Suction Valves in Step D.3 or D.5 may cause a rise in Primary Containment Oxygen concentrations. Monitor Drywell and Suppression Chamber Oxygen Concentration for compliance. **[TS 3.6.6.2]**	Operator reads and initials NOTE.		
D.3	**PLACE** B PCIG Compressor in service as follows: A. **CLOSE** HV-5162.	***#Operator presses the HV-5162 CLOSE PB,** observes the HV-5162 CLOSE light is illuminated and OPEN light is extinguished, and initials Step.		
	B. **OPEN** HV-5160B using Key Lock Switch.	***#Operator inserts key and rotates HV-5160B switch to OPEN,** observes the HV-5160B OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
	C. **ENSURE** B PCIG Compressor SAFETY LOCKOUT is RESET.	Operator contacts Reactor Building Equipment Operator and ensures B PCIG Compressor SAFETY LOCKOUT is RESET.		
CUE:	**IF contacted as Reactor Building Equipment Operator, <u>THEN</u> after approximately 1 minute, TRIGGER ET-4 <u>AND</u> REPORT that the Safety Circuit Lockout is reset.**			
	D. **PRESS** B PCIG Compressor AUTO LEAD PB.	***Operator presses the B PCIG Compressor AUTO LEAD PB,** observes the B PCIG Compressor AUTO LEAD light is illuminated, the BK202 START light illuminate and the STOP light extinguish, and initials Step.		
EXAMINER NOTE: B PCIG may trip before completion of Step D.4.				

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
D.4	**ENSURE** the following valves are OPEN: • HV-5156A	Operator observes the HV-5156A OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
	• HV-5156B	Operator observes the HV-5156B OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
B PCIG Compressor Trip				
		Operator recognizes trip of B PCIG Compressor by: • BK202 START light extinguishes and the STOP light illuminates • OHA A1-A5 INST GAS PANEL A/B C213		
CUE:	**RESPOND appropriately to the operator reporting the trip of B PCIG Compressor was a Low Oil Pressure trip. IF direction is requested STATE RESTORE Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, Subsequent Action D.**			
D.5	If B PCIG Compressor is not available, PLACE A PCIG Compressor in service as follows: A. **CLOSE** HV-5147.	***#Operator presses the HV-5147 CLOSE PB,** observes the HV-5147 CLOSE light is illuminated and OPEN light is extinguished, and initials Step.		
	B. **OPEN** HV-5160A using Key Lock Switch.	***#Operator inserts key and rotates HV-5160A switch to OPEN,** observes the HV-5160A OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
	C. **ENSURE** A PCIG Compressor SAFETY LOCKOUT is RESET.	Operator contacts Reactor Building Equipment Operator and ensures A PCIG Compressor SAFETY LOCKOUT is RESET.		
CUE:	**IF** contacted as Reactor Building Equipment Operator, **THEN** after approximately 1 minute, TRIGGER ET-6 **AND** REPORT that the Safety Circuit Lockout is reset.			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	D. **PRESS** A PCIG Compressor AUTO LEAD PB.	***Operator presses the A PCIG Compressor AUTO LEAD PB,** observes the A PCIG Compressor AUTO LEAD light is illuminated, the AK202 START light illuminate and the STOP light extinguish, and initials Step.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator restores Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, PRIMARY CONTAINMENT INSTRUMENT GAS, Subsequent Action D.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: KL003   **NAME:** _____

REV NUMBER: 06   **DATE:** _____

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KL003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
06	9/15/2017	Deleted one of the References. Editorial	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: KL003   **REV#:** 06

         TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: KL003   **REV#:** 06

INITIAL CONDITIONS:

I.C.	
Initial	

_____	**INITIALIZE** the simulator to a 100 percent power IC.
_____	**ENSURE** SSW Pump C O/S in AUTO.
_____	**INSERT** PC03A in the tripped condition.
_____	**ARM** <u>AND</u> **DEPRESS** A PCIS Manual PB and allow valves to travel to required positions.
_____	**LOWER** PCIG Gas pressure to ~88 psig using IA03 Loss of drywell instrument gas, then set to 0%.
_____	**ACKNOWLEDGE** alarms, <u>AND</u> place simulator in FREEZE.
_____	**ENSURE** associated Schedule file open and running.
_____	**ENSURE** associated Events file open.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
Initial	Description

_____	**ENSURE** a copy of HC.OP AB.COMP-0002 is available.
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
	3	Event code: ZDIA60BO & ia_162fc
		Description: HV5160 keyswitch to OPEN AND HV-5162 closed

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction IA03 to 0	Loss of drywell instrument gas
	None	None	Insert malfunction PC03A from 3.00000 to 3.00000	Drywell pressure transmitter N094A failure

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote IA09 to RESET on event 4	IA09 Instrument gas compressor B reset
	None	None	Insert remote IA08 to RESET on event 6	IA08 Instrument gas compressor A reset
	None	None	Insert remote AN01B after 5 to NORM on event 4	AN01 A1-A5 Inst Gas Panel BC213
	None	None	Insert remote AN01A after 5 to NORM on event 6	AN01 A1-A5 Inst Gas Panel AC213

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 10DS2_A_LO to On on event 3	HV-5160B OPEN-INSTRUMENT GAS HV-5160B (LO)
	None	None	Insert override 10DS2_B_LO after 27 to Off on event 3	HV-5160B CLOSED-INSTRUMENT GAS HV-5160B (LO)
	None	None	Insert override 10S8_A_DI after 30 to On on event 3	CLOSE HV-5160B (DI)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100 percent power.
2. An inadvertent Channel "A" isolation signal has occurred.

INITIATING CUE:

RESTORE Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, PRIMARY CONTAINMENT INSTRUMENT GAS, Subsequent Action D.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Nuclear Instrumentation

TASK NUMBER: 4000130401

TASK: Respond To A Recirculation Pump Malfunction

2019 NRC JPM G

Copy _____ of _____

JPM NUMBER: 305H-JPM.SE004 **REVISION:** 00

SAP BET: NOH05JPSE04E

K/A NUMBER: 295001 AA1.06 **IMPORTANCE FACTOR:** RO: 3.3 SRO: 3.4

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.SE-0001, Rev. 28

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 11 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE:** **SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: **N/A** **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Nuclear Instrumentation

TASK NUMBER: 4000130401

TASK: Respond To A Recirculation Pump Malfunction

INITIAL CONDIITONS:
1.   The plant was operating at 100% power.
2.   Reactor Recirculation Pump 1AP201 has tripped.
3.   Entering Single Loop Operations (SLO) is in progress in accordance with HC.OP-IO.ZZ-0006. Currently at step 5.3.7.G.

INITIATING CUE:

   ENABLE Single Loop Operation (SLO) for APRM Channel A in accordance with Steps 4.8.1 through 4.8.9 of HC.OP-SO.SE-0001(Q).
   Another operator will make any required HC.OP-DL.ZZ-0026 Attachment 5 entries.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; a marked up copy of HC.OP-SO.SE-0001; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.8.1.		
4.8.1	**ENSURE** all prerequisites are satisfied IAW Section 3.8.	Operator ensures that all prerequisites are satisfied IAW Section 3.8, and initials each.		
NOTE	The delta flow offset for Single Loop Operation (SLO) is subtracted from the flow value trips <u>AND</u> alarms when SLO is enabled.	Operator reads and initials NOTE.		
4.8.2	**VERIFY** plant is in Single Loop Operation (SLO).	Operator determines that the plant is in SLO, and initials Step.		
4.8.3	**PERFORM** the following to Bypass applicable APRM: 1. **IF** APRM **CANNOT** be placed in BYPASS, **THEN OBTAIN** Control Room Supervision approval to continue with APRM in OPERATE **AND** PROCEED to step 4.8.4.	Operator determines that this Step is not applicable and marks as N/A.		
CUE:	**Respond as CRS, if asked, that the APRM can be bypassed.**			
	2. **DECLARE** APRM INOPERABLE.	Operator requests that APRM A be declared INOPERABLE.		
CUE:	**Respond as CRS that APRM A has been declare IN OPERABLE.** **Respond as other NCO that HC.OP-DL.ZZ-0026, Attachment 5 has been updated.**			
	3. **PLACE** APRM BYPASS joystick to APRM Channel position to be Bypassed	Operator places the APRM Bypass joystick to APRM A, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	4. **VERIFY** BYPASSED LED is illuminated for selected APRM at ALL four VOTERs **AND** 'BYP' is displayed for APRM on associated NUMAC drawer/ODA.	Operator verifies that the BYPASSED LED is illuminated for APRM B at all four VOTERs and 'BYP' is displayed for APRM A on associated NUMAC drawer/ODA.		
CAUTION	WHEN APRM NUMAC key lock selector is taken to INOP, All VOTERs receive a TRIP INPUT. IF two TRIP INPUTs are received, a FULL SCRAM will occur. WHEN bypassed, an APRM's TRIP INPUT is bypassed, but the status of TRIP INPUTs on the VOTERs will continue to display while trip is active.	Operator reads and initials CAUTION.		
4.8.4	**PLACE** applicable APRM NUMAC INOP/OPER key lock selector switch to INOP.	***#Operator places the APRM A NUMAC INOP/OPER key lock selector switch to INOP,** and initials Step.		
4.8.5	**PERFORM** the following on the APRM Channel for SLO to be ENABLED: 1. **USING** ETC cursor key, **NAVIGATE** to ENTER SET MODE.	***#Operator uses the ETC cursor key to navigate to ENTER SET MODE,** and initials Step.		
NOTE	After pressing ENTER SET MODE, **IF** password is **NOT** entered within ten seconds the screen times out **AND** previous screen is displayed. **IF** this occurs, ENTER SET MODE will need to be selected again.	Operator reads and initials NOTE.		
	2. **SELECT** ENTER SET MODE.	***#Operator selects ENTER SET MODE by pressing the button below ENTER SET MODE,** and initials Step.		
	3. **ENTER** password (1234).	***#Operator enters 1234 as the password,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	4. **SELECT** ENT.	***#Operator selects by pressing ENT,** and initials Step.		
	5. **USING** cursor keys, **SELECT** SLO/BSP CONTROL.	***#Operator uses cursor keys to select SLO/BSP CONTROL,** and initials Step.		
	6. **SELECT** SET PARAMETERS.	***#Operator selects SET PARAMETERS,** and initials Step.		
	7. **USING** UP/DOWN cursor keys, SELECT YES on SLO ENABLED.	***#Operator uses UP/DOWN cursor keys to select YES on SLO ENABLED,** and initials Step.		
	8. **SELECT** ACCEPT.	***#Operator selects ACCEPT,** and initials Step.		
	9. **SELECT** EXIT.	***#Operator selects EXIT,** and initials Step.		
	10. **SELECT** EXIT SET MODE.	***#Operator selects EXIT MODE,** and initials Step.		
	11. **SELECT** YES.	***#Operator selects YES,** and initials Step.		
	12. **VERIFY** SLO in INVERSE VIDEO on APRM Status Bar.	Operator verifies SLO in INVERSE VIDEO on APRM Status Bar, and initials Step.		
4.8.6	**PLACE** applicable APRM NUMAC Channel INOP/OPER key lock selector switch to OPER position. (10C608)	***#Operator places the APRM A NUMAC INOP/OPER key lock selector switch to OPER,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.8.7	PRESS TRIP MEMORY RESET pushbutton at ALL VOTERs: VOTER A: ____ VOTER B: ____ VOTER C: ____ VOTER D: ____	***#Operator presses the TRIP MEMORY RESET pushbutton at ALL VOTERs,** and initials Step.		
4.8.8	**VERIFY** APRM NUMAC is in OPERATE mode **AND** ALL VOTER TRIP/MEMORY indications are clear.	Operator verifies APRM NUMAC is in OPERATE mode AND ALL VOTER TRIP/MEMORY indications are clear, and initials Step. Operator requests Independent Verifier to verify APRM NUMAC is in OPERATE mode AND ALL VOTER TRIP/MEMORY indications are clear, and to initial Step.		
CUE:	**Respond as IV, initial in the IV spot.**			
4.8.9	**IF** APRM was bypassed in step 4.8.3 **THEN REMOVE** APRM from BYPASS position **AND DECLARE** APRM OPERABLE.	Operator removes APRM Bypass joystick from the APRM A position (mid position), and initials Step.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator enables Single Loop Operation (SLO) for APRM Channel A in accordance with Steps 4.8.1 through 4.8.9 of HC.OP-SO.SE-0001(Q).

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SE004   **NAME:** _____

REV NUMBER: 00   **DATE:** _____

QUESTION: _____

_____
_____
_____
_____
_____

RESPONSE: _____

_____
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_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

_____
_____
_____
_____
_____

RESPONSE: _____

_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SE004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	8/17/2018	New JPM.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SE004   **REV#:** 00

          TASK: Respond To A Recirculation Pump Malfunction

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: SE004   **REV#:**   00

INITIAL CONDITIONS:

I.C.	
Initial	

_____	**INITIALIZE** to any 100% power IC.
_____	**INSERT** ET-1.
_____	**PERFORM** applicable actions of HC.OP-IO.ZZ-0006 Steps 5.3.7.A-F, AND HC.OP-AB.RPV-0003, Condition A, Steps A.1-A.6.
_____	**ACKNOWLEDGE** Overhead and CRIDS alarms.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
Initial	Description
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".
_____	**MARKUP** copy of HC.OP-IO.ZZ-0006, up to Step 5.3.7.G.
_____	**MARKUP** copy of HC.OP-AB.RPV-0003, Condition A, Steps A.1-A.6.

EVENT FILE:		
Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction RR41A on event 1.	RR Pump A VFD 7.2KV Supply Breaker Inadvertent Trip

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was operating at 100% power.

2. Reactor Recirculation Pump 1AP201 has tripped.

3. Entering Single Loop Operations (SLO) is in progress in accordance with HC.OP-IO.ZZ-0006. Currently at step 5.3.7.G.

INITIATING CUE:

ENABLE Single Loop Operation (SLO) for <u>APRM Channel A</u> in accordance with Steps 4.8.1 through 4.8.9 of HC.OP-SO.SE-0001(Q).

Another operator will make any required HC.OP-DL.ZZ-0026 Attachment 5 entries.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2019 NRC **JPM H**	Copy _____ of _____

SYSTEM: Integrated Operating Procedures

TASK NUMBER: 30002090101

TASK: Perform a Cooldown Using Bypass Valves

JPM NUMBER: 305H-JPM.AC008   **REVISION:** 01

SAP BET: NOH05JPAC08E

K/A NUMBER: 241000 A4.02   **IMPORTANCE FACTOR:** RO: 4.1   SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-IO.ZZ-0004, Rev. 107   Steam Tables (Or equivalent)

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____16_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: ___N/A___ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                 Signature

JOB PERFORMANCE MEASURE

SYSTEM: Integrated Operating Procedures

TASK NUMBER: 30002090101

TASK: Perform a Cooldown Using Bypass Valves

INITIAL CONDIITONS:
1.   A plant shut down is in progress for a refueling outage.
2.   Currently at Step 4.2 of HC.OP-IO.ZZ-0004.

INITIATING CUE:

COMMENCE a Reactor Cooldown and Depressurization to 500 psig using the Reactor Cooldown mode in accordance with Step 4.2.1.2 of HC.OP-IO.ZZ-0004. Another operator is plotting cooldown rate.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-IO.ZZ-0004.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations, and initials each one.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
3.0	<u>**PREREQUISITES**</u> **ENSURE** all personnel who are to perform any step(s) in this procedure have completed Attachment 1, Section 1.0, prior to performing any part of this procedure.	Operator completes Attachment 1, Section 1.0, prior to performing any part of this procedure, and initials Step.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.		
<u>**NOTE**</u>	Control rod insertion and cooldown of the Reactor Coolant System can be performed simultaneously. When this occurs,… Steam Loads, Decay Heat, and Feed will directly affect Cooldown / Depressurization. Impact of these variables, regardless of DEHC Control mode selected, MUST be continuously evaluated for impact on the cooldown. When RWCU is in service: • Cooldown rate should be limited to 60°F per hour when above 200 psig to preclude RWCU flashing. At approximately 200 psig reactor pressure, …	Operator reads and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
4.2.1	CONTINUE/MAINTAIN a cooldown rate of ≤ 60°F/hr using Rx Cooldown mode, Pressure Control mode OR Bypass Valve Manual Jack as follows: 1. Establish PRESSURE CONTROL as …	Operator observes this Step as N/A.	N/A	N/A
NOTE	When Rx Cooldown mode is initiated with a bypass valve open, a minor Pressure Rise will occur. This pressure rise should be anticipated when placing Rx Cooldown controller in service. Any cooldown that has occurred since the shutdown must be considered prior to establishing Rx Cooldown mode in determining initial cooldown so as NOT to exceed 60°F/hr. Once Rx Cooldown mode is established, the INTENT is to remain on the Rx Cooldown controller for the duration of the Cooldown / Depressurization. An In-Progress Cooldown can be interrupted to support plant manipulations without exiting the Rx Cooldown mode by establishing the temperature Setpoint at the desired hold point on the Cooldown Controller.	Operator reads and initials NOTE.		
	2. IF desired, Establish **REACTOR COOLDOWN** as follows: a. **SELECT** Control , RX Cooldown	***#Operator selects Control , and RX Cooldown ,** and initials Step.		
	b. **SELECT** Ramp Rate AND **ENTER** desired rate not to exceed 60 deg F/hr.	***#Operator selects Ramp Rate and enters a desired rate that does not exceed 60 deg F/hr,** and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	c. **SELECT** Temperature AND **ENTER** desired temperature.	***#Operator calculates the temperature that corresponds to 500 psig [470 +5F], and enters a desired Temperature,** and initials Step.		
	d. **SELECT** Reactor Cooldown ON AND **VERIFY** Rx Cooldown Controlling indication is observed.	***#Operator selects Reactor Cooldown ON** verifies Rx Cooldown Controlling indication is observed, and initials Step.		
	e. **MAINTAIN** Throttle Pressure Set, Pressure Setpoint approximately 50-100 psig above Throttle Pressure not to exceed 905 psig.	Operator maintains Throttle Pressure Set, Pressure Setpoint approximately 50-100 psig above Throttle Pressure not to exceed 905 psig, and initials Step. Examiner Note: Pressure Setpoint is currently 905 psig.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator establishes a cooldown in accordance with Step 4.2.1.2 of HC.OP-IO.ZZ-0004.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: AC008 **NAME:** _____

REV NUMBER: 01 **DATE:** _____

QUESTION: _____

_____

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RESPONSE: _____

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RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

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RESPONSE: _____

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RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AC008

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	3/25/2019	Revised due to procedure revision. Editorial changes.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: AC008   **REV#:**   01
               TASK: Perform a Cooldown Using Bypass Valves

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

   X   2.   Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.

   X   3.   License level identified. (SRO,RO,STA,NLO)

   X   4.   Performance location specified (In-Plant, Control Room, Simulator, or Classroom).

   X   5.   Initial setup conditions are identified.

   X   6.   Initiating and terminating cues are properly identified.

   X   7.   Task standards for successful completion are identified.

   X   8.   Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

   X   9.   JPM has multiple Critical Tasks, or justification of the basis for a single critical task.

   X   10.   Procedure(s) referenced by this JPM match the most current revision of that procedure.

   X   11.   Cues both verbal and visual are complete and correct.

   X   12.   Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.

   X   13.   Statements describing important actions or observations that should be made by the operator are included (if required.)

   X   14.   Validation time is included.

   X   15.   JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: AC008   **REV#:**   01

INITIAL CONDITIONS:

I.C.	
Initial	

_____   **INITIALIZE** to an IC at approximately 20% power.

_____   **LOCK** the Mode Switch in SHUTDOWN.

_____   **TAKE ACTIONS** to stabilize plant conditions.

_____   IF required, **RAISE** decay heat generation to raise Reactor pressure to 905 psig.

_____   **ENSURE** Pressure Set is 905 psig.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
Initial	Description

_____   **ENSURE** Mode Switch key is removed.

_____   **MARKUP** HC.OP-IO.ZZ-0004 through Step 4.1.49, AND N/A Step 4.2.1.1.

_____   **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A plant shut down is in progress for a refueling outage.
2. Currently at Step 4.2 of HC.OP-IO.ZZ-0004.

INITIATING CUE:

COMMENCE a Reactor Cooldown and Depressurization to 500 psig using the Reactor Cooldown mode in accordance with Step 4.2.1.2 of HC.OP-IO.ZZ-0004.

Another operator is plotting cooldown rate.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Safety Auxiliaries Cooling Water

| **2019 NRC** | Copy _____ of _____ |
| **JPM I** | |

TASK NUMBER: 400780401

TASK: Respond To A SACS Malfunction

JPM NUMBER: 305H-JPM.EG009   **REVISION:** 03

SAP BET: NOH05JPEG09E

K/A NUMBER: 400000 A2.01   **IMPORTANCE FACTOR:** RO: 3.3   SRO: 3.4

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-SO.EG-0001, Rev. 56

HC.OP-AB.COOL-0002, Rev. 9

TOOLS, AND EQUIPMENT: Annotated copy of HC.OP-SO.EG-0001, valve locking devices (could be simulated/provided)

ESTIMATED COMPLETION TIME: _____20_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

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JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 400780401

TASK: Respond To A SACS Malfunction

INITIAL CONDIITONS:

1. SACS Loop A has been declared inoperable.
2. SACS was previously in service IAW HC.OP-SO.EG-0001, Section 5.2.
3. HC.OP-AB.COOL-0002, Safety/Turbine Auxiliaries Cooling System, is being implemented.
4. Components are being realigned IAW Section 5.11 of HC.OP-SO.EG-0001.
5. The 'C' EDG Coolers AND Room Coolers have been cross tied to the 'B' SACS loop IAW Step 5.11.2.A.1 of HC.OP-SO.EG-0001.

INITIATING CUE:

   CROSS TIE the 'C' FRVS Recirculation Unit to the 'B' SACS Loop in the sequence presented in Attachment 2, Part B (Step 5.11.2.A.2), of HC.OP-SO.EG-0001.

   WCM update and tagging will be performed by another operator.

JPM NUMBER:	EG009		NAME:	
REV NUMBER:	03		DATE:	

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a marked up copy of HC.OP-SO.EG-0001, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews Prerequisites. 2.11.1. All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure.	Operator completes Attachment 1 Section 2.0.		
CUE:	**If asked, state that Technical Specifications and cooling water needs for equipment have been evaluated by the CRS. Continue with task.**			
	2.11.6. Applicable Precautions and Limitations have been reviewed by each procedure user.	Operator reviews Precautions and Limitations.		
CUE:	**If excessive time is taken reviewing Prerequisites and Precautions and Limitations, inform operator that all are satisfied.**			
	ATTACHMENT 2 **LOSS OF 'A' SACS LOOP COMPONENT REPOSITIONING** **Page 2 of 5** **PART B - CROSS-TIE "C" FRVS**			
	Examiner Note: The sequence critical portion of the following steps is to close the 1-EG-V688 <u>AND</u> 1-EG-V691 <u>BEFORE</u> opening the 1-EG-V690 <u>OR</u> 1 EG-V693.			
10	FRVS CLG COIL CVH-213 LP A SUP 1-EG-V688	Operator unlocks 1-EG-V688. Examiner Note: Support operator's requests for Verifier.		
CUE:	**The lock has been removed from the valve indicated.**			
		*#Operator closes 1-EG-V688.		
CUE:	**The valve indicated has been rotated in the direction stated and has come to hard stop.**			
		Operator reinstalls a locking device on valve 1-EG-V688 and initials Attachment 2.		
CUE:	**The lock is installed on the valve indicated.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
11	FRVS CLG COIL CVH-213 LP B RTN 1-EG-V691 LOCKED CLOSED	Operator unlocks 1-EG-V691. Examiner Note: Support operator's requests for Verifier.		
CUE:	The lock has been removed from the valve indicated.			
		*#Operator closes 1-EG-V691.		
CUE:	The valve indicated has been rotated in the direction stated and has come to hard stop.			
		Operator reinstalls a locking device on valve 1-EG-V691 and initials Attachment 2.		
CUE:	The lock is installed on the valve indicated.			
12	FRVS CLG COIL CVH-213 LP A SUP 1-EG-V690 LOCKED OPEN	Operator unlocks 1-EG-V690. Examiner Note: Support operator's requests for Verifier.		
CUE:	The lock has been removed from the valve indicated.			
		*#Operator opens 1-EG-V690.		
CUE:	The valve indicated has been rotated in the direction stated and has come to hard stop.			
		Operator reinstalls a locking device on valve 1-EG-V690 and initials Attachment 2.		
CUE:	The lock is installed on the valve indicated.			
13	FRVS CLG COIL CVH-213 LP A RET 1-EG-V693 LOCKED OPEN	Operator unlocks 1-EG-V693. Examiner Note: Support operator's requests for Verifier.		
CUE:	The lock has been removed from the valve indicated.			
		*#Operator opens 1-EG-V693.		
CUE:	The valve indicated has been rotated in the direction stated and has come to hard stop.			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator reinstalls a locking device on valve 1-EG-V693 and initials Attachment 2.		
CUE:	**The lock is installed on the valve indicated.**			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator Cross Ties the 'C' FRVS Recirculation Unit to the 'B' SACS Loop in the sequence presented in Attachment 2, Part B, of HC.OP-SO.EG-0001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: EG009   **NAME:** _____

REV NUMBER: 03   **DATE:** _____

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EG009

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	3/26/2019	Corrected typographical error. Editorial changes.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: EG009   **REV#:** 03
TASK: Respond To A SACS Malfunction

<u>X</u>   1. Task description and number, JPM description and number are identified.

<u>X</u>   2. Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.

<u>X</u>   3. License level identified. (SRO,RO,STA,NLO)

<u>X</u>   4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).

<u>X</u>   5. Initial setup conditions are identified.

<u>X</u>   6. Initiating and terminating cues are properly identified.

<u>X</u>   7. Task standards for successful completion are identified.

<u>X</u>   8. Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

<u>X</u>   9. JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.

<u>X</u>   10. Procedure(s) referenced by this JPM match the most current revision of that procedure.

<u>X</u>   11. Cues both verbal and visual are complete and correct.

<u>X</u>   12. Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.

<u>X</u>   13. Statements describing important actions or observations that should be made by the operator are included (if required.)

<u>X</u>   14. Validation time is included.

<u>X</u>   15. JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: <u>EO</u>

<u>ON FILE</u>	<u>RO</u>	<u>ON FILE</u>	<u>5/23/2019</u>
Name	Qual	Signature	Date

<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>5/23/2019</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. SACS Loop A has been declared inoperable.
2. SACS was previously in service IAW HC.OP-SO.EG-0001, Section 5.2.
3. HC.OP-AB.COOL-0002, Safety/Turbine Auxiliaries Cooling System, is being implemented.
4. Components are being realigned IAW Section 5.11 of HC.OP-SO.EG-0001.
5. The 'C' EDG Coolers AND Room Coolers have been cross tied to the 'B' SACS loop IAW Step 5.11.2.A.1 of HC.OP-SO.EG-0001.

INITIATING CUE:

CROSS TIE the 'C' FRVS Recirculation Unit to the 'B' SACS Loop in the sequence presented in Attachment 2, Part B (Step 5.11.2.A.2), of HC.OP-SO.EG-0001.

WCM update and tagging will be performed by another operator.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: 120 VAC Electrical Distribution

TASK NUMBER: 2620070104

TASK: Remove A 120 VAC Electrical Distribution System From Service

2019 NRC
JPM J

COPY _____ OF _____

JPM NUMBER: 305H-JPM.PN004 **REVISION:** 03

SAP BET: NOH05JPPN04E

K/A NUMBER: 2.1.30 **IMPORTANCE FACTOR:** RO: 4.4 SRO: 4.0

ALTERNATE PATH: ☒

APPLICABILITY: **RO** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-SO.PN-0001, Rev. 31

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 20 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A Minutes

JPM PERFORMED BY: _____ **GRADE: SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: N/A **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
                      Signature

JOB PERFORMANCE MEASURE

SYSTEM: 120 VAC Electrical Distribution

TASK NUMBER: 2620070104

TASK: Remove A 120 VAC Electrical Distribution System From Service

INITIAL CONDITIONS:

1. Maintenance is required on Inverter 1DD481.
2. Plant conditions are satisfactory for this work.
3. Class 1E Electrical System requirements of T/S 3.8.3.1 and 3.8.3.2 are being observed.

INITIATING CUE:

   REMOVE the 1DD481 Inverter from service in accordance with Section 4.7 of HC.OP-SO.PN-0001.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains a copy of HC.OP-SO.PN-0001.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be 4.7.1.		
NOTE	• This section generically describes de-energizing a 120VAC Uninterruptible Power Supply and associated distribution panels. Attachment 2 provides information for individual component designations • When de-energizing a Class 1E 120V power supply and/or associated Distribution Panels (as listed on Attachment 2 and 3) the Class 1E Electrical System requirements of T/S 3.8.3.1 and 3.8.3.2 shall be observed.	Operator reads and initials NOTE.		
4.7.1.	**ENSURE** all prerequisites of Section 3.7 are satisfied.	Operator ensures prerequisites have been satisfied and initials each prerequisite in the space provided in the procedure.		
4.7.2.	**VERIFY** the PREFERRED POSITION light is illuminated.	Operator verifies the PREFERRED POSITION light is illuminated, and following the CUE, proceeds to Step 4.7.3.		
CUE:	**"The lamp you indicated is extinguished."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.7.3.	IF PREFERRED POSITION light is not illuminated, THEN **PRESS** the RETRANSFER push-button AND **VERIFY** the PREFERRED POSITION light is illuminated.	***#Operator presses the RETRANSFER push-button, verifies the PREFERRED POSITION light is illuminated,** and initials Step.		
CUE:	**"The lamp you indicated is illuminated."**			
4.7.4.	**PLACE** the MAN. BYPASS Control Switch in the extreme left preferred ISOLATE position.	***#Operator places the MAN. BYPASS Control Switch in the extreme left preferred ISOLATE position,** and initials Step.		
CUE:	**"The switch you indicated is in the position stated."**			
4.7.5.	**PLACE** the VOLTAGE REGULATOR AC OUTPUT BKR-CB302 in the OFF position.	***Operator places the VOLTAGE REGULATOR AC OUTPUT BKR-CB302 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			
4.7.6.	**PLACE** the VOLTAGE REGULATOR AC INPUT BKR-CB301 in the OFF position.	***Operator places the VOLTAGE REGULATOR AC INPUT BKR-CB301 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			
4.7.7.	**PLACE** the INVERTER AC OUTPUT BKR-CB10 in the OFF position.	***Operator places the INVERTER AC OUTPUT BKR-CB10 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			
4.7.8.	**PLACE** the INVERTER DC INPUT BKR-CB101 in the OFF position.	***Operator places the INVERTER DC INPUT BKR-CB101 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.7.9.	**PLACE** the Static Inverter DC FILTER CHARGE SWITCH in the OFF position.	***Operator places the Static Inverter DC FILTER CHARGE SWITCH in the OFF position,** and initials Step.		
CUE:	**"The switch you indicated is in the position stated."**			
4.7.10.	**PLACE** the following ISOLATE Toggle Switches in the OFF position [left position]: • ISOLATE UPS OUTPUT	*** Operator places the ISOLATE UPS OUTPUT Toggle Switch in the OFF position,** and initials Step.		
CUE:	**"The switch you indicated is in the position stated."**			
	• ISOLATE INV OUTPUT	*** Operator places the ISOLATE INV OUTPUT Toggle Switch in the OFF position,** and initials Step.		
CUE:	**"The switch you indicated is in the position stated."**			
	• ISOLATE SYNC SOURCE	*** Operator places the ISOLATE SYNC SOURCE Toggle Switch in the OFF position,** and initials Step.		
CUE:	**"The switch you indicated is in the position stated."**			
4.7.11.	**PLACE** the RECTIFIER ALTERNATE DC INPUT BKR-CB20 in the OFF position.	*** Operator places the RECTIFIER ALTERNATE DC INPUT BKR-CB20 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			
4.7.12.	**PLACE** the RECTIFIER AUCTIONEER DC OUTPUT BKR-CB21 in the OFF position.	*** Operator places the RECTIFIER AUCTIONEER DC OUTPUT BKR-CB21 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.7.13.	**PLACE** the RECTIFIER AC INPUT BKR-CB201 in the OFF position.	*** Operator places the RECTIFIER AC INPUT BKR-CB201 in the OFF position,** and initials Step.		
CUE:	**"The breaker you indicated is in the position stated."**			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____		
Task Standard: Operator removes the DD481 Inverter from service in accordance with Section 4.7 of HC.OP-SO.PN-0001.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: _____PN004_____   **NAME:** _____

REV NUMBER: _____03_____   **DATE:** _____

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: PN004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	3/26/2019	Editorial changes to the Initial Conditions, and due to procedure revisions. No changes to operator actions.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: PN004 **REV#:** 03

TASK: Remove A 120 VAC Electrical Distribution System From Service

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: _____EO_____

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Maintenance is required on Inverter 1DD481.

2. Plant conditions are satisfactory for this work.

3. Class 1E Electrical System requirements of T/S 3.8.3.1 and 3.8.3.2 are being observed.

INITIATING CUE:

REMOVE the 1DD481 Inverter from service in accordance with Section 4.7 of HC.OP-SO.PN-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 2000950501

TASK: Vent To Control Containment Pressure With Suppression Pool Level Less Than 180 Inches

2019 NRC **JPM K**	Copy _____ of _____

JPM NUMBER: 305H-JPM.GS014   **REVISION:** 00

SAP BET: NOH05JPGS13E

K/A NUMBER: 295024 EA1.19   **IMPORTANCE FACTOR:** RO: 3.3   SRO: 3.4

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-EO.ZZ-0318(Q) Rev. 14

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____15_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: __N/A__ Minutes

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JPM PERFORMED BY: _____ **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: __N/A__ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
                  Signature

JOB PERFORMANCE MEASURE

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 2000950501

TASK: Vent To Control Containment Pressure With Suppression Pool Level Less Than 180 Inches

INITIAL CONDIITONS:
1. The plant has experienced an Extended Loss of AC Power (ELAP)
2. HC.OP.EO.ZZ-0106, Primary Containment Control (HPCI/RCIC Only) has been implemented.
3. Drywell pressure is approximately 30 psig and rising slowly AND Suppression Chamber pressure is approximately 30 psig and rising slowly.
4. Suppression Pool Level indicates approximately 80 inches.
5. Suppression Pool Temperature is 202F and rising slowly.
6. RPV Pressure is approximately 250 psig and steady.
7. The Emergency Duty Officer has been informed that containment venting will be performed.
8. Salem Operations has been notified that containment venting will be performed.
9. Operating the Hardened Torus Vent from the Remote Operating Station IAW HC.OP-EO.ZZ-0318(Q) is being implemented, Section 5.7 is in progress and completed through 5.7.3.
10. Hydrogen generation is expected.

Examiner Note: Markup HC.OP-EO.ZZ-0318 through 5.7.3. Start JPM in the Remote Operating Station (Aux Bldg 102' Rm 5301).

INITIATING CUE:

PURGE the Vent line IAW Steps 5.7.4 of HC.OP-EO.ZZ-0318. Use an Argon bottle that has >3500 psig of Argon.

All tools necessary to perform HC.OP-EO.ZZ-0318 are located at the task location.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; a marked up copy of HC.OP-EO.ZZ-0318; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. (NOTE: Cue may be provided at the task location; Aux Bldg 102' Rm 5301.) **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.6		
NOTE	Purging the Hardened Torus Vent with Argon is only required if an accident has occurred and Hydrogen is expected to be present in the TORUS. Argon bottles installed during the HTV upgrade are 3500 psig and one bottle is sufficient for one purge. If more than 8 HTV cycles are necessary, there are 2000 psig bottles available on site that can be used to purge the HTV (Two bottles of 2000 psig should be used for each purge).	Operator reads and initials NOTE.		
CUE:	If asked for bottle pressures, INFORM the operator that the identified gauge reads 3500 PSIG.			
5.6.1.	**OPEN** one respective isolation valve, to align one Argon bottle to the HTV (KBV-308, KBV-309, KBV-310, KBV-311,KBV-312, KBV-313, KBV-314, or KBV-315)	***Operator opens one isolation valve** (Valve KBV-_____) and initials Step. Examiner Note: Critical that valve opened is one of those listed, AND is associated with an Argon bottle with $\geq$3500 psig of Argon.		
CUE:	The handle of the valve you have indicated rotates in the direction identified and then comes to a stop.			

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6.2.	**RECORD** isolation valve(s) opened _____	Operator records the isolation valve opened in 5.6.1, and initials step.		
5.6.3.	**OPEN** KBV-326 to commence purge.	***Operator opens KBV-326,** and initials Step.		
CUE:	The handle of the valve you have indicated rotates in the direction identified and then comes to a stop. Flow can be heard through the indicated valve. Pressure indicator (Examiner Note: identify the pressure indicator for the in service bottle) is lowering.			
5.6.4.	**PURGE** for AT LEAST 20 Minutes, <u>THEN</u> **CLOSE** KBV-326.	Operator maintains the purge lineup for 20 minutes, after CUE, ***Operator closes KBV-326,** then initials Step.		
CUE:	Inform the operator that 20 minutes has elapsed.			
5.6.5.	**CLOSE** valve recorded in Step 5.6.2.	***Operator closes the isolation valve opened in 5.6.2.** (Valve KBV-_____) and initials Step. Examiner Note: Critical that valve closed is the same as Step 5.6.2.		
CUE:	The handle of the valve you have indicated rotates in the direction identified and then comes to a stop.			
5.6.6.	<u>IF</u> an Argon bottle was used that was <3500 psig, **REPEAT** Steps 5.6.1 through 5.6.5 using an additional Argon bottle.	Operator determines that purge was completed using a bottle with at least 3500 psig, and initials (or N/As) Step.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator purges the Hardened Torus Vent in accordance with Section 5.6 of HC.OP-EO.ZZ-0318.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: GS014   **NAME:**

REV NUMBER: 00   **DATE:**

QUESTION:

_____

_____

_____

_____

_____

RESPONSE:

_____

_____

_____

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION:

_____

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_____

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RESPONSE:

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_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: GS014

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	3/26/2019	New JPM.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: GS014   **REV#:**   00
     TASK: Vent To Control Containment Pressure With Suppression Pool Level Less Than 180 Inches

<u>X</u> 1. Task description and number, JPM description and number are identified.

<u>X</u> 2. Knowledge and Abilities (K/A) is identified, and is: ≥3.0 (LOR); or ≥2.5 (ILT); or justification is provided.

<u>X</u> 3. License level identified. (SRO,RO,STA,NLO)

<u>X</u> 4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).

<u>X</u> 5. Initial setup conditions are identified.

<u>X</u> 6. Initiating and terminating cues are properly identified.

<u>X</u> 7. Task standards for successful completion are identified.

<u>X</u> 8. Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

<u>X</u> 9. JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.

<u>X</u> 10. Procedure(s) referenced by this JPM match the most current revision of that procedure.

<u>X</u> 11. Cues both verbal and visual are complete and correct.

<u>X</u> 12. Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.

<u>X</u> 13. Statements describing important actions or observations that should be made by the operator are included (if required.)

<u>X</u> 14. Validation time is included.

<u>X</u> 15. JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: EO

ON FILE	RO	ON FILE	5/23/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/23/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant has experienced an Extended Loss of AC Power (ELAP)

2. HC.OP.EO.ZZ-0106, Primary Containment Control (HPCI/RCIC Only) has been implemented.

3. Drywell pressure is approximately 30 psig and rising slowly AND Suppression Chamber pressure is approximately 30 psig and rising slowly.

4. Suppression Pool Level indicates approximately 80 inches.

5. Suppression Pool Temperature is 202F and rising slowly.

6. RPV Pressure is approximately 250 psig and steady.

7. The Emergency Duty Officer has been informed that containment venting will be performed.

8. Salem Operations has been notified that containment venting will be performed.

9. Operating the Hardened Torus Vent from the Remote Operating Station IAW HC.OP-EO.ZZ-0318(Q) is being implemented, Section 5.7 is in progress and completed through 5.7.3.

10. Hydrogen generation is expected.

INITIATING CUE:

PURGE the Vent line IAW Section 5.6 of HC.OP-EO.ZZ-0318. Use an Argon bottle that has ≥3500 psig of Argon.

All tools associated with the performance of HC.OP-EO.ZZ-0318 are located at the task location.

SCENARIO TITLE: **Radiation Monitor Failure; RWCU Leak; Loss 1DD482; LOCA/RPS Failure; Condensate Loss; HPCI Injection Failure**

SCENARIO NUMBER: **NRC-04**

EFFECTIVE DATE:

EXPECTED DURATION: 75 Minutes

REVISION NUMBER: 01

PROGRAM:
☐ **LICENSED OPERATOR REQUALIFICATION**
☒ **INITIAL LICENSE**
☐ **OTHER:** _____

REVISION SUMMARY:

1.   Formerly NRC-1.

I. OBJECTIVE(S):

Enabling Objectives:

A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions.
(Crew critical tasks within this Examination Scenario Guide are identified with an "*".)

II. MAJOR EVENTS:

A. Lower Reactor Power with Control Rods
B. Remove Reactor Feed Pump from service
C. Radiation Monitor Failure
D. RWCU Leak Into RACS
E. Loss of 1DD482
F. LOCA
G. RPS Failure-ATWS/ARI Scram Successful
H. Condensate Loss-HPCI Injection Valves' Failure

II. SCENARIO SUMMARY:

Plant is operating at approximately 75% power and power is being reduced to remove a Reactor Feed Pump (RFP) for Maintenance. The crew will reduce Reactor power and remove the RFP from feeding the RPV. Following the remove of the RFP a failure of a Reactor Building radiation monitor will occur. After Technical Specifications have been addressed for the radiation monitor failure, a RWCU leak into RACS will develop. The crew will take actions to isolate RWCU and take actions to contain potentially radioactive overflow of RACS Head Tank. Then a failure of a 1E 120VAC Inverter will occur. This will cause a loss of Reactor Building Ventilation. Technical Specifications will be entered for the loss of a 1E 120VAC source and Secondary Containment. The crew will place Filtration, Recirculation, and Ventilation System (FRVS) in service to restore Secondary Containment integrity. A Loss of Coolant Accident (LOCA) will progressively develop causing the crew to shut down the reactor. The Reactor Protection System (RPS) will fail to initiate a Reactor Scram. The crew will manually initiate the Alternate Rod Insertion (ARI) System to shut down the reactor. A loss of the Condensate System will occur during the scram response. The High Pressure Coolant Injection (HPCI) System Injection Valves will fail on initiation. Manual opening of the HPCI injection valves will be required to maintain vessel water level without requiring emergency depressurization.

V. INITIAL CONDITIONS:

I.C.
Initial

_____ **INITIALIZE** to 100% power MOL.

_____ **REDUCE** Reactor power to approximately 75% IAW SPRI guidance by **INSERTING** Group 10A rods and **REDUCING** TCF.

_____ **ENSURE** Reactor Recirculation Pump speeds are not in Vibration/Oscillation regions.

_____ **ENSURE** TACS is on SACS Loop A.

_____ **ENSURE** Fuel Pool Cooling Pump A is in service.

_____ **ENSURE** Schedule and/or Event File(s) is(are) open as required.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
Initial

_____ **CREATE** REMA to support power change to <70% power with inserting Group 10B Control Rods.

_____ **INITIAL** IO-6 up through Step 5.2.8.

_____ **REVIEW,** at a minimum, the Scenario Reference section and CLEAN the bolded EOPs, ABs and SOPs listed. (80091396 0270)

_____ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	Event		
	5	Event Code: Description:	zcrpsudn >= 1 Reactor Mode Switch in Shutdown
	6	Event Code: Description:	D2015_V Main Turbine Tripped

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction HP14	HPCI HV-F006 failure to auto open
	None	None	Insert malfunction HP15	HPCI HV-8278 failure to auto open
	None	None	Insert malfunction RZ03A	RRCS Channel A - Logic A Failure to Auto Initiate
	None	None	Insert malfunction RZ03C	RRCS Channel B - Logic A Failure to Auto Initiate
	None	None	Insert malfunction RP04	Failure of RPS to SCRAM (ATWS)
	None	None	Insert malfunction RM9635 to 1E+09 on event 1	9RX635, DAPA 'A' - Drywell Atmos Post-Accident Chan 'A'
	None	None	Insert malfunction CU07 to 15.00000 in 300 on event 2	RWCU non-regenerative heat exchanger tube leak
	None	None	Insert malfunction CU07 to 33.00000 in 180 on event 10	RWCU non-regenerative heat exchanger tube leak
	None	None	Insert malfunction ED09D2 on event 3	Loss of 120 VAC class 1E inst bus 1DD482
	None	None	Insert malfunction RR31A1 to 100.00000 in 1200 on event 5	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RR31A2 after 360 to 5.00000 in 300 on event 6	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction FW30A after 5 on event 6	Heater 2A hi level switch failure
	None	None	Insert malfunction FW30B after 10 on event 6	Heater 2B hi level switch failure
	None	None	Insert malfunction FW30C after 3 on event 6	Heater 2C hi level switch failure

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote HV06 to STOP on event 4	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 4	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 4	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 4	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 2 to STOP on event 4	HV02 RBVS Exhaust fan B
	None	None	Insert remote HV01 after 3 to STOP on event 4	HV01 RBVS Exhaust fan A
	None	None	Insert remote AN24 after 5 to NORM on event 4	AN24 E6-C5 RBVS & Wing Area HVAC Pnl 10C382

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 5A159_C_DI to Off	HV-1625 OPEN-BYPASS HEATERS 1&2 DRN CLEAR (DI)
	None	None	Insert override 5A159_D_DI to Off	HV-1625 RAISE-BYPASS HEATERS 1&2 DRN CLEAR (DI)

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Reduction:	• CRS directs power reduction IAW IO-6 and REMA.	
	• CRS directs inserting control rods and lowering Reactor Recirc IAW REMA guidance.	

As RE, **PROVIDE** the following guidance:
 	
• Power reduction guidance is to insert Group 10B Control Rods IAW ReMA guidance. Continuous insertion use is allowed.
• Emergency Load reductions will be performed using Standard Power Reduction Instructions.
	• RO inserts control rods IAW REMA guidance and HC.OP-SO.SF-0001.
	  ⇒ Presses the desired Control Rod Select PB
	  ⇒ Presses the INSERT PB
	  ⇒ Observes the following:
	    ⇒ The INSERT (white) light comes ON.
	    ⇒ Control Rod Position Four Rod Display indicates control rod movement.
	    ⇒ The INSERT light goes OUT and the SETTLE light comes ON.
	  ⇒ After the SETTLE cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position and initials REMA.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Remove RFP in Service:	• PO commences removing RFP C from service IAW SO.AE-0001 Section 5.11.	
REFER to SO.AE-0001 Section 5.11 and **RESPOND** as NEO at RFP C.	• Place the Reactor Feed Pump in manual • Press Decrease ↓ pushbutton on RFPT A(B,C) SPEED CTRLR to reduce speed/flow of the Reactor Feed Pump to be removed from service AND ALLOW the other Reactor Feed Pumps to assume the flow • When the Reactor Feed Pump being removed reaches 0 gpm flow to RPV, Press Decrease ↓ pushbutton on RFPT A(B,C) SPEED CTRLR UNTIL SPD is < 1000 RPM	
Radiation Monitor Failure AFTER the crew has removed RFP C from feeding, OR at the discretion of the Lead Evaluator, **INSERT ET-1**.	• Crew identifies failure of 9RX635 by observing: ⇒ OHA C6-C1, RADIATION MONITORING ALARM./TRBL ⇒ RM-11 console alarms ⇒ CRIDS R9635, DAPA DYWL ATM NOBLE GAS RAD A. ⇒ R9635 indicating 1E+09 R/HR	
	• Crew enters/refers to HC.OP-AR.ZZ-0008: ⇒ REFER to RM-11 AND RESPOND as directed IAW HC.OP-AR.SP-0001	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew enters/refers to HC.OP-AR.SP-0001: ⇒ NOTIFY CRS of alarm condition ⇒ NOTIFY Radiation Protection of alarm condition.	
	• CRS recognize the following T/S apply: ⇒ Accident Monitoring Instrumentation 3.3.7.5 Action 80 a.	With the number of OPERABLE channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel to OPERABLE status within 30 days, or immediately initiate actions in accordance with 6.9.2.
RWCU HX Into RACS System AFTER Tech Specs have been addressed for the Rad Monitor failure, OR at the discretion of the Lead Evaluator, **INSERT ET-2**. Note: CRIDS alarms @ 15 gpm which equates to approx. 15% leak. (About 5 minutes to alarm.)	• Crew identifies rising RWCU diff flow from the CRIDS alarms: ⇒ CRIDS RWCUDF "RWCU DIFFERENTIAL FLOW" in EHI alarm.	
Respond as EOs sent to investigate possible RWCU leak that everything appears normal with RWCU.	• CRS enters/refers to AB.CONT-0002 for Imminent isolation signal to RWCU: ⇒ Condition A	Note: Crew may manually isolate RWCU, and enter Condition B.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew identifies rising RACS Head Tank Level from CRIDS alarms: ⇒ CRIDS A2941, RACS HEAD TANK 0T213 LEVEL HIGH. ⇒ OHA A2-F2, RACS PANEL 10C202	
Note: RACS head tank rises ~2% per minute and alarms at 90%. (Approx. 13 minutes.)	• Crew monitors RX Bldg parameters and Off site release rates to determine no leak exists from RWCU not the secondary containment.	
	• Crew identifies rising RACS rad radiation R9500	
INSERT Remote CW25 to CLOSED if crew requests 1-AN-V070, RACS Head Tank Supply Isolation closed.	• CRS implements HC.OP-AB.COOL-0003: ⇒ Condition D ⇒ Condition E	
	• Crew determine in leakage is from RWCU due to rising RWCU differential flows and RM-11 & CRIDS rising radiation levels.	

Event / Instructor Activity	Expected Plant/Student Response	Comments

	• Crew Isolates RWCU as follows:
	⇒ RO/PO performs the following:
	  ▪ TRIPs the running RWCU Pumps
	  ▪ Closes HV-F001, HV-F004, & HV-F039
	  ▪ Directs NEO to close local CRD valves BF-V942 & BF-V943	

	• IF the RACS Head Tank overflows, the Crew then notifies Radiation Protection of possible contamination leak in the SLC Room.	
	• CRS enters/refers to AB.CONT-0002 for loss of RWCU: ⇒ Condition B	
	• Crew directs Chemistry to isolate the "Cleanup Filter Demin Inlet" sample and the Mitigation Monitoring System.	
	• CRS contacts Operations Management to initiate Prompt Investigation and ERT callout.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of 1DD482 After actions for the RWCU to RACS leak have been addressed, OR at the discretion of the Lead Evaluator, **INSERT ET-3**.	• Crew recognizes loss of DD482 by observing: ⇒ OHA A7-C2, SACS SUPPLY RHR PUMP D TROUBLE, in alarm ⇒ Loss of 1E DIV 2/Channel D analog instrumentation. ⇒ Loss of control and status indication for Non-ECCS Division 2/Channel B components. ⇒ RCIC, RHR D and Core Spray D will lose status indications ONLY. ⇒ CRIDS page 167	NOTE: OHA D3 E3 "120VAC UPS TROUBLE" is NOT received on a loss of a 482 inverter. 482 inverter supplies the output to this alarm for its channel.
	• CRS enters AB.ZZ-0136 and directs actions IAW AB.ZZ-0136 including Attachment 8: ⇒ Assess all plant systems and enter appropriate Abnormal Procedures ⇒ Determine failed inverter	
<u>WHEN</u> dispatched, <u>THEN</u> **REPORT**: • Inverter main power fuses are blown • CB302 (AC Regulator Output) and CB10 (Inverter AC Output) are tripped • There is an acrid odor coming from the static switch.	• Crew dispatches ABEO and/or 12 Hr Maintenance to investigate loss of inverter.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of RBVS due to closure of HV-9370B and HV-9414B (loss of solenoid power).	• Crew recognizes Loss of RBVS by: ⇒ RB D/P indication on 10C650E (PDR-9426A/B) ⇒ SPDS RB PARAMETERS D/P indication. ⇒ OHA E1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS B7164 "REACTOR BLDG DIFF PRESS" ⇒ OHA E6-C5 "RBVS & WING AREA HVAC PNL 10C382" ⇒ CRIDS D3960 "RBVS EXH RMT PNL C382 TRBL" ⇒ CRIDS D3961 "RBVS SUPPLY RMT PNL C382 TRBL"	
	• CRS implements AB.CONT-003: ⇒ Condition A ⇒ Condition D	
	• Crew dispatches RBEO to 10C382 to investigate.	
IF directed to secure RBVS, THEN **TRIGGER ET-4**.	• RO/PO place FRVS in service IAW SO.GU-0001, or AB.ZZ-0001 Attachment 20. ⇒ Start 1 FRVS Vent Fan ⇒ Dispatch an operator to stop RBVS fans ⇒ Close the Reactor Bldg Inbd/Outbd Supply/Exh dampers at Panel 10C651E ⇒ Start 4 FRVS Recirculation Fans	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS ensures compliance with UFSAR section 5.2.3.2.2.2 for Rx Coolant monitoring	Due to closure of SV-4311.
	• CRS/STA/IA recognize the following Tech Specs actions apply for the loss of DD482: ⇒ Distribution – Operating 3.8.3.1 action a AND d	8 hours to reenergize panel and restore inverter within 24 hours, or Hot SD in 12 hours and Cold SD in following 24.
LOCA After Technical Specifications have been addressed, OR at the discretion of the Lead Evaluator, **INSERT ET-5**. RPS failure is pre-inserted.	• Crew recognizes coolant leak: ⇒ Rising Drywell Pressure on various indicators ⇒ CRIDS A2285, DRYWELL EL 96 AZ 300 TEMP in alarm ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ RM11 9AX317/318/320 DLD CCM alarms ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO" ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO"	
	• CRS implements AB.CONT-0006: ⇒ Condition A ⇒ Condition B ⇒ Condition C	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements AB.CONT-0001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized by ensuring all DW fans are running in fast speed AND all DW coolers are placed in service.	
	• Crew checks: ⇒ Recirc pump seal parameters ⇒ SRV temperatures	
	• WHEN the Crew determines drywell pressure cannot be maintained below 1.5 psig, THEN CRS directs: ⇒ Reducing recirc pump speeds to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO: ⇒ Reduces recirc pumps to minimum speed ⇒ Locks the Mode Switch in SHUTDOWN	RPS will NOT cause a scram on ANY signals.
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Reactor Scram Reports Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OP-AB. ZZ-0001.		

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
RPS Failure RPS failure is pre-inserted.	• RO recognizes RPS failure, announces condition, and initiates ARI IAW AB.ZZ-0001.	
	∗ ***After placing the Mode Switch in SHUTDOWN, AND before RPV water level drops below -129" (Level 1) the Crew manually initiates ARI to shut down the reactor.***	**RECORD** RPV water level at which the Crew manually initiates ARI to shut down the reactor. RPV Level: _____
	• RO recognizes successful shutdown and continues with scram actions.	
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• CRS enters EOP-101A briefly, then transitions to EOP-101.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of Feedwater and Condensate: The 1&2 Feedwater heaters will isolate shortly after the Main Turbine Trip. **ENSURE ET-6** activates. The bypass around the 1&2 Feedwater heaters is failed shut. Note: RFPs will be lost when DW pressure reaches 1.68 psig.	• Crew recognizes 1&2 FWH trip by: ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ Flashing HTR TRIP lights for FWH #2A/B/C ⇒ Condensate Inlet and Outlet valves stroking shut for FWH 1&2A/B/C.	
	• PO may attempt to bypass 1&2 FWHs IAW AB.ZZ-0001 Att. 14.	
	• PO informs CRS of inability to inject with condensate.	
	• CRS implements AB.CONT-0006: ⇒ Condition D	
	• RO: ⇒ Ensures reactor recirc pumps are tripped within 10 minutes of loss of RACS cooling (1.68 psig DW pressure) IF RPT breakers are not open.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN Drywell Pressure reaches 1.68#, THEN Crew recognizes RFPT trips by: ⇒ OHA B3-E1 "RFP TURBINE TRIP" ⇒ RFPT Control Valve indications on 10C650C ⇒ TRIP status light on RFPT bezels ⇒ RFPT discharge pressure indications on 10C650C ⇒ Feed flow indications	
	• Crew recognizes 1.68 psig Drywell Pressure EOP entry condition by: ⇒ OHA A7 D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5 B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations	
	• CRS enters EOP-102, and reenters EOP-101(A).	
	• CRS directs level control with any combination of the following IAW EOP 101: ⇒ HPCI ⇒ RCIC	
	• RO/PO ensure isolations occur IAW either: ⇒ SO.SM-0001 OR ⇒ AB.CONT-0002	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
HPCI Injection Valves Fail To Open: HPCI Injection Valves' failure is pre-inserted.	• PO manually initiates HPCI IAW AB.ZZ-0001 Att. 6.	
	• PO recognizes failure of HPCI to automatically initiate by: ⇒ OHA B1-E5 HPCI PUMP DISCHARGE FLOW LO ⇒ High Discharge Pressure ⇒ High Turbine Speed ⇒ No injection flow	
	• PO manually aligns HPCI for injection IAW AB.ZZ 0001 Att. 6 (ensures HV-F006 and HV-8278 are open and adjusts FIC-R600 as necessary) and informs CRS of injection valve failures.	
	∗ **Before Compensated RPV water level drops below -185" AND without Emergency Depressurizing, Crew manually places HPCI in service and injects with HPCI to maintain Compensated Reactor water level above -185".**	**RECORD** RPV water level at which the Crew manually places HPCI in service and injects with HPCI to maintain Compensated Reactor water level above -185".. RPV Level: _____

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes 1.68 psig Drywell Pressure EOP entry condition by: ⇒ OHA A7 D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5 B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations	
	• CRS enters EOP-102.	
	• Crew reports Drywell Temperature when it reaches 135 degrees.	
	• CRS re-enters EOP-102.	
	• Crew reports Torus Water temperature if it reaches 95 degrees.	
	• CRS re-enters EOP-102 if applicable.	
	• CRS directs placing A and/or B RHR pumps in Suppression Pool Cooling & Suppression Chamber Spray.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO place A and/or B RHR pumps in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3. ⇒ Ensure RHR pump is running ⇒ Override then close HV-F017A ⇒ Throttle open EG-HV-2512A ⇒ Press AUTO CL OVRD PB for HV-F024A ⇒ Throttle open HV-F024A until Loop A Flow indicates between 10,500 - 10,600 gpm	
	• CRS directs restoring: ⇒ 1E Breakers ⇒ CRD ⇒ PCIG to SRVs ⇒ Instrument Air	
	• IF directed, THEN RO/PO restore 1E breakers IAW AB.ZZ-0001 Attachment 12. ⇒ Press TRIP OVRD pushbutton ⇒ Close Applicable 480 VAC breaker (10C650E)	
	• IF directed, THEN RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF directed, <u>THEN</u> RO/PO restore a CRD pump to service IAW either: ⇒ SO.BF-0001 Sect 5.2 OR ⇒ AR.ZZ-0011 Attachment F2	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: • Reactor is shutdown, and • RPV level is being maintained above –161"		

VI. SCENARIO REFERENCES:

A. NUREG 1021 Examiner Standards
B. JTA Listing
C. Probabilistic Risk Assessment
D. Technical Specifications
E. Alarm Response Procedures (Various)
F. HU-AA-101 Performance Tools and Verification Practices
G. HU-AA-104-101 Procedure Use and Adherence
H. HU-AA-1081 Fundamentals Toolkit
I. HU-AA-1211 Briefing
J. OP-AA-101-111-1004 Operations Standards
K. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
L. OP-HC-108-106-1001 Equipment Operational Control
M. **HC.OP-SO.AE-0001 Feedwater System Operation**
N. **HC.OP-SO.BJ-0001 High Pressure Coolant Injection System Operation**
O. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
P. **HC.OP-AB.ZZ-0136 Loss Of 120 VAC Inverter**
Q. **HC.OP-AB.CONT-0001 Drywell Pressure**
R. **HC.OP-AB.CONT-0002 Primary Containment**
S. **HC.OP-AB.CONT-0006 Drywell Leakage**
T. **HC.OP-AB.RPV-0001, Reactor Power**
U. **HC.OP-AB.RPV-0003, Recirculation System/Power Oscillations**
V. **HC.OP-EO.ZZ-0101 RPV Control**
W. **HC.OP-EO.ZZ-0101A, ATWS-RPV Control**
X. **HC.OP-EO.ZZ-0102 Primary Containment Control**

ESG-04 / 01

1.

∗ ***After placing the Mode Switch in SHUTDOWN, AND before RPV water level drops below -129" (Level 1) the Crew manually initiates ARI to shut down the reactor.***

K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown
EA1. Ability to operate and/or monitor the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN:
EA1.01 Reactor Protection System RO 4.6 SRO 4.6
EA1.03 ARI/RPT/ATWS RO 4.1 SRO 4.1

> This action is prescribed by the Abnormal and Emergency Operating Procedures. Under the scenario conditions, the Reactor Protection System (and RRCS auto initiation failure is inserted) has failed to respond to a manual scram condition. The operator must take action to mitigate the failure associated with the RPS malfunction by initiating backup scram actions. This action rapidly inserts control rods to shut down the reactor, preventing prolonged power operations without normal level and pressure control systems. RPV Level 1 can be expected if RRCS is not initiated before the Reactor Feed Pumps trip on high Drywell pressure. Normal pressure control systems are lost at Level 1 due to MSIV closure. This will add additional heat to the primary containment.

2.

∗ ***Before Compensated RPV water level drops below -185" <u>AND</u> without Emergency Depressurizing, Crew manually places HPCI in service and injects with HPCI to maintain Compensated Reactor water level above -185".***

K/A 206000 High Pressure Coolant Injection System
A3 Ability to monitor the operations of the HIGH PRESSURE COOLANT INJECTION SYSTEM including:
A3.03 System lineup RO 3.9 SRO 3.8
K/A 295031 Reactor Low Water Level
EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:
EA1.02 High Pressure Coolant Injection RO: 4.5 SRO 4.5

> The HPCI system has failed to automatically inject into the reactor. HPCI is the only High Pressure injection system available with adequate capacity to maintain RPV water level. If RPV water level is allowed to drop below –185", the fuel will be uncovered sufficiently to challenge the fuel cladding integrity. The rate of level drop in this scenario below Level 1 is very slow and provides more than adequate time to execute the guidance and restore RPV level with HPCI without Emergency Depressurization.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT	Y/N	EVENT
	Loss Of Offsite Power/SBO		Internal Flooding
Y	LOCA		

	TRANSIENTS:		LOSS OF SUPPORT SYSTEMS:
	Turbine Trip		Loss of SSW
	Loss of Condenser Vacuum		Loss of SACS
Y	Loss of Feedwater		
	Manual Scram		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT	Y/N	KEY SYSTEMS
Y	HPCI		SRVs
	RCIC	Y	Condensate/Feedwater
	B/D EDG		SSW
	A/B RHR Pump	Y	RPS
	A/B SACS Loop		
	1E 4.16KV Bus		
	1E 480 VAC Bus		
	120VAC 481 Inverter		
	1E 125VDC		
	Hard Torus Vent		

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
	Manual Depressurization of the RPV w/ no HP Injection Available
	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
	Control RPV Water Level w/ HP Injection during ATWS Sequence
	Align Portable Power Supply to Battery Chargers
	Venting of Primary Containment
	Restore Switchgear Cooling
	Restart Condensate
	Control Plant via Remote Shutdown Panel during Control Room Flooding Sequence

Complete this evaluation form for each ESG

VIII.   SIMULATOR ESG REVIEW/VALIDATION:

Crew Validation (NRC) Rev.: 00 Date Validated: 5/22/2019	
Validation Comments	**Disposition**
1. Add operator actions for Hard Cards.	1. Added.

Crew Validation Rev.: _____ Date Validated: _____	
Validation Comments	**Disposition**
1.	1.

IX.   TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

Commenced power reduction. Power is approximately 75%. Continue power reduction in accordance with IO-6 and REMA and remove RFP C from service. Currently at IO-6 up through Step 5.2.8.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

RFP C is required to be removed from service for maintenance in accordance with HC.OP-SO.AE-0001.

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: **SBLC Initiation/10D420 Loss/SCP Malfunction/LOP/HPCI Steam Leak/ED**

SCENARIO NUMBER: **NRC-02**

EFFECTIVE DATE:

EXPECTED DURATION: 60-70 Minutes

REVISION NUMBER: **00**

PROGRAM:

	L.O. REQUAL
X	**INITIAL LICENSE**
	OTHER _____

REVISION SUMMARY:

Enabling Objectives
  A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Crew critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

  A. Secure from Primary Containment Makeup
  B. Raise power with Reactor Recirculation Pump speed
  C. Inadvertent SBLC System Initiation
  D. Loss of 10D420 125 VDC Bus
  E. Secondary Condensate Pump Malfunction
  F. LOP with Auto Start Failure of 'A' EDG / LOP-LOCA Sequencer Failure
  G. Steam Leak in HPCI Room with Auto Isolation Failure

III. SCENARIO SUMMARY:

The scenario begins with the plant at 95% power, Drywell makeup is in progress, 'C' SSW pump C/T and TACS being supplied by the 'B' SACS loop. Primary Containment Makeup is required to be terminated. Power will be raised with Reactor Recirculation Pump speed. Once power has risen to 100%, an inadvertent Standby Liquid Control System initiation will attempt to inject Boron solution into the Reactor Pressure Vessel. The operating crew will stop the boron injection. Once actions for the SBLC system initiation are complete the 10D420 125VDC bus is lost. After Tech Specs are addressed for the loss of 125 VDC, a circuit malfunction causes the HV-1648C, Secondary Condensate Pump (SCP) CP137 Suction Valve to close. A LOP occurs after the crew has responded to the SCP malfunction. The 'A' EDG will fail to Auto-Start, and will require manual starting. HPCI will suffer a steam line break, and oil line break on initiation; and will fail to automatically isolate when the automatic isolation signals are received, but can be isolated from the Control Room. Failure of the LOP/LOCA Sequencers will require action by the crew to ensure long term cooling for SACS Loop A by starting SSW Pump A. Due to the unavailability of HPCI and RCIC, RPV water level will lower until Emergency Depressurization is required. The scenario ends when the reactor has been depressurized, and RPV level has been restored.

I.C.	
Initial	
	INITIALIZE the simulator to 100% power. **LOWER** power to 95% with TCF.
	ENSURE TACS is on the SACS loop B.
	ENSURE the SACS Pump A is in service.
	ENSURE the BK403 chiller is in service.
	ENSURE the BK400 chiller and ventilation train is in service.
	ENSURE the SSW Pump A is in service.
	C/T 'C' SSW pump as follows:
	1. **INSERT** Remote Function CW30C to TAGGED
	2. **INSERT** Remote Function CW22 to OPEN
	3. **ACKNOWLEDGE** alarms and flashing bezel indications
	4. **PLACE** HV-2198C in LOCKOUT
	5. **PLACE** HV-2197C in LOCKOUT
	ENSURE associated Schedule file is open and running.
	ENSURE associated Events file is open.

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)	
Initial	Description
	PLACE red bezel on CP502 SSW pump.
	PLACE red bezel cover on HV-2198C discharge valve.
	PLACE red bezel cover on HV-2197C backwash valve.
	MARKUP HC.OP-IO.ZZ-0003 to Step 5.1.6.
	UPDATE LCO book: Station Service Water System T/S 3.7.1.2 Action a.1 (30 days to restore).
	INITIATE containment makeup IAW HC.OP-SO.GS-0001. Raise DW pressure to 0.66 psig; align makeup to the SC, then makeup to SC pressure of 0.63 psig. Markup procedure appropriately.
	At a minimum review the Scenario Reference section and **CLEAN** the <u>bolded</u> EOPs, ABs and SOPs listed. (80091396 0270)
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".
	ENSURE Data Collection is trending the following parameters:
	• W/R Reactor Water Level
	• W/R Reactor Pressure
	• Fuel Zone Reactor Water Level

EVENT FILE:

Initial	ET #		
	9	Event code: Description:	**hpvv17 >= 0.10** HPCI F001 opening
	10	Event code: Description:	**et_array(6) & !lc_parun & !lc_pbrun** LOP AND Both CRD Pumps Not Running
		Event code: Description:	

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction DG07A	Diesel generator A emergency start signal failure
	None	None	Insert malfunction DG03A	LOCA sequencer chan A failure
	None	None	Insert malfunction DG04A	LOP sequencer chan A failure
	None	None	Insert malfunction HP10	HPCI steam isolation valves F002 & F003 failure to auto close
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	None	None	Insert malfunction SL03A on event 3 delete in 3	Inadvertent SBLC system A initiation
	None	None	Insert malfunction ED11B on event 4	Loss of 125 VDC class 1E bus 10D420
	None	None	Insert malfunction EG12 on event 6	Loss of all off site power
	None	None	Insert malfunction HP09 to 10.00000 in 420 on event 9	HPCI steam line break inside HPCI Room 4111
	None	None	Insert malfunction HP06M after 15 on event 9	HPCI aux oil pump - oil line break
	None	None	Insert malfunction CD08A on event 10	CRD suction filter AF201 clogging
	None	None	Insert malfunction CD08B on event 10	CRD suction filter BF201 clogging

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote CW30C to TAGGED	CW30 Service Water Pump C
	None	None	Insert remote CW22 to OPEN	CW22 Service water strainer backwash valve C breaker
	None	None	Insert remote CD04 to OPEN on event 7	CD04 CRD suction filter isolation valve V030
	None	None	Insert remote CD06 to 100.00000 in 60 on event 8	CD06 Drive water press cont bypass valve V062 (0-100%)
	None	None	Insert remote CD10 after 120 to ON on event 8	CD10 CRD FCV B
	None	None	Insert remote FF185 to ALARM on event 6	FF185 00P521 DSL FIRE PMP AUTO START
	None	None	Insert remote FF188 to ALARM on event 6	FF188 00P521 DIESEL FIRE PMP RUNNING
	None	None	Insert remote FF189 to ALARM on event 6	FF189 00P520 ELE FIREPMP PWR NOT AVAIL
	None	None	Insert remote FF195 to ALARM on event 6	FF195 00P520 ELE FIRE PMP FAIL TO STRT
	None	None	Insert remote FF196 after 300 to ALARM on event 6	FF196 TANK 0AT508 WTR STOR TNK LO LVL
	None	None	Insert remote FF198 after 301 to ALARM on event 6	FF198 TANK 0BT508 WTR STOR TNK LO LVL

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 5A37_A_LO to On	HV-2198C OVLD/PWR FAIL (LO)
	None	None	Insert override 5A37_E_DI to Off	HV-2198C OPEN (DI)
	None	None	Insert override 5A37_F_LO to Off	HV-2198C CLOSE (LO)
	None	None	Insert override 5A127_A_DI to Off on event 5	HV-1648C OPEN (DI)
	None	None	Insert override 5A127_B_DI to On on event 5	HV-1648C CLOSE (DI)

Event / Instructor Activity	Expected Plant/Student Response	Comments
Secure Containment Makeup	• CRS directs securing containment makeup IAW HC.OP-SO.GS-0001.	
	• RO secures from containment makeup IAW HC.OP-SO.GS-0001. ⇒ CLOSE HV-5035, CACS N2 SUP HDR ISLN VLV. ⇒ CLOSE HV-4974, N2 M/U SUP ISLN MOV ⇒ CLOSE HV-4966B, H2/O2 ANAL 1BC200 RET HDR INBD ISLN MOV ⇒ INITIAL Attachment 1.	
Raise Reactor Power With Recirculation Flow	• CRS directs power ascension IAW HC.OP-IO-0006 and REMA.	
	• RO raises Total Core Flow using Recirculation Pumps A and B IAW REMA and HC.OP-SO.BB-0002. ⇒ Raises Reactor Recirc Pump speed by intermittently pressing RAISE LOW (MED, HIGH) push button on SIC-R621A(B) PUMP A(B) SPD CONT	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Inadvertent SLC Initiation: After actions for the loss of FW Heating are complete, or at the discretion of the Lead Examiner, **TRIGGER ET-3**.	• Crew recognizes Inadvertent SLC Initiation by: ⇒ OHA C1-C1 SLC SQUIB VLV LOSS OF CONTINUITY ⇒ OHA B3-B5 CORE SPRAY LINE BREAK ⇒ OHA C1-C2 RWCU SYSTEM TROUBLE	
	⇒ CRIDS D3020 SLC SQUIB XV-F004A CONTINUITY in alarm ⇒ SBLC Pump AP208 indicates running	
	• CRS implements AB.RPV-0001: ⇒ Condition G	
	• Crew verifies Reactor Level >-38" and Reactor Pressure remained <1071 psig.	
	• RO stops the running A SLC Pump by depressing Standby Liquid Control, Injection Pump A, STOP push button.	
	• Crew verifies RWCU isolated.	
If requested to open breaker, **INSERT Remote ET72** to TAGGED and report that the breaker is open.	• Crew directs opening SLC Pump A breaker 52-212063.	
SLC Tank level can be observed on CRIDS Page A097 point A7052. (Per Note 3, <15 gallon change indicates no injection reached the vessel.)	• CRS determines SLC operability based on SLC Pump AP208 breaker open and Storage Tank level using HC.OP-DL.ZZ-0026, and declares inoperable SLC Pump AP208.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew determines if SLC solution entered the Reactor.	
	• CRS recognizes the following Tech Specs actions apply: ⇒ SBLC – Operating 3.1.5, Action A.1	Need to restore the subsystem in 7 days, or be in Hot S/D in next 12 hours.
	• If SLC entered the Reactor, the CRS initiates action within 15 minutes to reduce power to less than 24% within six hours.	
	• CRS may refer to AB.CONT-0002 for actions to restore RWCU, Attachment 3.	
	• RO restores RWCU by: • Resetting NSSSS ⇒ Opening F001 and F004 ⇒ Ensure at least 1 RACS Pump in service ⇒ Start A(B)P221, RWCU Pump ⇒ Throttle F044 for approx.. 150 gpm ⇒ Start B(A)P221, RWCU Pump ⇒ Throttle F044 for approx.. 300gpm	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of 10D420: After Tech Specs have been addressed for the SLC System, <u>OR</u> at the discretion of the Lead Examiner, **TRIGGER ET-4** (Loss of 10D420 bus).	• Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable.	
	• Crew recognizes loss of 10D420 by: ⇒ Flashing INOP lights on all 10A402 bus breakers ⇒ 'B' Channel ECCS "LOGIC PWR FAILURE" lights ⇒ Flashing "OVLD/PWR FAIL" lights on RCIC valves w/loss of position indication ⇒ Charger and bus voltage indication on 10C650D ⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE" ⇒ CRIDS Page 166 ⇒ CRIDS D4637 "125 VDC BATT 1BD411 PWR AVAIL NO" ⇒ CRIDS D4634 "125 VDC SWGR 10D420 TRBL"	
	• CRS implements AB.ZZ-0150.	
<u>IF</u> dispatched to investigate loss of 10D420, <u>THEN</u> **REPORT**: • Bus indicates 0 volts • Both battery charger output breakers are tripped • There is an acrid odor and indication of flash damage at the battery transfer switch • There is no indication of fire	• Crew dispatches ABEO and Maintenance to investigate loss of 10D420 bus.	E-0009-1 Sheet 2

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO opens HV-2198B, SSW B Pump Backwash Valve.	Crew may or may not reopen this valve.
	• CRS recognizes the following Tech Specs actions apply: ⇒ D.C. Sources - Operating 3.8.2.1 Action a ⇒ Distribution – Operating 3.8.3.1 Action b	Need to restore the 1BD411 battery, 10D420 bus, and one charger in two hours, or be in Hot S/D in next 12 hours.
Closure of HV-1648C: After Technical Specifications have been addressed for the 125 VDC loss, <u>OR</u> at the discretion of the Lead Examiner, **TRIGGER ET-5** (HV-1648C closure). **IF** Crew/Reactor scrams due to lowering RPV Level, **PROCEED** to ET-6.	• Crew recognizes problem with SCP CP137 by: ⇒ OHA A6-F3 "CONDENSATE TRAIN C TROUBLE" ⇒ CRIDS D2375 "SEC CNDS PUMP CP137 MOTOR MALF" ⇒ HV-1648C OPEN/CLOSE lights lit	Crew may reduce RR pump speed to maintain RPV Level between Level 4 and 7 IAW RPV-0004.
	• CRS implements AB.RPV-0004: ⇒ RETAINMENT OVERRIDE Secondary Condensate Pump Suction Valve validated * to be closing.- TRIP respective Secondary Condensate Pump	
	• Crew determines that SCP "C" is required to be tripped.	The crew should trip CP137 based on OP.AD-0001 Caution and Retainment Override of AB-RPV-4. NOTE: RFP may trip on low suction pressure before SCP is tripped.
	• RO/PO trips SCP "C"	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements AB.RPV-0004: ⇒ Condition G	
	• PO monitors Feedwater response to SCP trip.	
	• RO ensures Feedwater and Recirc Pump Runbacks have occurred.	
	• PO closes HV-1651C SCP discharge valve.	
	• RO/PO bypasses the Feedwater SCP Runback.	
	• Crew announces trip of 'C' SCP on the plant page.	
The Crew may decide to scram if a RFP trips on low suction pressure.	• CRS implements AB.RPV-0003: ⇒ Condition B	
	• CRS implements AB.RPV-0001: ⇒ Condition B	
	• Crew monitors for Power Oscillations.	
	• CRS recognizes the following actions apply: ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• Crew contacts ESOC and Trading Floor, gives estimate of MWe output limitations and duration of limitation.	
Loss of Offsite Power: After: actions for the SCP trip have been taken; the Reactor is scrammed; <u>OR</u> at the discretion of the Lead Examiner, **TRIGGER ET-6** (Loss of Offsite Power).	• Crew recognizes Loss of Offsite Power by: ⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers ⇒ TRIP indication for all 500 KV breakers ⇒ Flashing TRIP lights for all previously closed bus infeeds. ⇒ Numerous OVLD/PWR FAIL lights.	
	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **Reactor Scram Reports** Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OP-AB.ZZ-0001.	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• Crew recognizes Reactor Pressure Above 1037# EOP entry condition by: ⇒ OHA C1-E5 "SRV LO-LO SET ARMED" ⇒ Various RPV pressure indicators	Due to the loss of both RPS buses, the C5-A5 OHA will not be useful in diagnosing peak pressure during the transient.

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP 101 RPV Control**. Level Leg Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level can not be maintained above -129", the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185". Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.	• CRS implements EOP-101.	
Auto Start Failure of EDG:	• Crew recognizes failure of the 'A' EDG to start and load by: ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'A' Channel components	
	• PO starts the 'A' EDG and ensure it loads.	Immediate Operator Action IAW AB.ZZ-0135

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to locally start the 'A' EDG, THEN **REMOVE** Malfunction **DG07A**.	* ***Crew starts the 'A' EDG by EITHER: Pressing the 'A' EDG START pushbutton in the Control Room, or Directing an operator to locally start the 'A' EDG; and starts SSW Pump A; OR Cross connects SACS Loop B to SACS Loop A loads; BEFORE EDG C trips on high temperature.***	
	• PO maintains level and pressure as directed by CRS.	
LOP/LOCA Sequencer Failure:	• Crew recognizes LOP/LOCA Sequencer Failure by: ⇒ Failure of numerous pump starts, breaker trips and valve closures associated with Channel A equipment.	
	• CRS directs loading of EDG A as necessary to support cooling of SACS Loop A	
	• RO/PO starts SSW Pump A to ensure long term cooling to SACS Loop A.	Cooling necessary to support EDG A and RHR Loop A.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• <u>WHEN</u> RPV water level drops below LVL 2, <u>THEN</u> Crew recognizes RPV LVL 2 by: ⇒ OHA D1-A1 "RRCS POTENTIAL ATWS" ⇒ OHA C1-D3 "REACTOR RECIRC PUMPS TRIP" ⇒ E3-E3 "USS FEEDER BRKR TRBL" ⇒ RPV LVL 2 Load Sheds ⇒ Various RPV level indications	Due to the LOP and loss of power to both RPS buses, the RPV LVL 2 and NSSSS ISLN SIG – RPV LEVEL LO are no longer valid indicators of LVL 2.
<u>HPCI Steam Line Break</u>: HPCI steam leak starts automatically when HPCI starts. <u>IF</u> dispatched to HPCI Room, <u>THEN</u> **REPORT** the room door is hot to the touch, and it sounds like a steam leak is inside the room.	• <u>WHEN</u> HPCI initiates, <u>THEN</u> the Crew recognizes a possible oil line break; and possibly a steam line break in the HPCI room by: ⇒ OHA B1-A5 "HPCI STEAM LINE DIFF PRESSURE HI" ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ OHA D3-A1 "HPCI/RHR A AREA LEAK TEMP HI" ⇒ OHA A2-A5 "FIRE PROT PANEL 10C671" ⇒ Fire Comp Pt FA015 "RM 4111 HPCI PUMP AND TURBINE ROOM" ⇒ Offsite release rate trending up ⇒ HPCI room temperature trending up (Rm 4111) ⇒ ISLN INIT status lights ⇒ Turbine Inlet Pressure on PI-R602.	May be initiated manually before LVL 2 if Crew scrammed promptly on loss of Feedwater. D3-A1 will not be received if the leak is isolated promptly.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes failure of HPCI to isolate by: ⇒ HV-F002/F003 valve position ⇒ HPCI room temperature trending up (Rm 4111)	Will not have indication on the HV-F003 until the 'A' EDG is started.
	• <u>IF</u> HPCI Room temperature reaches 115 degrees, <u>THEN</u> CRS implements EOP-103.	
	• PO closes HV-F002 and HV-F003 using Control Room keylock switches.	Immediate Operator Action IAW AB.CONT-0002.
	∗ ***Crew isolates the steam leak in the HPCI room by closing <u>EITHER</u> the HV-F002 <u>OR</u> HV-F003; BEFORE HPCI room temperature exceeds 200F.***	RECORD HPCI room temperature at which HPCI steam lines are isolated. HPCI room temperature: _____
	• Crew validates HPCI isolation by: ⇒ HV-F002/F003 valve position ⇒ Turbine inlet pressure on PI-R602 decays to zero ⇒ Trending HPCI Room temperature ⇒ Trending RPV pressure	
	• CRS directs manual pressure control to maintain RPV pressure below 1037 psig.	Due to the loss of 10D420, only the 'P' Lo-Lo Set SRV will be automatically cycling (935-1047 psig)
	• RO/PO cycle SRVs to maintain pressure as directed by the CRS IAW AB.ZZ-0001 Att. 13.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
As ESOC, **REPORT** it will take at least 10 hours to restore Offsite power to Artificial Island.	• Crew contacts ESOC for estimated time to restoration of Offsite power.	
	• CRS implements AB.ZZ-0135.	
	• <u>WHEN</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833 alarm ⇒ Various Suppression Pool temperature indicators	
	• <u>WHEN</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> the CRS implements EOP-102.	Due to RPV water level concerns, may not immediately place 'A' RHR in Supp Pool Clg.
	• <u>WHEN</u> directed by the CRS, <u>THEN</u> RO/PO place 'A' RHR in Suppression Pool Cooling IAW AB.ZZ-0001 Att. 3.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to align for two CRD pump injection, THEN **PERFORM** the following: **REFER** to SO.BF-0001 Sect 5.4. After 1st pump is running, **TRIGGER ET-7** (Suction filter). **SET** Remote Function for Stby CRD pump discharge valve to 0% (**CD01**/**CD02**). **REPORT** Stby CRD pump ready for start. WHEN Stby CRD is running, THEN **RAMP** discharge valve to 100% open (**CD01/CD02**). WHEN directed to locally open the HV-F003, THEN **SET** Monitor Item **lcvp003** = **1.0** AFTER HV-F003 is open, THEN **TRIGGER ET-8**.	• CRS directs injection with two CRD pumps. • RO/PO align CRD for Emergency Two CRD pump injection IAW SO.BF-0001 Sect 5.4. • CRS directs injection with the 'B' SLC pump. • RO/PO start the 'B' SLC pump.	The HV-F003 Pressure Control Valve has no power. When CRD is restarted following the LOP, the CRD Suction filters will clog and shortly thereafter the CRD pumps will trip on Low Suction pressure.
	• Crew directs restoration of the 'C' SSW pump from scheduled maintenance.	
Do NOT restore 10D420 bus.	• Crew pursues restoration of 10D420 bus.	
	• Crew recognizes loss of BD481/482 inverters by: ⇒ Loss of 'B' Channel PAMS indications ⇒ Loss of power to 'B' Channel electrical indications on 10C650D	Inverters are lost during LOP due to loss of 10D420.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• As time and resources permit, CRS implements AB.ZZ-0136.	
	• Crew recognizes loss of Fuel Pool Cooling by: ⇒ OHA D1-D5 "FUEL POOL COOLING SYS TROUBLE" ⇒ Loss of valve position indication on demin isolation valves HV-4676B/4678 ⇒ Pump discharge pressure and flow on CRIDS Page 116	Crew may enter AB.COOL-0004, but no conditions apply.
	• CRS directs placing the 'A' FPC pump I/S bypassing the Filter Demins IAW SO.EC-0001.	Due to the continuing loss of RPV water level, this action may not be complete by the end of the scenario.
	• As time and resources permit, CRS implements AB.ZZ-0171.	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.	• Crew ensures available EOP-101 Table 1 systems are running and aligned for injection.	
	• Crew recognizes RPV LVL 1 by: ⇒ A7-F5 "RPV LEVEL 1" ⇒ C1-F3 "ADS DRYWELL PRESS BYP TIMER INIT" ⇒ A/C/D ECCS initiations ⇒ Various RPV level indicators	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• <u>WHEN</u> RPV level reaches LVL 1, <u>THEN</u> CRS directs inhibiting ADS.	
	• RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.	'B' Channel ADS logic has no power.
	• RO/PO ensure available ECCS pumps start.	
<u>ED due to Low RPV Level</u>:	• <u>WHEN</u> RPV water level is below –129", but before –185", <u>THEN</u> the CRS implements EOP-202 to Emergency Depressurize.	
	• RO/PO opens five ADS valves IAW AB.ZZ-0001 Att. 13.	
	* ***BEFORE Compensated RPV water level lowers below -185", Crew enters EOP-202 and initiates actions to Emergency Depressurize the reactor. Then restores RPV water level to above -185".***	**RECORD** RPV Compensated Water level at which five SRVs are opened. RPV Level: _____
Support Crew's request for additional EOPs: EOP-323 use Remote Functions EP36; and for EOP-326, EP-43 as appropriate.	• RO/PO inject with low pressure ECCS IAW AB.ZZ-0001 Att. 4 and/or 5 to restore level as directed by the CRS.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner after the reactor has been depressurized, adequate core cooling has been restored (RPV water level >-161 inches).		

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid

B. NUREG 1021, Examiner Standards

C. JTA Listing

D. Probabilistic Risk Assessment

E. Technical Specifications

F. Emergency Plan (ECG)

G. Alarm Response Procedures (Various)

H. HU-AA-101 Performance Tools and Verification Practices

I. HU-AA-104-101 Procedure Use and Adherence

J. HU-AA-1081 Fundamentals Toolkit

K. HU-AA-1211 Briefing

L. OP-AA-101-111-1004 Operations Standards

M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel

N. OP-AA-106-101-1001 Event Response Guidelines

O. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program

P. OP-HC-108-106-1001 Equipment Operational Control

Q. HC.OP-SO.EC-0001 Fuel Pool Cooling and Cleanup System

R. **HC.OP-AB.RPV-0004 Reactor Level Control**

S. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**

T. **HC.OP-AB.CONT-0002 Primary Containment**

U. **HC.OP-AB.COOL-0002 Safety/Turbine Auxiliaries Cooling System**

V. **HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**

W. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**

X. **HC.OP-AB.ZZ-0150 125 VDC Malfunction**

Y. **HC.OP-AB.ZZ-0171 Loss of 4.16 KV Bus 10A402 B Channel**

Z. **HC.OP-AB.ZZ-000 Reactor Scram**

AA. **HC.OP-EO.ZZ-0101 RPV Control**

BB. **HC.OP-EO.ZZ-0102 Primary Containment Control**

CC. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**

DD. **HC.OP-SO.BF-0001 CRD Hydraulic System Operation**

EE. Strategies For Successful Transient Mitigation

ESG-02 / 00

1.

∗ *Crew starts the 'A' EDG by <u>EITHER</u>:*
Pressing the 'A' EDG START pushbutton in the Control Room, <u>or</u> Directing an
operator to locally start the 'A' EDG, AND starts SSW Pump A; <u>OR</u> Cross connects
SACS Loop B to SACS Loop A loads; BEFORE EDG C trips on high temperature.

K/A 295003 Partial or Complete Loss of A.C. Power
AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER
AA1.02 Emergency generators RO 4.2 SRO 4.3
AA1.03 Systems necessary to assure safe plant shutdown RO 4.4 SRO 4.4

> Due to the loss of 10D420, the 'B' EDG and 'B' Channel ECCS components are unavailable. This leaves the 'A' RHR pump as the only immediately available means of removing decay heat from the containment. Initiation of RHR for decay heat removal is one of the operator actions important to preventing core damage in our PRA. Also, with the 'C' SSW pump C/T, the 'A' SSW pump is the only means of cooling both the 'A' and 'C' EDG's. If the 'A' EDG does not start and load, not only will the 'A' Channel components be unavailable, the 'C' EDG will have no cooling and will fail or need to be locally secured until it can be cross-tied to the 'B' SACS loop. The loss of the 'A' and 'C' EDG's would result in a loss of the 'A' SLC and CRD pumps, and leave only the 'D' RHR pump to reflood the core after Emergency Depressurization, which would increase the time the fuel may be uncovered, and increase the probability of fuel damage. Additionally, the 'D' RHR LPCI flowpath does include a heat exchanger.

2.

∗ *Crew isolates the steam leak in the HPCI room by closing EITHER the HV-F002 OR HV-F003; BEFORE HPCI room temperature exceeds 200F.*

K/A 206000 High Pressure Coolant Injection System
A2 Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
A2.10 System isolation RO 4.0 SRO 4.1
A3 Ability to monitor automatic operations of the HIGH PRESSURE COOLANT INJECTION SYSTEM including
A3.09 Response to system isolation RO 4.2 SRO 4.1
A4 Ability to manually operate and/or monitor in the control room:
A4.04 Major system valves RO 3.7 SRO 3.7

> HPCI has failed to automatically isolate and can only be isolated by the Crew. This represents a bypass of both the RCS and Containment barriers. With indications of high steam flow, high room temperature, rising offsite releases, and an isolation signal to HPCI, the Crew should perform their Immediate Operator Actions IAW AB.CONT-0002 for a failure of a containment isolation valve to close. This action must be completed by the end of the scenario. 250F is the Maximum Safe Operating Temperature. Exceeding this value could prevent personnel from accessing systems necessary for the safe shutdown of the plant.

3.

* ***BEFORE Compensated RPV water level lowers below -185": Crew enters EOP-202 and initiates actions to Emergency Depressurize the reactor. Then restores RPV water level to above -185".***

K/A 295031 Reactor Low Water Level
EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:
EA1.01 Low Pressure Coolant Injection RO: 4.4 SRO 4.4
EA1.06 Automatic depressurization system RO 4.4 SRO 4.4
EA2 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL:
EA2.04 Adequate core cooling RO 4.6 SRO 4.8

> When Reactor water level cannot be maintained above -185" with injection to the RPV, adequate core cooling cannot be assured (MSCRWL). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there are injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restores level with low pressure ECCS.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM
INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT		Y/N	EVENT
Y	Loss Of Offsite Power/SBO			Internal Flooding
Y	LOCA			

	TRANSIENTS:			LOSS OF SUPPORT SYSTEMS:
	Turbine Trip			Loss of SSW
	Loss of Condenser Vacuum			Loss of SACS
	Loss of Feedwater			
	Manual Scram			

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT		Y/N	KEY SYSTEMS
Y	HPCI			SRVs
Y	RCIC			Condensate/Feedwater
	B/D EDG		Y	SSW
	A/B RHR Pump			RPS
Y	A/B SACS Loop			
	1E 4.16KV Bus			
	1E 480 VAC Bus			
	120VAC 481 Inverter			
Y	1E 125VDC			
	Hard Torus Vent			

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Manual Depressurization of the RPV w/ no HP Injection Available
	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
	Control RPV Water Level w/ HP Injection during ATWS Sequence
	Align Portable Power Supply to Battery Chargers
	Venting of Primary Containment
	Restore Switchgear Cooling
	Restart Condensate
	Control Plant via Remote Shutdown Panel during Control Room Flooding Sequence

Complete this evaluation form for each ESG.

VIII. SIMULATOR ESG REVIEW/VALIDATION:

Crew Validation (NRC)	Rev.: 00	Date Validated: 5/22/2019

Validation Comments	Disposition
1. Add performance steps from ABs.	1. Added steps.

Crew Validation	Rev.:	Date Validated:

Validation Comments	Disposition
1.	1.

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

95% Power. Secure makeup to the primary containment. Raise power to 100% IAW REMA and HC.OP-IO.ZZ-0006.

ESF/SAFETY SYSTEMS

Makeup to the primary containment in progress IAW HC.OP-SO.GS-0001.

COOLING WATER

Tagged 'C' SSW pump for oil change and valve/motor PMs. Should be complete early this shift.

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____

	SIMULATOR	COPY _____ OF _____

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: **RR Flow Xmtr Fail, RCIC Valve Fail, Recirc Pump Seal Fail, Power Oscillations, GP 1 Isolation, LOCA, PSP**

SCENARIO NUMBER: **NRC-03**

EFFECTIVE DATE:

EXPECTED DURATION: 1 hour

REVISION NUMBER: **00**

PROGRAM: [   ]   **L.O. REQUAL**

                [X]   **INITIAL LICENSE**

                [   ]   **OTHER** _____

REVISION SUMMARY:

Enabling Objectives
A. The crew must demonstrate the ability to operate effectively as a team while completing a series of CREW CRITICAL TASKS, which measure the crew's ability to safely operate the plant during normal, abnormal, and emergency plant conditions. (Crew critical tasks within this examination scenario guide are identified with an " *.")

II. MAJOR EVENTS:

A. Swap In-Feeds to Non-1E Bus
B. Reactor Recirculation Flow Transmitter Failure
C. RCIC Suppression Pool Suction Valve Failure
D. Reactor Recirculation Pump Seal Failures
E. Core Instabilities
F. Spurious Group 1 MSIV Isolation
G. LOCA
H. RHR Pump Failure
I. Drywell Spray Valve Failure / Downcomer Failure

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. The crew will swap the in-feed supply to a Non-1E Bus. A Reactor Recirculation Flow Transmitter will fail, requiring actions to bypass the failed flow unit. The breaker for the RCIC Suppression Pool Suction Valve (F031) will fail causing the valve to be failed close and Technical Specifications will need to be applied. Following the determination of Technical Specification applicability Reactor Recirculation Pump AP201 will develop a dual seal failure, causing a trip and isolation of that reactor recirculation pump. This will result in operation inside the OPRM Enable region of the Power to Flow Map. This will require inserting control rods to terminate power oscillations. A spurious Group 1 MSIV isolation will occur when the plant is scrammed, or inserted by the evaluation team, caused by an electrical transient on the RPS buses and degraded isolation relays. The pressure transient caused by the MSIV closure will cause a LOCA. During the LOCA a Downcomer will fail. The 'B' RHR pump will trip shortly after start, AND the 'A' Drywell Spray valves will fail to open. The Crew will not be able to maintain Suppression Chamber Pressure below the PSP curve, and Emergency Depressurization will be required. The scenario ends when the reactor has been depressurized and RPV water level is being maintained.

IV. INITIAL CONDITIONS:

Initial	I.C.

_____ **INITIALIZE** the simulator to 100% power, MOL, TACS on SACS Loop A

_____ **ENSURE** associated Schedule file loaded and running.

_____ **ENSURE** associated Events file open.

Initial	PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)
	Description

_____ **ENSURE** SRV Acoustic monitors are reset.

ENSURE Data Collection is trending the following data:

_____ • APRM A Power

_____ • W/R Reactor Water Level

_____ • Fuel Zone Reactor Water Level

_____ • Suppression Chamber Pressure

_____ At a minimum review the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)

_____ **COMPLETE** the "Simulator Ready for Training/Examination" Checklist.

EVENT FILE:

Initial	ET #		
	3	Event code:	**Rr_52(1) <= 0**
		Description:	RR Pump A BKR Trip
	4	Event code:	**lcvposx(67) <= 0**
		Description:	Rod 46-23 notch 00
	11	Event code:	**crqnmi <= 30**
		Description:	Reactor power <= 30%
	13	Event code:	**rh_bkr(2)**
		Description:	RHR pump B running
	14	Event code:	**rhv021(1) >= 0.01**
		Description:	RHR F021A Opening

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction RR19B2 to 8110.00000 on event 1	Recirc flow transmitter N024B failure
	None	None	Insert malfunction RR05A after 300 to 100.00000 in 600 on event 2	Recirc pump A inboard seal failure
	None	None	Insert malfunction RR06A from 12.00000 to 100.00000 in 60 on event 2	Recirc pump A outboard seal failure
	None	None	Insert malfunction CR02B after 300 to 15.00000 in 600 on event 3	Reactor Core Instabilities (APRMs)
	None	None	Insert malfunction MS15 on event 11	Spurious group I isolation
	None	None	Insert malfunction PC04 after 300 to 100.00000 on event 11	Downcomer break
	None	None	Insert malfunction RR31A1 after 300 to 100.00000 in 120 on event 11	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RR31A2 after 420 to 6.00000 in 1200 on event 11	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction QQ21 after 120 to SEIZE on event 13	RHR pump BP202 trip

	REMOTE SCHEDULE:			
Initial	**@Time**	**Event**	**Action**	**Description**
	None	None	Insert remote RH20A to RACK_CLOSE on event 14	RH20 HV-F021A RHR CTMT SPRAY
	None	None	Insert remote RC08 of TAGGED on event 15	RC08 HV-F031 PMP SUCT FROM SUPP CHAMB ISLN MOV

	OVERRIDE SCHEDULE:			
Initial	**@Time**	**Event**	**Action**	**Description**

Event / Instructor Activity	Expected Plant/Student Response	Comments
Swap Non-1E Bus In-feed Breakers:	• CRS directs swapping in-feeds to 10A502 IAW HC.OP-SO.PB-0001.	
	• PO swaps in-feeds to 10A502 IAW HC.OP-SO.PB-0001: ⇒ PRESS the 50201 AUTO CLOSE BLOCK pb AND VERIFY that the PB backlight is OFF ⇒ CLOSE Alternate FEED BRKR 50205. ⇒ PRESS the AUTO CLOSE BLOCK PB for the Alternate Feed Breaker 50205AND VERIFY that the AUTO CLOSE BLOCK PB is illuminated	
Reactor Recirculation Flow Transmitter Failure: After the Crew has swapped bus in-feeds and at the discretion of the Lead Examiner, **TRIGGER ET-1** (Recirculation flow transmitter failure).	• Crew recognizes failure of the flow transmitter by: ⇒ OHA C6-D1 "FLOW REF OFF NORMAL" ⇒ OHA C6-D3 "ROD OUT MOTION BLOCK" ⇒ CRIDS PRNM_AS_009, "APRM A RECIRC FLOW UPSCALE ALARM" alarm and indicating full scale	
	• Crew refers to HC.OP-AR.ZZ-0011 ⇒ CHECKS Recirculation Pump loop flows.	
	• Crew enters HC.OP-AB.IC-0004 ⇒ CONDITION B ⇒ BYPASS the Malfunctioning APRM	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew bypasses the APRM A IAW HC.OP-SO.SE-0001	
	• CRS refers to Tech Spec 3/4.3.1.	Tracking LCO.
RCIC Suppression Pool Suction Valve Failure: After the Crew bypassed the failed flow unit, and at the discretion of the Lead Examiner, **TRIGGER ET-15** (HV-F031 PMP SUCT FROM SUPP CHAMB ISLN MOV failure).	• Crew recognizes failure of the HV-F031 by: ⇒ OHA B1-F1 "RCIC COMPONET O/PF" ⇒ OHA D1-B3 "CONTAINMENT ISOLATION VALVE O/PF" ⇒ CRIDS D3574, "RCIC PMP SUCTION V HV-F031 OPF" alarm ⇒ CRIDS D4675, "CONTAINMENT ISOLATION MOV OPF" alarm	
	• Crew refers to HC.OP-AR.ZZ-0006 and to HC.OP-AR.ZZ-0013 ⇒ REFER TO Technical Specification 3.7.4. ⇒ REFER TO Technical Specification 3.6.3.	
	• Crew sends an Equipment Operator to investigate valve failure.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS refers to Tech Spec 3/4.6.3.	With one or more of the primary containment isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either: 1. Restore the inoperable valve(s) to OPERABLE status, or 2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position, * or 3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
	• CRS refers to Tech Spec 3/4.7.4.	With the RCIC system inoperable, operation may continue provided the HPCI system is OPERABLE; restore the RCIC system to OPERABLE status within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 150 psig within the following 24 hours.

Event / Instructor Activity	Expected Plant/Student Response	Comments
Recirc Pump Seal Failure: After Tech Specs have been addressed for the failure of the HV-F031, OR at the discretion of the Lead Examiner, **TRIGGER ET-2** ('A' Recirc Pump Dual Seal Failure).	• Crew recognizes second stage seal failure on 'A' Recirc pump by: ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS D2924 "RECIRC PUMP A SEAL LKG FLOW HI" ⇒ Lowering second stage seal pressure ⇒ CRIDS D2926 "RECIRC PUMP A SEAL STAGE FLOW HILO"	First stage seal failure will occur three minutes after the second stage.
	• CRS implements AB.RPV-0003: ⇒ Condition D	
IF dispatched to report local seal pressures on 77' Rx Bldg, THEN **REPORT** readings consistent with CRIDS (Page 85), OR the following Monitor Items: (Monitor Items are psia) • 'A' Recirc Inbd (#1) Seal **rrpsl1(1)** – 15 = psig • 'A' Recirc Outbd (#2) Seal **rrpsl2(1)** – 15 = psig	• Crew recognizes 'A' Recirc pump dual seal failure by: ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" reflash ⇒ Changing seal pressures ⇒ Rising seal temperatures ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX317/318/320 DLD CCM alarms ⇒ RM11 9AX314 DLD Floor Drain Flow alarm ⇒ Rising drywell pressure	
	• CRS implements AB.RPV-0003: ⇒ Condition E	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO trips and isolates 'A' Reactor Recirc pump IAW AB.RPV-0003 Condition E. ⇒ PRESS STOP PUMP A ⇒ PRESS the CLOSE PB on HV-F023A ⇒ CLOSE BF-HV3800A and BG-HV-F100 ⇒ CLOSE HV-F031A	
	• CRS implements AB.CONT-0001: ⇒ Condition A	
	• PO ensures drywell cooling is maximized by ensuring all fans operating in fast speed and all coolers are in service.	
	• CRS implements AB.CONT-0006: ⇒ Condition C ⇒ Condition A ⇒ Condition B	
	• Crew determines Drywell Floor Drain leakage is >5.0 gpm.	

Monitor Items:
• HV-F023A
  rrvf23(1)
• HV-F100
  cuvf100
• HV-F031A
  rrvf31(1)
	∗ ***CREW trips and isolates the 'A' RR pump before DRWL pressure reaches 1.68 psig by closing the:***
	HV-F023A
	HV-F100
	HV-F031A
		RECORD drywell pressure when 'A' Reactor Recirc pump is isolated:
		
		Drywell Pressure: _____
		
		DW pressure may continue to rise following isolation.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF the Crew scrams during the seal failure, THEN proceed to the Spurious MSIV Isolation. Power Oscillations will NOT be observed.	• Crew validates successful recirc isolation by: ⇒ Seal pressures and temperatures ⇒ Trending DLD flows ⇒ Trending drywell pressure and temperature	
	• Crew monitors plant response to the transient.	
	• CRS implements AB.RPV-0003: ⇒ Condition B ⇒ Condition A	
	• IF in Region 1 of the Pwr/Flow map, THEN RO inserts CRAM rods IAW RE.AB.ZZ-0001 as necessary to exit Region 1. • IF OPRM PRE-TRIP (C3-F2) will NOT remain Clear, CONTINUE Rod insertion IAW Enhanced Stability Guidance UNTIL the alarm is clear.	OPRM PRE-TRIP (C3-F2) intermittent alarm will require continuing rod insertion to keep clear.
	• PO implements DL.ZZ-0026 Att. 3v.	The pace of the scenario will not allow the Crew to fully address single loop requirements.
IF asked as RE, THEN **REPORT** that inserting the first 12 steps of the CRAM rods can be used to achieve an 80% rodline. **ACKNOWLEDGE** any direction to evaluate single loop operation IAW SE-PR.ZZ-0003.	• CRS implements IO.ZZ-0006 for single loop.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognizes the following Tech Specs apply: ⇒ Recirculation Loops 3.4.1.1 action a 4.4.1.1.1 ⇒ Jet Pumps 3.4.1.2 surveillance requirement 4.4.1.2.b.	Within 4 hours take actions to place plant in single loop operations. During single loop operations jet pumps in the operating loop shall be demonstrated OPERABLE.
	• Crew references Power Maneuvering Surveillance Requirements in OP-HC-108-115-1001.	
	• IF reactor power was reduced by more than 15%, THEN CRS/STA/IA notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• CRS/STA/IA notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Oscillations: After the Recirculation Pump Trip, Power Oscillations will **automatically** be inserted at a slow ramp.	• Crew recognizes power oscillations by any of the following: ⇒ OHA C3-F5 "OPRM ALARM" ⇒ APRM power oscillations on APRM Recorders/indicators ⇒ Positive/Negative swings on the Period Meters	
	• CRS directs inserting control rods IAW Enhanced Stability Guidelines, OR directs RO to scram the reactor.	Inserting Control Rods could cause the power oscillations to subside.
	• IF directed, RO locks the Mode Switch in SHUTDOWN.	Crew may conservatively scram before the Reactor scrams.
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **Reactor Scram Reports** Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• RO inserts rods IAW Enhanced Stability Guidance as necessary to: ⇒ Exit REGION 1, or ⇒ OPRM PRE-TRIP (C3-F2) Alarm is clear	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP 101 RPV Control**. Level Leg Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level can not be maintained above -129", the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185". Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.	• CRS implements EOP-101.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Spurious MSIV Isolation: The MSIVs will isolate when the reactor is scrammed; OR IF actions taken for oscillations have prevented an automatic scram, THEN with the concurrence of the Lead Examiner **TRIGGER ET-11**.	• Crew recognizes MSIV isolation by: ⇨ OHA C8-A1 "NSSSS MSIV LOGIC A INITIATED" ⇨ OHA C8-A3 "NSSSS MSIV LOGIC B INITIATED" ⇨ OHA C5-B3 "MSIV CLOSURE" ⇨ MSIV Trip Logic A "MSIV TRIP LOGIC TRIPPED" status light ⇨ MSIV Trip Logic B "MSIV TRIP LOGIC TRIPPED" status light ⇨ CLOSED indication on all MSIVs	
	• CRS directs level RPV water level control with HPCI/RCIC.	
	• PO maintains reactor water level as directed by CRS IAW AB.ZZ-0001 Att. 6.	
	• CRS directs RPV pressure control with SRVs/HPCI.	
	• RO/PO controls pressure as directed by CRS with: ⇨ SRVs IAW AB.ZZ-0001 Attachment 13 ⇨ HPCI IAW AB.ZZ-0001 Attachment 6	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
LOCA: The LOCA will automatically be inserted five minutes after the reactor is scrammed.	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ Rising Drywell Pressure ⇒ OHA A4-F5 "COMPUTER PT IN ALARM"	
	• CRS implements AB.CONT-001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV tailpipe temperatures	
Note: RCS leakage rate may not be determinate due to Drywell Sump Pump operations' on RM-11 indications.	• Crew determines leakage to be greater than 50 gpm: ⇒ RM11 9AX317/319/320 DLD CCM alarms ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm	
	• Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations.	
	• CRS enters EOP-102, re-enters EOP-101.	
	• RO/PO verifies automatic actions.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs maintaining RPV level -30" to +30" with any combination of: ⇒ HPCI ⇒ RCIC	
	• RO/PO maintain RPV level as directed by CRS with: ⇒ HPCI IAW AB.ZZ-0001 Att. 6 ⇒ RCIC IAW AB.ZZ-0001 Att. 6	
	• Crew verifies isolations and monitors containment performance.	
RHR Pump Failure: RHR Pump B will trip after start.	• Crew recognizes BP202 RHR pump trip by: ⇒ OHA A7-A1 "RHR LOGIC B OUT OF SERVICE" ⇒ OUT OF SERVICE status light ⇒ PUMP MOTOR OVERCURRENT status light ⇒ Pump STOP, amp and flow indications	
IF dispatched to investigate the trip of the B RHR pump, THEN **REPORT**: • The breaker has target flags dropped on the 51A and 51B Time Overcurrent relays (52-40206) • The pump motor is hot to the touch and bearing oil levels are normal	• Crew dispatches NEO and Maintenance to affected pump and breaker.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Downcomer Break: The Downcomer Failure will automatically be inserted five minutes after the reactor is scrammed.	• Crew recognizes containment not performing properly by: ⇒ Suppression Chamber pressure approaching Action Required area of PSP curve ⇒ Suppression Chamber airspace temperature significantly above water temperature ⇒ Drywell Pressure response	
	• <u>WHEN</u> Suppression Chamber pressure exceeds 9.5 psig, <u>THEN</u> CRS directs initiating drywell spray.	Recirc pumps should be tripped prior to initiating drywell spray.
	• RO/PO place AP202 RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2.	
Drywell Spray Valve Failure: HV-F021A failure will occur on open command.	• Crew recognizes failure of HV-F021A by: ⇒ OHA A6-B1 "RHR LOOP A TROUBLE" ⇒ CRIDS D4465 "RHR CONT SPY OUTBD HV-F021A OPF" ⇒ Flashing OVLD/PWR FAIL	
<u>IF</u> dispatched to investigate trip of HV-F021A breaker, <u>THEN</u> **REPORT** the breaker (52-451062) is tripped and will not reset. S.E. is investigating.	• Crew dispatches NEO and Maintenance to breaker for HV-F021A.	
<u>IF</u> necessary, <u>THEN</u> **RAISE** the severity of Malfunction **rr31b2** to drive Suppression Pool Pressure into the Action Required region of the PSP curve.		

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements EOP-202 to Emergency Depressurize.	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.	• Crew prevents injection from Core Spray and LPCI pumps not required for adequate core cooling.	
	• RO/PO opens five SRVs IAW AB.ZZ-0001 Att. 13.	
	∗ ***Crew opens five SRVs after determining Suppression Chamber pressure cannot be maintained below the "Action Required" region of the PSP curve, AND before Suppression Chamber pressure exceeds 40 psig.***	**RECORD** Suppression Chamber Pressure when five ADS valves are opened: Pressure: _____
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control For non-ATWS emergency depressurizations, the Control Room Supervisor should establish and maintain an RPV level band between -38" to +54" on Wide Range indication. This transient level band will prevent adverse hydraulic effects caused by high outside shroud reactor level while maintaining adequate core submergence based on Fuel Zone indication. Following the emergency depressurization, level will be restored and maintained to the preferred EOP reactor level band by using a suggested Wide Range compensated level band of +12.5" to +54" if possible using Condensate and Startup Level Control or the Control Room Supervisor can maintain an RPV level band of -38" to +54" if still batch feeding with low pressure ECCS to maintain RPV level.	• CRS re-enters EOP-102.	
	• CRS directs placing AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.	
	• RO/PO place AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	
<u>IF</u> directed to reset the breaker for the HV-F021A, <u>THEN</u>, <u>AFTER</u> the Crew Emergency Depressurizes, **TOGGLE** Remote Function **RH20A** to **NORMAL** <u>AND</u> **REPORT** the breaker is shut.	• <u>IF</u> the HV-F021A is restored, <u>OR</u> the 'B' RHR pump are restored, <u>THEN</u> CRS directs placing an RHR pump in drywell spray.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>IF</u> directed to reset the Overcurrent Relays on the 'B' RHR breaker, <u>THEN</u>, <u>AFTER</u> the Crew Emergency Depressurizes, **DELETE** Malfunction **QQ21** from the Instructor Station Summary, <u>AND</u> from Event Trigger #13, <u>THEN</u> **REPORT** the relays are reset.	• <u>IF</u> the two RHR pumps are available, <u>THEN</u> the CRS directs placing the second RHR pump in Suppression Pool Cooling.	Due to maintained LOCA start signal, must press STOP on 'B' RHR pump to reset lockout coil and allow restart.
	• CRS directs restoring PCIG to SRVs.	
	• RO/PO restores PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	
<u>Termination Requirement:</u> The scenario may be terminated at the discretion of the Lead Examiner when: • RPV level is being maintained above –129" • The reactor has been Emergency Depressurized		

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid

B. NUREG 1021 Examiner Standards

C. JTA Listing

D. Probabilistic Risk Assessment

E. Technical Specifications

F. **Emergency Plan (ECG)**

G. **Alarm Response Procedures (Various)**

H. HU-AA-101 Performance Tools and Verification Practices

I. OP-AA-101-111-1004 Operations Standards

J. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel

K. OP-AA-106-101-1001 Event Response Guidelines

L. OP-AA-108-114 Post Transient Review

M. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program

N. OP-HC-108-106-1001 Equipment Operational Control

O. **HC.OP-SO.AE-0001 Feedwater System Operation**

P. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**

Q. **HC.OP-AB.RPV-0001 Reactor Power**

R. **HC.OP-AB.RPV-0003 Recirculation System/ Reactor Power Oscillations**

S. **HC.OP-AB.RPV-0004 Reactor Level Control**

T. **HC.OP-AB.RPV-0006 Safety Relief Valve**

U. **HC.OP-AB.CONT-0001 Drywell Pressure**

V. **HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling**

W. **HC.OP-AB.COMP-0001 Instrument and/or Service Air**

X. **HC.OP-AB.ZZ-000 Reactor Scram**

Y. **HC.OP-EO.ZZ-0101 RPV Control**

Z. **HC.OP-EO.ZZ-0102 Primary Containment Control**

AA. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**

ESG-03 / 00

1.

 ∗ ***CREW trips and isolates the 'A' RR pump before DRWL pressure reaches 1.68 psig by closing the: HV-F023A; HV-F100; HV-F031A***

K/A 202001 Recirculation System
A2 Ability to (a) predict the impacts of the following on the RECIRCULATION SYSTEM, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
A2.10 Recirculation pump seal failure RO 3.5 SRO 3.9

The dual seal failure is causing drywell pressure to rise. If drywell pressure reaches 1.68#, system isolations will occur that will ultimately result in a loss of feedwater and the main condenser. In the Hope Creek PRA, Loss of Feedwater and MSIV Closure are both events that can lead to core damage. High drywell pressure will also result in a loss of the remaining reactor recirculation pump and the RWCU system. This impacts our ability to prevent stratification in the reactor vessel. In this scenario, the Crew has over eight minutes to trip and isolate the 'A' Reactor Recirculation pump IAW AB.RPV-0003 before drywell pressure reaches 1.68#. This is ample time to diagnose the seal failures and isolate the pump IAW existing procedure guidance. The HV-3800A has been intentionally omitted from the list of valves that are critical to isolation. This is because the subcooled CRD water from this path is not contributing to the drywell pressure rise. Additionally, with a seal failure passing in excess of 50 gpm, isolation of the pump with CRD still applied to the seal is unlikely to over-pressurize the pump casing. Failure to close the 3800A should be viewed as a procedure use issue. Drywell pressure may continue to rise following isolation. Satisfactory completion is isolating before 1.68 psig Drywell pressure.

2.

 ∗ ***Crew opens five SRVs after determining Suppression Chamber pressure cannot be maintained below the "Action Required" region of the PSP curve, AND before Suppression Chamber pressure exceeds 40 psig.***

K K/A 295024 High Drywell Pressure
EA1 Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE:
EA1.11 Drywell Spray RO 4.2 SRO 4.2
EA2 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE:
EA2.04 Suppression chamber pressure RO 3.9 SRO 3.9
K/A 223001 Primary Containment Systems and Auxiliaries
A2. Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:
A2.02 Steam bypass of the suppressions pool RO 3.9 SRO 4.1

If suppression chamber pressure cannot be maintained below the pressure suppression pressure, EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure Curve could cause design containment limits to be exceeded.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT	Y/N	EVENT
	Loss Of Offsite Power/SBO		Internal Flooding
Y	LOCA		

	TRANSIENTS:		LOSS OF SUPPORT SYSTEMS:
	Turbine Trip		Loss of SSW
	Loss of Condenser Vacuum		Loss of SACS
	Loss of Feedwater		
Y	Manual Scram		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT	Y/N	KEY SYSTEMS
	HPCI		SRVs
	RCIC		Condensate/Feedwater
	B/D EDG		SSW
Y	A/B RHR Pump		RPS
	A/B SACS Loop		
	1E 4.16KV Bus		
	1E 480 VAC Bus		
	120VAC 481 Inverter		
	1E 125VDC		
	Hard Torus Vent		

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
	Manual Depressurization of the RPV w/ no HP Injection Available
	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
	Control RPV Water Level w/ HP Injection during ATWS Sequence
	Align Portable Power Supply to Battery Chargers
	Venting of Primary Containment
	Restore Switchgear Cooling
	Restart Condensate
	Control Plant via Remote Shutdown Panel during Control Room Flooding Sequence

Complete this evaluation form for each ESG.

VIII.   SIMULATOR ESG REVIEW/VALIDATION:

ESG-03

Crew Validation (NRC)	Rev.: 00	Date Validated: 5/22/2019

Validation Comments		Disposition
1. Add actions for isolating RR pump and Tech Specs.		1. Added.

Crew Validation	Rev.:	Date Validated:

Validation Comments		Disposition
1.		1.

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

100% Power

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

Swap In-Feeds to 10A502 in accordance with HC.OP-SO.PB-0001.

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2019 NRC ROA1	Copy _____ of _____

SYSTEM: Administrative

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ004   **REVISION:** 02

SAP BET: NOH05JPZZ04E

K/A NUMBER: 2.1.19   **IMPORTANCE FACTOR:** RO: 3.9   SRO: 3.8

Ability to use plant computers to evaluate system or component status.

ALTERNATE PATH: ☐

APPLICABILITY: RO ☒   SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-DL.ZZ-0026, Rev. 161

TOOLS, AND EQUIPMENT: HC.OP-DL.ZZ-0026; Calculator; RED and BLACK Pens

ESTIMATED COMPLETION TIME: _____21_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                        Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

INITIAL CONDIITONS:

1.   CRIDS B5070 is INOPERABLE.

INITIATING CUE:

USE SPDS/CRIDS to **COMPLETE** HC.OP-DL.ZZ-0026(Q), Attachment 1a, Item 29 <u>AND</u> 29.a, Drywell Air Temperature log entry.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains/locates procedure HC.OP-DL.ZZ-0026(Q).	Operator obtains the correct procedure.		

HC.OP-DL.ZZ-0026(Q)

ATTACHMENT 1a
Surveillance Log - Control Room

Page 7 of 20

Operational Condition _____   Date _____

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
29	DRYWELL AIR TEMPERATURE	1,2,3	---	90-120	135	B5070 (SPDS OR CRIDS) OR ATTACHMENT 3q LINE F	N/A	N/A		(NOTE 26.)

a. VERIFY AT LEAST ONE OPERABLE INPUT FOR EACH ZONE.

Zone	e	d	c	b	a
Inputs	A2264 A2265 A2268 A2269 A2270 A2271	A2266 A2267 A2272 A2273 A2274 A2275	A2276 A2277 A2278 A2279	A2282 A2283 A2284 A2285	A2280 A2281 A2286 A2287

CIRCLE ONE:

SAT / UNSAT

NOTES: 26. DURING NORMAL OPERATION, DRYWELL AIR TEMPERATURE HAS BEEN 90-120°F. ANY VALUE OUTSIDE THIS RANGE SHOULD BE INVESTIGATED (REFERENCE 70023178 CROD)
IF COMPUTER POINT B5070 IS INOP, DRYWELL TEMPERATURE MAY BE OBTAINED BY COMPLETING ATT 3Q.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
29		Operator determines that Note 26 applies and moves to Attachment 3q, Page 1 of 6, to calculate Drywell Air Temperature.		

HC.OP-DL.ZZ-0026(Q), ATTACHMENT 3q, Page 1 of 6

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
1.	**RECORD** computer point values from CRIDS or SPDS in Column A. (Computer points have the same numbers for both CRIDS and SPDS.)	***#Operator records computer point values from CRIDS or SPDS in Column A, ($\pm$1.0F)** and initials Step. NOTE: Operator should not record values for DEL points. These points do not require an entry. If an entry is made, it should NOT be included in the value recorded in Column B.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
2.	In Column B, **RECORD** sum of Column A for each elevation zone.	***#Operator sums values in Column A for each elevation zone and records in the appropriate elevation zone of Column B,** and initials Step. NOTE: Operator should not record values for DEL points. These points do not require an entry. If an entry is made, it is NOT included in the value recorded in Column B.		
3.	**DIVIDE** value obtained in Column B by number of operable computer inputs in Column A, <u>AND</u> **RECORD** result in Column C. (T/S requires at least one operable input for each group.)	***#Operator divides values in Column B by number of operable computer inputs in Column A, AND records results in Column C,** and initials Step.		
4.	**MULTIPLY** value obtained in Column C by value given in Column D <u>AND</u> **RECORD** result in Column E.	***#Operator multiplies values obtained in Column C by value given in Column D AND records results in Column E,** and initials Step.		
5.	**ADD** values obtained in Column E <u>AND</u> **RECORD** answer on Line F.	***#Operator adds values obtained in Column E AND records answer on Line F (118.26F <u>+</u>1.0F)** and initials Step. NOTE: Value determined may vary due to slight changes in simulator setup and rounding decisions.		
6.	**RECORD** value from Line F onto Attachment 1a Item 29	***#Operator records value from Line F onto Attachment 1a Item 29,** and initials Step. NOTE: Operator may note that value is outside the NORM range and note this on Attachment 1a.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
HC.OP-DL.ZZ-0026(Q), ATTACHMENT 1a, Item 29				
29.a	VERIFY AT LEAST ONE OPERABLE INPUT FOR EACH ZONE.	***Operator verifies that at least one operable input for each zone and circles SAT.**		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator completes Attachment 1a, Item 29, of HC.OP-DL.ZZ-0026.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ004   **NAME:** _____

REV NUMBER: 02   **DATE:** _____

QUESTION: _____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	2/14/2019	Revised due to procedure revision change. Revised setup to include deleted computer points.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ004   **REV#:**   02

        TASK: Complete The Daily Surveillance Logs

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ZZ004   **REV#:** 02

INITIAL CONDITIONS:

I.C.
Initial	

         INITIALIZE to any 100% power IC

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
Initial	Description

         REMOVE CRIDS B5070, A2265, A2266, AND A2274 from scan.

         SAVE IC to file.

         REVISE SCRIDS CVT.txt file values for B5070=0, A2265=-1257.00098, A2266=AS IS, AND A2274=2194.20801.

         RESET to saved IC. **PLACE** Simulator in RUN, and allow to run for approximately 5 minutes, then **FREEZE**.

         INSERT values from CRIDS into the appropriate line in COLUMN A of ATTACHMENT 3q and update page.

         PLACE value determined in LINE F into Step 5 of JPM.

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

Drywell Volumetric Average Temperature Calculation Sheet
T/S 4.6.1.7, 4.4.3.2.1.f, and 4.4.3.1.b Using SPDS/CRIDS Computer Point Values

Date   Today

1. **RECORD** computer point values from CRIDS or SPDS in Column A. (Computer points have the same numbers for both CRIDS and SPDS.)   *Initials*
2. In Column B, **RECORD** sum of Column A for each elevation zone.   *Initials*
3. **DIVIDE** value obtained in Column B by number of operable computer inputs in Column A,
   AND **RECORD** result in Column C.
   (T/S requires at least one operable input for each group.)   *Initials*
4. **MULTIPLY** value obtained in Column C by value given in Column D
   AND **RECORD** result in Column E.   *Initials*
5. **ADD** values obtained in Column E
   AND **RECORD** answer on Line F.   *Initials*
6. **RECORD** value from Line F onto Attachment 1a Item 29   *Initials*

ELEV ZONE	COLUMN A TEMP. VALUES		COLUMN B GROUP TOTAL	COLUMN C GROUP AVG. TEMP	COLUMN D FRACTION OF D.W. VOLUME	COLUMN E VOLUMETRIC TEMP.
e	A2264	*196.67*	*885.96*	*177.19*	0.082	*14.53*
	A2265	*DEL*				
	A2268	*143.4*				
	A2269	*175.12*				
	A2270	*197.33*				
	A2271	*173.44*				
d	A2266	*DEL*	*624.50*	*156.13*	0.123	*19.20*
	A2267	*168.01*				
	A2272	*163.65*				
	A2273	*168.94*				
	A2274	*DEL*				
	A2275	*123.9*				
c	A2276	*117.45*	*472.22*	*118.06*	0.361	*42.62*
	A2277	*117.02*				
	A2278	*132.28*				
	A2279	*105.47*				
b	A2282	*97.78*	*388.04*	*97.01*	0.385	*37.35*
	A2283	*98.41*				
	A2284	*96.45*				
	A2285	*95.4*				
a	A2280	*104.3*	*372.16*	*93.04*	0.049	*4.56*
	A2281	*104.3*				
	A2286	*81.78*				
	A2287	*81.78*				

LINE F - DRYWELL VOLUMETRIC AVERAGE AIR TEMPERATURE   *118.26*   °F

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

ATTACHMENT 1a
Surveillance Log - Control Room

Operational Condition _____1_____   **Date** _____Today_____

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
29	DRYWELL AIR TEMPERATURE	1,2,3	---	90-120	135	B5070 (SPDS OR CRIDS) OR ATTACHMENT 3q LINE F	N/A	N/A	*118.26*	(NOTE 26.)

a. VERIFY AT LEAST ONE OPERABLE INPUT FOR EACH ZONE.

Zone	e	d	c	b	a
Inputs	A2264 A2265 A2268 A2269 A2270 A2271	A2266 A2267 A2272 A2273 A2274 A2275	A2276 A2277 A2278 A2279	A2282 A2283 A2284 A2285	A2280 A2281 A2286 A2287

CIRCLE ONE:

(SAT) UNSAT

ITEM	SURVEILLANCE	OPER COND	MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
30	CHANNEL CHECK: DRYWELL GASEOUS	1,2,3	---	---	5.00E-03	1SK-RI4991 (GAS) (10C604)				(NOTE 30.)
			---	NO	---	INST TRIPPED				
31	CHANNEL CHECK: REACTOR BLDG EXHAUST RADIATION MONITOR	1,2,3,* (NOTES 27., 29.)	---	---	1E^{-3}	1SP-RI4857A (10C604)				(NOTE 30.)
			---	---	1E^{-3}	1SP-RI4857B (10C604)				
			---	---	1E^{-3}	1SP-RI4857C (10C604)				
			---	NO	---	INST TRIPPED				
			---	---	NOTE 28.	INST DEVIATION (SAT/UNSAT)				

NOTES: 26. DURING NORMAL OPERATION, DRYWELL AIR TEMPERATURE HAS BEEN 90-120°F. ANY VALUE OUTSIDE THIS RANGE SHOULD BE INVESTIGATED (REFERENCE 70023178 CROD)
IF COMPUTER POINT B5070 IS INOP, DRYWELL TEMPERATURE MAY BE OBTAINED BY COMPLETING ATT 3Q.

27. (*) - WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL.

28. TO OBTAIN MAX INST DEVIATION, MULTIPLY SMALLEST CHANNEL VALUE BY 10, THEN VERIFY OTHER CHANNEL VALUES FALL BETWEEN THE SMALLEST VALUE AND THE SMALLEST VALUE X10. [20009112]

29. ALSO REQUIRED WHEN SECONDARY CONTAINMENT IS REQUIRED TO BE IN EFFECT IAW T/S. [70021778]

30. IF NORMAL INSTRUMENT IS INOP AND CRIDS IS USED (FOLLOWING EQUIVALENCY REVIEW), THEN ONLY OBTAIN CRIDS VALUE FROM 'RM-11 DATA' SCREEN OF THE 'GROUP 2 MENU' OF GROUP DISPLAYS. **[70134816]**

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

    1.   CRIDS B5070 is INOPERABLE

INITIATING CUE:

    USE SPDS/CRIDS to **COMPLETE** HC.OP-DL.ZZ-0026(Q), Attachment 1a, Item 29 <u>AND</u> 29.a, Drywell Air Temperature log entry.

JOB PERFORMANCE MEASURE

ATTACHMENT 1a
Surveillance Log - Control Room

Operational Condition _____1_____   **Date** _____Today_____

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
29	DRYWELL AIR TEMPERATURE	1,2,3	---	90-120	135	B5070 (SPDS OR CRIDS) OR ATTACHMENT 3q LINE F	N/A	N/A		**(NOTE 26,)**

a. VERIFY AT LEAST ONE OPERABLE INPUT FOR EACH ZONE.

Zone	e	d	c	b	a
Inputs	A2264 A2265 A2268 A2269 A2270 A2271	A2266 A2267 A2272 A2273 A2274 A2275	A2276 A2277 A2278 A2279	A2282 A2283 A2284 A2285	A2280 A2281 A2286 A2287

CIRCLE ONE:

SAT / UNSAT

NOTES: 26. DURING NORMAL OPERATION, DRYWELL AIR TEMPERATURE HAS BEEN 90-120°F. ANY VALUE OUTSIDE THIS RANGE SHOULD BE INVESTIGATED (REFERENCE 70023178 CROD)
IF COMPUTER POINT B5070 IS INOP, DRYWELL TEMPERATURE MAY BE OBTAINED BY COMPLETING ATT 3Q.
27. (*) - WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL.
28. TO OBTAIN MAX INST DEVIATION, MULTIPLY SMALLEST CHANNEL VALUE BY 10, THEN VERIFY OTHER CHANNEL VALUES FALL BETWEEN THE SMALLEST VALUE AND THE SMALLEST VALUE X10. [20009112]
29. ALSO REQUIRED WHEN SECONDARY CONTAINMENT IS REQUIRED TO BE IN EFFECT IAW T/S. [70021778]
30. IF NORMAL INSTRUMENT IS INOP AND CRIDS IS USED (FOLLOWING EQUIVALENCY REVIEW), THEN ONLY OBTAIN CRIDS VALUE FROM 'RM-11 DATA' SCREEN OF THE 'GROUP 2 MENU' OF GROUP DISPLAYS. **[70134816]**

Drywell Volumetric Average Temperature Calculation Sheet
T/S 4.6.1.7, 4.4.3.2.1.f, and 4.4.3.1.b Using SPDS/CRIDS Computer Point Values

Date _____

1. **RECORD** computer point values from CRIDS or SPDS in Column A. (Computer points have the same numbers for both CRIDS and SPDS.) _____
2. In Column B, **RECORD** sum of Column A for each elevation zone. _____
3. **DIVIDE** value obtained in Column B by number of operable computer inputs in Column A,
    AND **RECORD** result in Column C.
    (T/S requires at least one operable input for each group.) _____
4. **MULTIPLY** value obtained in Column C by value given in Column D
    AND **RECORD** result in Column E. _____
5. **ADD** values obtained in Column E
    AND **RECORD** answer on Line F. _____
6. **RECORD** value from Line F onto Attachment 1a Item 29 _____

ELEV ZONE	COLUMN A TEMP. VALUES	COLUMN B GROUP TOTAL	COLUMN C GROUP AVG. TEMP	COLUMN D FRACTION OF D.W. VOLUME	COLUMN E VOLUMETRIC TEMP.
e	A2264 _____ A2265 _____ A2268 _____ A2269 _____ A2270 _____ A2271	_____	_____	0.082	_____
d	A2266 _____ A2267 _____ A2272 _____ A2273 _____ A2274 _____ A2275	_____	_____	0.123	_____
c	A2276 _____ A2277 _____ A2278 _____ A2279	_____	_____	0.361	_____
b	A2282 _____ A2283 _____ A2284 _____ A2285	_____	_____	0.385	_____
a	A2280 _____ A2281 _____ A2286 _____ A2287	_____	_____	0.049	_____

LINE F - DRYWELL VOLUMETRIC AVERAGE AIR TEMPERATURE _____°F

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK NUMBER: 2990630301

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

2019 NRC ROA2	Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ012   **REVISION:** 05

SAP BET: NOH05JPZZ12E

K/A NUMBER: 2.1.18   **IMPORTANCE FACTOR:**   RO: 3.6   SRO: 3.8

Ability to make accurate, clear, and concise logs, records, status boards, and reports.

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: OP-AA-112-101 Rev. 7   OP-HC-112-101-1001-F11 Rev. 3

OP-HC-112-101-1001 Rev. 19

TOOLS, AND EQUIPMENT: Red pen, Black Pen

ESTIMATED COMPLETION TIME: _____21_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                    Signature

SYSTEM: Conduct of Operations

TASK NUMBER: 2990630301

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

INITIAL CONDIITONS:
1.   The plant is at 40% power.
2.   RACS Pump CP209 is C/T for scheduled maintenance.
3.   Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
4.   Preparations for shift relief are in progress.

INITIATING CUE:

You are the Off-Going Day Shift Reactor Operator of "A" Shift.

Complete OP-HC-112-101-1001-F11, Equipment Status Checklist, with the exception of the Control Room Key Audit.

The Control Room Key Audit has been performed by another operator.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> a blank copy of OP-HC-112-101-1001-F11 <u>WITH</u> the Control Room Key Audit completed (initialed). **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	OP-HC-112-101-1001			
4.2.3	Utilize appropriate attachment from this document to document the turnover.	Operator completes OP-HC-112-101-1001-F11 with the exception of the Control Room Key Audit. **Examiner Note:** Refer to attached example of completed turnover sheet and the following critical aspects of completion.		
		*Operator circles and/or crosses out operating equipment with high accuracy. **Examiner Note:** For other than Critical marked items, ≤ 2 errors is passing in designating equipment in service or designating equipment INOP/BYPASSED. Examiner Note: The status entries for the following items are NOT required: • SRM • IRM • RBM • RWM • CREF • Main Generator Auto Track • Recirc Control PCIG A and B need not be circled.		
		*Operator places an "X" over the 'C' RACS pump. Examiner Note: Specific text of "Remarks" and "Notes" need not be exact, but convey the status of the components.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		* Operator recognizes TIP TUBE PATH ISLN, ANY PATH OPEN indicator illuminated, and the ALL CLOSED indicator extinguished on 10C650D, and notes that it should be CLSD. Examiner Note: It is not critical to determine which TIP indicates NCLSD.		
CUE:	<u>AFTER</u> Operator recognizes TIP TUBE PATH ISLN, ANY PATH OPEN indicator illuminated and reports to CRS, <u>THEN</u> INFORM Operator the mis-positioning will be investigated and corrected by another Operator.			
		* Operator recognizes RHR "B" F007D is closed, and notes that it should be OPEN, Examiner Note: Specific text of "Remarks" and "Notes" need not be exact, but convey the status of the components.		
CUE:	<u>AFTER</u> Operator recognizes RHR "B" F007D is closed and reports to CRS, <u>THEN</u> INFORM Operator the mis-positioning will be investigated and corrected by another Operator.			
		Operator recognizes RCIC Flow Controller is set to 500 gpm and should be set to 600 gpm and reports to CRS.		
CUE:	<u>AFTER</u> Operator recognizes RCIC Flow Controller is set to 500 gpm and reports to CRS, <u>THEN</u> INFORM Operator the mis-positioning will be investigated and corrected by another Operator.			
		*Operator notes RCIC Flow Controller not properly set and notes that it should be set at 600. Examiner Note: Specific text of "Remarks" and "Notes" need not be exact, but convey the status of the components.		
		<u>WHEN</u> Checklist is complete, <u>THEN</u> Operator signs in Off-Going Operator block.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP:** _____			

Task Standard: Operator completes the OP-HC-112-101-1001 Attachment 6, Equipment Status Checklist, in accordance with OP-HC-112-101-1001.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ012   **NAME:**

REV NUMBER: 05   **DATE:**

QUESTION:

_____

_____

_____

_____

_____

RESPONSE:

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION:

_____

_____

_____

_____

_____

RESPONSE:

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ012

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	2/14/2019	Revised due to procedure revision change. Revised initial conditions and equipment out-of-service.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ012   **REV#:** 05

TASK: Perform A Shift Turnover As On-Coming/Off-Going NCO

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

_X_   2. Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.

_X_   3. License level identified. (SRO,RO,STA,NLO)

_X_   4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).

_X_   5. Initial setup conditions are identified.

_X_   6. Initiating and terminating cues are properly identified.

_X_   7. Task standards for successful completion are identified.

_X_   8. Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

_X_   9. JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.

_X_   10. Procedure(s) referenced by this JPM match the most current revision of that procedure.

_X_   11. Cues both verbal and visual are complete and correct.

_X_   12. Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.

_X_   13. Statements describing important actions or observations that should be made by the operator are included (if required.)

_X_   14. Validation time is included.

_X_   15. JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JPM NUMBER: ZZ012   **REV#:** 05

INITIAL CONDITIONS:

Initial	I.C.

Initial	
_____	**INITIALIZE** the simulator to 40% power with a Reactor Startup in progress.
_____	**ENSURE** equipment alignment matches attached checklist.
_____	**ADJUST** the RCIC Flow Controller SETPOINT to 500 gpm.
_____	**ENSURE** TACS is supplied by SACS B.
_____	**ENSURE** EHC BP116 is in service.
_____	**OPEN** TIP DRIVE CHANNEL C Ball Valve on 10-C607.
_____	**ENSURE** RFP C is in MANUAL at 1000 rpm with the discharge valve closed.
_____	**ENSURE** RACS AP209 and BP209 pumps are in service.
_____	**ENSURE** PCIG A in AUTO, and PCIG B in AULD.
	C/T RACS Pump CP209 as follows:
_____	1. **INSERT** Malfunction CW08C
_____	2. **START** the RACS CP209 and allow to trip
_____	3. **ACKNOWLEDGE** alarms

Initial	PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
	Description
_____	**PLACE** red bezel on RACS CP209 pump.
_____	**PLACE**

Initial	ET	EVENT FILE:
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CW08C	RACS pump CP209 trip
	None	None	Insert malfunction AN-A2E2	CRYWOLF ANN A2E2 RACS TROUBLE

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None		

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 9A2_B_DI to Off	FIC-R600 AUTO (DI)
	None	None	Insert override 5A34A_A2_LO to On	CP209 INOP-REACTOR AUXILARIES COOLING PUMP-PUMP C (LO)
	None	None	Insert override 5A34A_F_LO to Off	CP209 STOP-REACTOR AUXILARIES COOLING PUMP-PUMP C (LO)
	None	None		
	None	None		
	None	None		
	None	None		

EQUIPMENT STATUS CHECKLIST

[CD-421Y]

Shift On-Duty ___A___ Days ___X___ Nights _____ Date ___TODAY___

> To be completed by the off-going RO/PO for turnover to the oncoming RO/PO.
> Circle designator for equipment in service,
> X over designator for INOP/Bypassed equipment.

Cooling Water						Remarks
SSWS:	(A)	C	(B)	(D)		_____
SACS:	A	C	(B)	(D)		_____
TACS Loop:	A	(B)				_____
RACS:	(A)	(B)	☒			_____

Condenser/Condensate | | | | |
---|---|---|---|---|---
CW: | (A) | (B) | (C) | (D) | _____
SJAE: | A | B | | | _____
Offgas Train: | (Unit 1) | | Common | | _____
PCP: | (A) | (B) | (C) | | _____
SCP: | (A) | (B) | (C) | | _____
HWCI: | (RUN) | | STOP | | _____

Reactor Feedwater | | | |
---|---|---|---|---
A RFP: | (AUTO)/MANUAL | | | _____
B RFP: | (AUTO)/MANUAL | | | _____
C RFP: | AUTO/(MANUAL) | | | _____
Startup Valve | AUTO/MANUAL/(CLOSED) | | | _____

Reactor | | |
---|---|---|---
RWCU Pump: | (A) | (B) | _____
RWCU Filter-Demin: | (A) | (B) | _____
Reactor Recirc Pumps: | (A) | (B) | _____
CRD Pumps: | (A) | B | _____
CRD Stabilizer: | (A) | B | _____
CRD Flow Control: | (A) | B | _____

Nuclear Instrumentation | | | | | | | | |
---|---|---|---|---|---|---|---|---|---
APRM: | (A)(C) | | | (B)(D) | | | | | _____
IRM: | A | C | E | G | B | D | F | H | _____
SRM: | A | C | | | B | D | | | _____
RBM: | A | | | | B | | | | _____
RWM: | (Operable) | | Inoperable | | | | | | _____

EQUIPMENT STATUS CHECKLIST

Turbine: Remarks
T/G Oil Pump OP111   _____
Motor Suction Pump
OP108   _____
Emergency Bearing Oil Pump OP112   _____
EHC Pumps: A   (B)   _____
Lift Pumps: A B C D E F G H J _____
Seals: (SSE)   AUX   _____

Main Generator:
Voltage Regulator: (AUTO)   MANUAL   _____
Ready to Transfer: (ON)   OFF   _____
Stabilizer: (ON)   OFF   _____
Stator Cooling: (A)   B   _____
SALEM Units On-line: (1)   (2)   3   _____

Diesel Generator: A   B   C   D   _____

Chilled Water:
Turbine Bldg (K111):   (A)   (B)   C   D   _____
TB CW Pumps: (A)   (B)   C   _____
TSC Chiller (K403):   A   (B)   _____
Control Area Chiller (K400): A   (B)   _____

Ventilation:
CREF: A   B   _____
FRVS Recirc: A C E B D F   _____
FRVS Vent: A   B   _____
Fans In Lockout: _____

H2/O2 Analyzers: A   B   _____

Fuel Pool Cooling Pumps: (A)   B   _____

BOP System Bypass: Yes   (No)   (Consistent With Plant Condition)

Containment Isolation Valves: Normal   (Consistent With Plant Condition)
(Op Con 1, 2, 3 only)
10C650, Section D   All Expected Valve Positions   **TIPS isolation indicates OPEN-CRS informed.**
                               open / TIPS closed

CRIDS Page 231 (See next page
for expected positions)   _____

Feedwater Heaters: (Normal)   _____

Air Systems:
Service Air: (10K107)   00K107   _____
Emergency Instrument Air: 10K100   _____
PCIG: A   B   _____
                        (AUTO/AULD)   (AUTO/AULD)

Aux Boiler: B   C   _____

EQUIPMENT STATUS CHECKLIST

Refer to CRIDS Page 231 for Automatic Containment Isolation Valve Position Indication and compare to expected positions below.

Valve Group	Inside Expected Position	Outside Expected Position	Valve Group	Inside Expected Position	Outside Expected Position
Main Steam 1A	NCLSD	NCLSD	Drywell Clrs 10A	NCLSD	NCLSD
Main Steam 1B	CLSD	CLSD	Drywell Clrs 10B	NCLSD	NCLSD
Main Steam 1C	N/A	N/A	Recirc Seals 11A	N/A	NCLSD
Reactor Water Sample 2A	NCLSD	NCLSD	CNTMT ATM Control 12A	CLSD	CLSD
RHR 3A	N/A	CLSD	CNTMT ATM Control 12B	CLSD	CLSD
RHR 3B	N/A	CLSD	CNTMT ATM Control 12C	CLSD	CLSD
RHR 3C	CLSD	CLSD	CNTMT ATM Control 12D	CLSD	CLSD
RHR 3D	N/A	N/A	CNTMT ATM Control 12E	N/A	CLSD
RHR 3E	N/A	CLSD	H2/O2 ANAL 13A	CLSD	CLSD
Core Spray 4A	N/A	CLSD	H2/O2 ANAL 13B	CLSD	CLSD
HPCI 5A	NCLSD	NCLSD	H2/O2 ANAL 13C	CLSD	CLSD
HPCI 5B	N/A	CLSD	CNTMT H2 Recomb 14A	CLSD	CLSD
HPCI 5C	N/A	NCLSD	CNTMT H2 Recomb 14B	CLSD	CLSD
HPCI 5D	NCLSD	N/A	PCIGS 15A	NCLSD	NCLSD
RCIC 6A	NCLSD	NCLSD	PCIGS 15B	NCLSD	NCLSD
RCIC 6B	N/A	NCLSD	PCIGS 15C	NCLSD	NCLSD
RCIC 6C	NCLSD	N/A	RACS 16A	NCLSD	NCLSD
RWCU 7A	NCLSD	NCLSD	RACS 16B	NCLSD	NCLSD
Supp Pool Cleanup 8A	NCLSD	NCLSD	TIP 17A	N/A	See 10C650D ①
Supp Pool Cleanup 8B	NCLSD	NCLSD	TIP 17B	N/A	NCLSD
Drywell Sumps 9A	NCLSD	NCLSD	RCPD LKG DET 18A	NCLSD	NCLSD
Drywell Sumps 9	NCLSD	NCLSD	RCPD LKG DET 18B	NCLSD	NCLSD

Remarks: ① **TIPS isolation indicates OPEN-CRS informed.**

EQUIPMENT STATUS CHECKLIST
CORE SPRAY

REMARKS: _____

_____

_____

_____

_____

_____
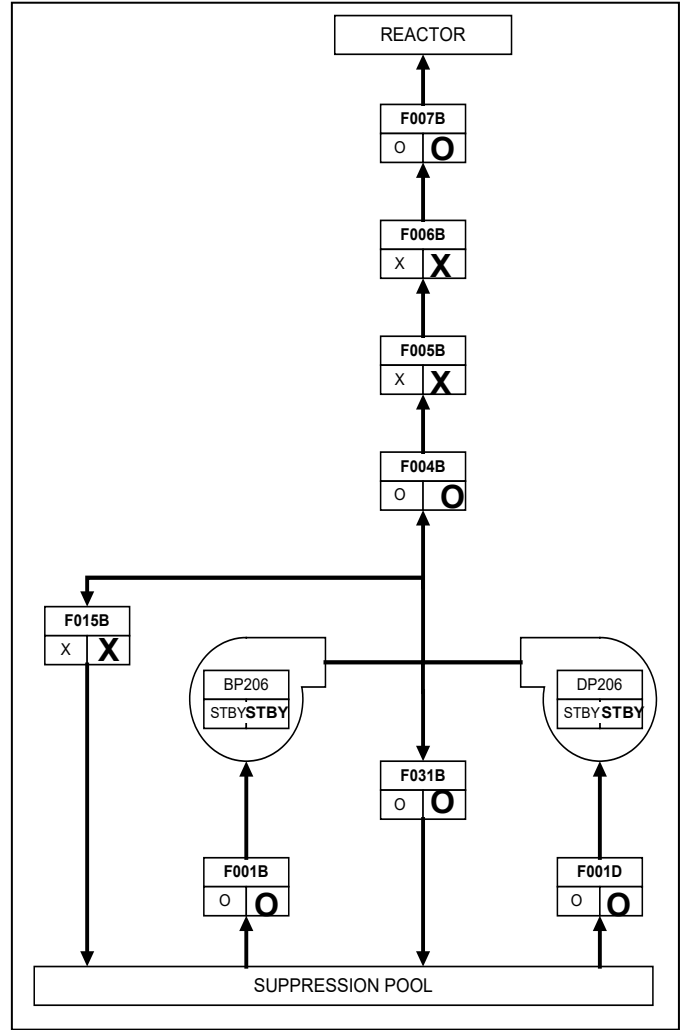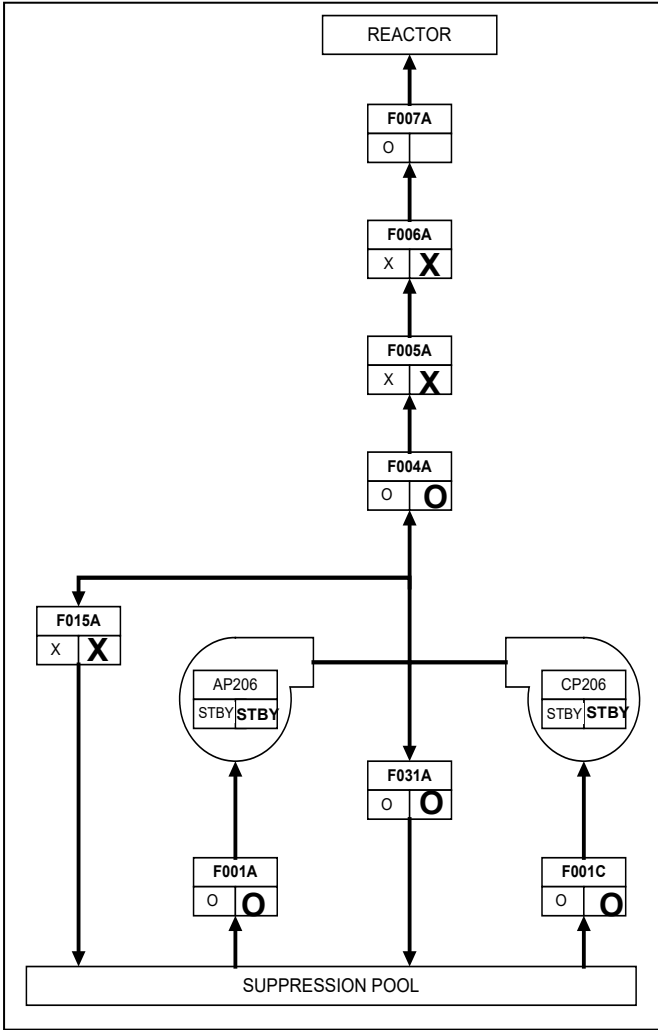
EQUIPMENT STATUS CHECKLIST

HPCI SYSTEM

REMARKS: _____

_____

_____

_____

_____

_____
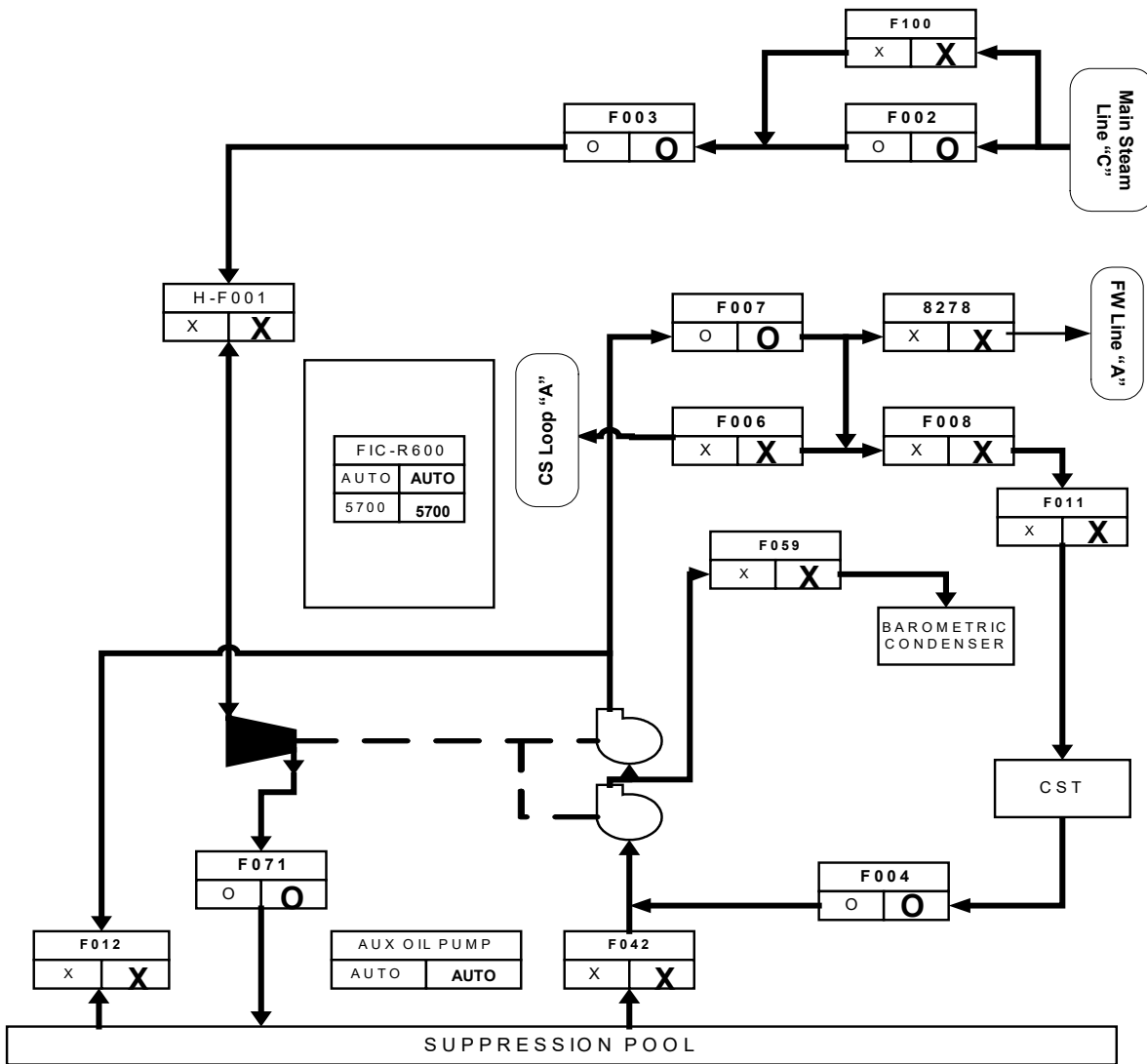
EQUIPMENT STATUS CHECKLIST

RCIC SYSTEM

F076	
X	**X**

F008	
O	**O**

F007	
O	**O**

Main Steam Line "A"

H-F045
X

4282		
Valve	O	**O**
Actuator	O	**O**

FIC-R600	
AUTO	AUTO
600	500

②

F012	
O	**O**

F013	
X	**X**

FW Line "B"

F022	
X	**X**

F046	
X	**X**

CST

BAROMETRIC CONDENSER

F010	
O	**O**

F059	
O	**O**

FO19/ 4405	
X	**X**

F031	
X	**X**

SUPPRESSION POOL
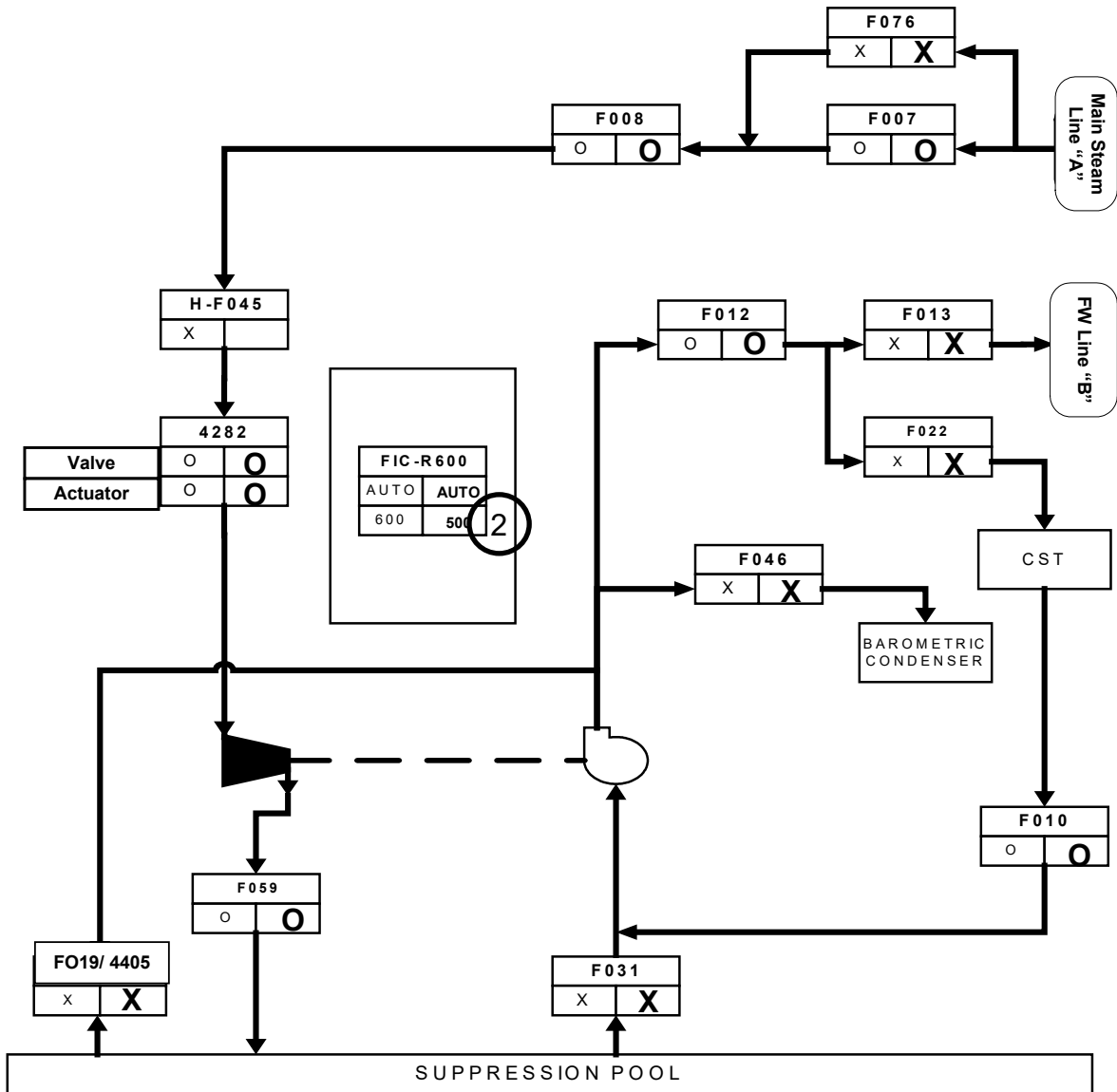
REMARKS: ② **RCIC FC @500 gpm-CRS informed.** _____

_____

_____

_____

_____

_____

EQUIPMENT STATUS CHECKLIST

RHR "B"
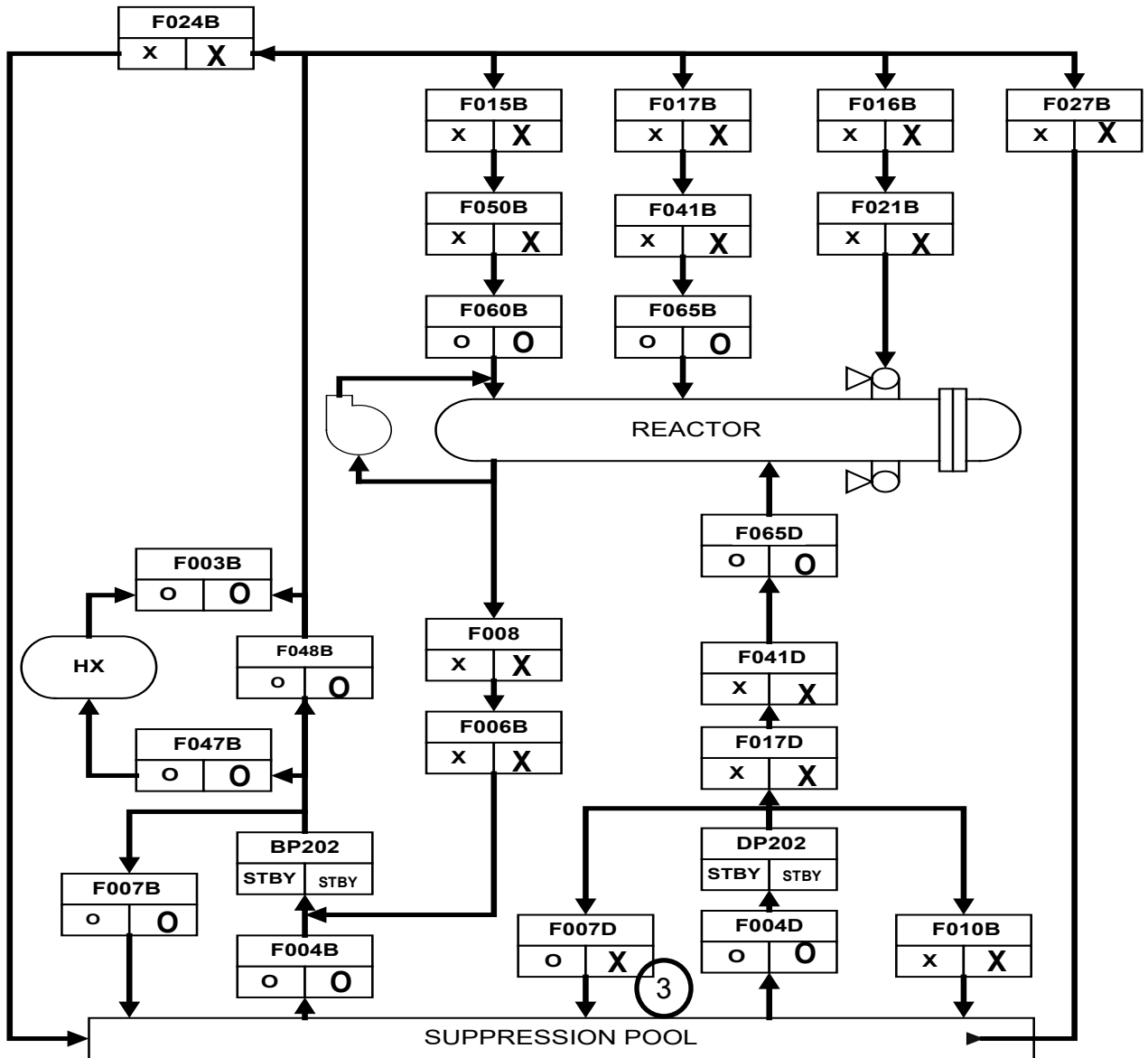
REMARKS: ③ **F007D closed-CRS informed.**

_____

_____

_____

_____

_____

EQUIPMENT STATUS CHECKLIST

RHR "A"
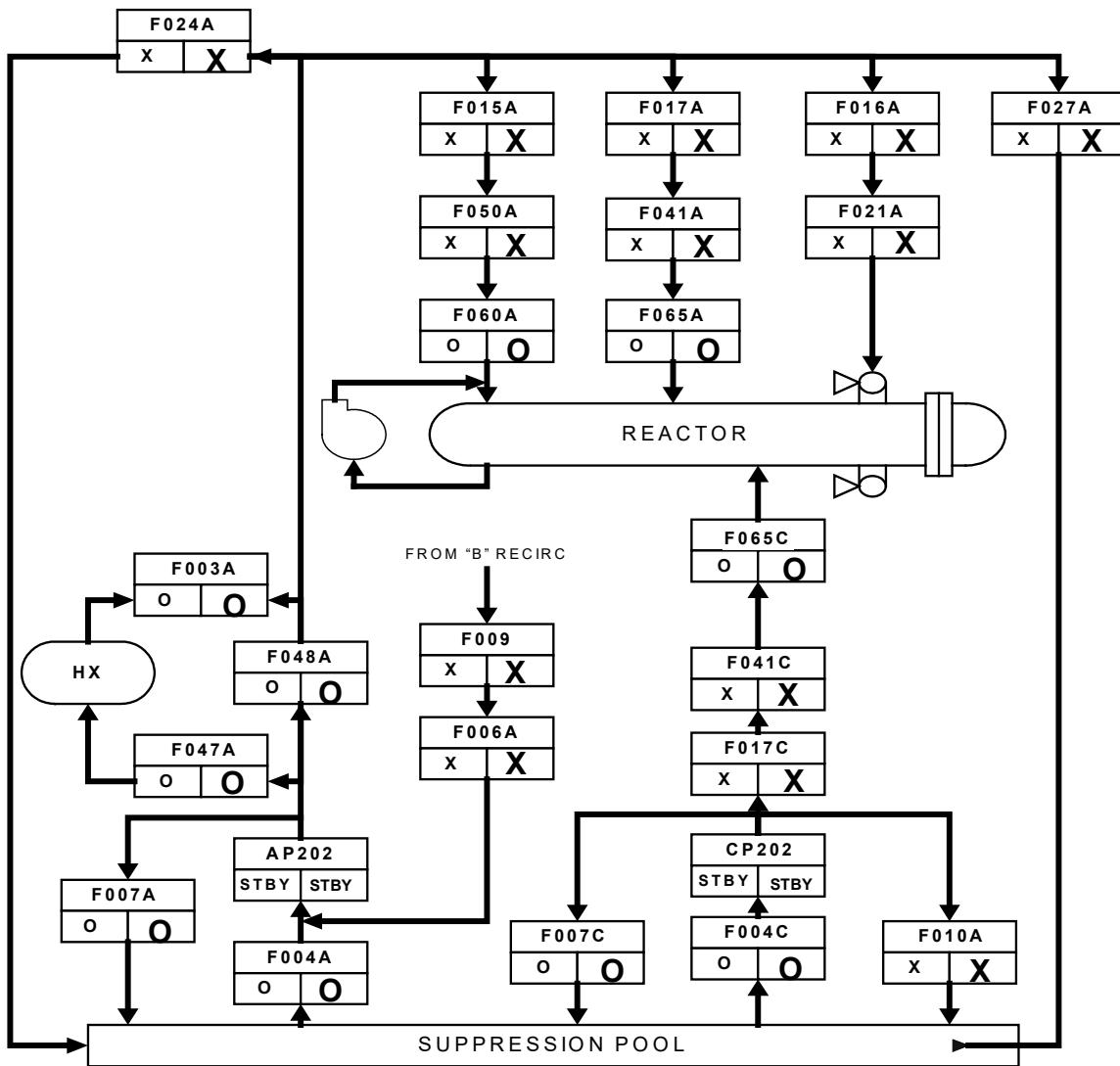
REMARKS: _____

Control Key Audit Performed By:	_____*J*_____	Checklist Performed By:	_____**INITIALS**_____
	Initials		**Off-going Operator**

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 40% power.
2. RACS Pump CP209 is C/T for scheduled maintenance.
3. Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
4. Preparations for shift relief are in progress.

INITIATING CUE:

You are the Off-Going Day Shift Reactor Operator of "A" Shift.

COMPLETE OP-HC-112-101-1001-F11, Equipment Status Checklist, with the exception of the Control Room Key Audit. The Control Room Key Audit has been performed by another operator.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

	2019 NRC	Copy _____ of _____
	ROA3	

SYSTEM: Administrative

TASK NUMBER: 3000050101

TASK: Perform Actions to Achieve Criticality and Raise Power to the Point of Adding Heat

JPM NUMBER: 305H-JPM.ZZ051   **REVISION:** 00

SAP BET: NOH05JPZZ51E

K/A NUMBER: 2.2.2   **IMPORTANCE FACTOR:**   RO: 4.6   SRO: 4.1

         Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-IO.ZZ-0003, Rev. 112   HC.RE-IO.ZZ-0001, Rev. 54

           OP-AA-111-101-1001, Rev. 5

TOOLS, AND EQUIPMENT: OP-AA-111-101-1001, Attachment 5;

         ESTIMATED COMPLETION TIME: _____17_____ Minutes

         TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

         ACTUAL COMPLETION TIME: _____ **Minutes**

         ACTUAL TIME CRITICAL COMPLETION TIME: _____**N/A**_____ **Minutes**

REASON IF UNSATISFACTORY:

         EVALUATOR: _____   **DATE:** _____
                        Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 3000050101

TASK: Perform Actions to Achieve Criticality and Raise Power to the Point of Adding Heat

INITIAL CONDIITONS:
1. A Reactor startup is in progress.
2. The LAN is not functioning. Paper logs are being used. You have been logged as the Reactor Operator for this shift.

INITIATING CUE:

   PERFORM Steps 4.2.1 through 4.2.6 of HC.OP-IO.ZZ-0003.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a markup of HC.OP-IO.ZZ-0003, OP-AA-111-101-1001 Attachment 5; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.1.		
4.2.1	**ANNOUNCE** on the Plant Public Address (PA) System that the Hope Creek Reactor startup is in progress and Primary and Secondary Containment are in effect.	Operator announces on the Plant Public Address (PA) System that the Hope Creek Reactor startup is in progress and Primary and Secondary Containment are in effect, and initials Step.		
4.2.2	**PLACE** the RPS MODE SWITCH to STARTUP & HOT STBY. 1. **ENTER** date and time Mode Switch repositioned to STARTUP & HOT STBY on Attachment 1.	***#Operator places the RPS MODE SWITCH to STARTUP & HOT STBY. Then enters date and time on Attachment 1,** and initials Steps.		
4.2.3	**ENSURE** that all rod blocks have been cleared.	Operator ensures that all rod blocks have been cleared, and initials Step.		
NOTE	The following step shall be performed within 8 hours PRIOR to withdrawal of controls rods for the purpose of making the reactor critical IAW T/S 4.1.4.1.a and 4.1.4.1.b. With all control rods fully inserted, the currently latched step should be "001" which corresponds to BWPS Group 1.	Operator reads and initials NOTE.		
4.2.4	**SELECT** any control rod that is <u>NOT</u> in the currently latched step of the RWM <u>AND</u> **PERFORM** the following steps:	***#Operator selects a control rod not in the currently latched step of the RWM,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	1. **VERIFY** the below selected indications at the RWM Operators Display: **[T/S 4.1.4.1.a]** • "SR XX - YY : 00" where XX - YY is the selected rod and 00 is its current position	Operator observes the following on the RWM: "SR XX - YY: 00" where XX - YY is the selected rod and 00 is its current position, and initials Step.		
	• "SE" which indicates a selection error	"SE" which indicates a selection error, and initials Step.		
	• WB" which indicates a withdraw block	WB" which indicates a withdraw block, and initials Step.		
	2. **ATTEMPT** to withdraw the control rod <u>AND</u> **VERIFY** that there is no control rod movement. **[T/S 4.1.4.1.b]**	***#Operator attempts to withdraw the control rod and verifies that there is no control rod movement,** and initials Step.		
	3. **RECORD** date and time on Attachment 2.	***#Operator records the current date and time on Attachment 2,** and initials Step.		
4.2.5	**PERFORM** a check on the rod drift alarm by completing the following: 1. **SELECT** any in sequence rod.	***#Operator selects a control rod in the currently latched step of the RWM,** and initials Step.		
	2. <u>SIMULTANEOUSLY</u> **PRESS** the ROD DRIFT TEST PB <u>AND</u> WITHDRAW the in-sequence control rod to position 02.	***#Operator simultaneously presses the ROD DRIFT TEST PB <u>AND</u> WITHDRAW the in-sequence control rod to position 02,** and initials Step.		
	3. **OBSERVE** the ROD DRIFT annunciator alarms.	Operator observes the ROD DRIFT annunciator alarms, and initials Step.		
	4. **PRESS** the ROD DRIFT RESET push button.	***#Operator presses the ROD DRIFT RESET push button,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	5. **PRESS** <u>AND</u> **HOLD** the CONTINUOUS INSERT push button UNTIL the Rod is at 00 (to check the continuous insert function).	***#Operator presses and holds the CONTINUOUS INSERT push button UNTIL the Rod is at 00,** and initials Step.		
4.2.6	**PERFORM** the following <u>PRIOR</u> to withdrawal of control rods: **[CD-493F]** 1. With the SRM fully inserted to normal detector position, **VERIFY** SRM channel readings > 3 cps <u>AND</u> **RECORD** on Attachment 2. **[T/S 4.3.7.6.c]**	Operator verifies all SRM are fully inserted, and ***records the actual values on Attachment 2,** and initials Step.		
	2. **DIRECT** Reactor Engineering to perform HC.RE-IO.ZZ-0001(Q) Attachment 5, SRM Count Rate Doublings.	Operator directs Reactor Engineering to perform HC.RE-IO.ZZ-0001(Q) Attachment 2, SRM Count Rate Doublings, and initials Step.		
CUE:	**Acknowledge as Reactor Engineer, and provide the operator with the completed HC.RE-IO.ZZ-0001(Q) Attachment 5.**			
	3. **POST** the Initial count rate and the count rates for the doublings on the main control panel for ease of reference.	Operator posts the Initial count rate and the count rates for the doublings on the main control panel for ease of reference, and initials Step.		
	4. **RECORD** the data from Step 4.2.6.1 in the Reactor Operators Log.	***#Operator records the data from Step 4.2.6.1 in the Reactor Operators Log,** and initials Step.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator performs Steps 4.2.1 through 4.2.6 of HC.OP-IO.ZZ-0003.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ051   **NAME:** _____

REV NUMBER: 00   **DATE:** _____

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ051

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	6/3/2016	New JPM. Validated with 2 ROs.	Y
01	4/4/2019	Revised procedure revision number.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ051   **REV#:** 00

         TASK: Perform Actions to Achieve Criticality and Raise Power to the Point of Adding Heat

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Steps, or justification of the basis for a single critical Step.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ZZ051   **REV#:** 00

INITIAL CONDITIONS:

I.C.
Initial

_____ **INITIALIZE** to a startup IC that is just prior to placing the Mode Switch to Startup/Hot STDBY.

_____

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)
Initial	Description

_____ **MARKUP** HC.OP-IO.ZZ-0003 up to step 4.2.

_____ **ENTER** SRM COUNT into CRIDS SRM DOUBLING page (PPC)

_____ **MARKUP** HC.RE-IO.ZZ-0001(Q) Attachment 2.

_____ **SELECT** an edge control rod which is in the current group.

_____ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

Attachment 2, SRM Count Rate Doublings

DOUBLINGS ARE CONSIDERED REACHED IF 2 OPERABLE SRMS HAVE REACHED THEIR REQUIRED READING

	Initial	1 Doubling	2 Doublings	3 Doublings	4 Doublings	5 Doublings	6 Doublings	7 Doublings	8 Doublings
SRM	----	2X	4X	8X	16X	32X	64X	128X	256X
C	43	86	172	344	688	1376	2752	5504	11008
A	44	88	176	352	704	1408	2816	5632	11264
D	38	76	152	304	608	1216	2432	4864	9728
B	38	76	152	304	608	1216	2432	4864	9728

1. Record the initial SRM count rates as __INTEGERS__ for each OPERABLE SRM prior to withdrawing any control rods. CRIDS Page 250 or 252 can be used if the displayed values are consistent with the SRM recorders. Otherwise, obtain the count rates for SRMs C and A from recorder 1SEXR-R602A (Panel 10C650), and SRMs D and B from 1SEXR-R602B (Panel 10C650).

2. Starting from the recorded initial SRM count rates, complete the doubling calculations up to 8 doublings(1 doublings =2X, 2 doublings =4X, ...).

3. Provide copies of this attachment to the RO and the SM/CRS.

Performed By: ____*Clark Gable*____   Date/Time: ____*Today/Now*____
                     Reactor Engineer

Reviewed By: ____*Gerald Ford*____   Date/Time: ____*Today/Now*____
                     Independent Reviewer

JOB PERFORMANCE MEASURE

**ATTACHMENT 5
HOPE CREEK NARRATIVE LOG FORMAT
Page 2 of 2**

User Name	RO	Crew	A	Shift	TODAY

Time	System	Remarks

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Reactor startup is in progress.
2. The LAN is not functioning. Paper logs are being used. You have been logged as the Reactor Operator for this shift.

INITIATING CUE:

   PERFORM Steps 4.2.1 through 4.2.6 of HC.OP-IO.ZZ-0003.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

| | | 2019 NRC ROA4 | Copy _____ of _____ |

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 2290050101

TASK: Purge The Containment

JPM NUMBER: 305H-JPM.ZZ001   **REVISION:** 03

SAP BET: NOH05JPZZ01E

K/A NUMBER: 2.3.11   **IMPORTANCE FACTOR:**   RO: 3.8   SRO: 4.3

       Ability to control radiation releases.

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒   **SRO** ☐

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-103-105, Rev.1

TOOLS, AND EQUIPMENT: OP-HC-103-105

                          ESTIMATED COMPLETION TIME: _____14_____ Minutes

       TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE:** **SAT** ☐   **UNSAT** ☐

                        ACTUAL COMPLETION TIME: _____ Minutes

            ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                      Signature

JOB PERFORMANCE MEASURE

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 2290050101

TASK: Purge The Containment

INITIAL CONDIITONS:

1.   A plant shutdown is in progress for a Refueling outage.
2.   The Reactor is shutdown.
3.   At 0200 today Purging of the Primary Containment commenced.
4.   At 0846 today Operational Condition 4 was entered.
5.   At 1142 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

   CALCULATE Valve Open Time in accordance with Section 4.4 of OP-HC-103-105.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue, partially completed OP-HC-103-105, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews procedure.	Operator reviews procedure.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.4.1.		
4.4 4.4.1	**Calculating Valve Open Time** In Section C of Form 2, **ENTER** the time the valve(s) listed in Section 2.2 or the line(s) listed in Section 2.4 or 2.5 are opened in Condition 1, 2, or 3 **or** when Condition 2 <u>OR</u> 3 is entered from Condition 4 with the valve(s)/line(s) open.	***#Operator enters 0200 in Section C, START TIME,** and initials step.		
4.4.2	In Section C of Form 2, **ENTER** the time the valve(s) listed in Section 2.2 or the line(s) listed in Section 2.4 **or** 2.5 are closed in Condition 1, 2, or 3 **or** when Condition 4 is entered from Condition 2 **or** 3 with the valve(s)/line(s) open. **[T/S 1.34]**	***#Operator enters 0846 in Section C, STOP TIME,** and initials step.		
4.4.3	**COMPUTE** the total hours (round up to the nearest 0.5 hour or to the nearest 1.0 hour) for each open cycle.	***#Operator** computes the total number of hours, rounds up to the nearest 0.5 hour, and **enters 7.0(or 7) in Section C, TOTAL HOURS,** and initials step.		
4.4.4	When the valve permit is no longer valid due to either the evolution is complete, **or** mode change to Condition 4 has occurred, **or** the day has ended **TOTAL** the hours that the valve(s)/line(s) were open (should be less than or equal to the time authorized in Section B of Form 2). **[T/S 1.52]**	**#Operator enters 7.0(7) in Section C, Total number of hours valves/line open this permit:,** and initials step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
4.4.5	The NCO performing the section C calculations should sign in the appropriate space and enter the time and date.	***#Operator signs in the appropriate space and enters the time and date in SECTION C, NCO performing calculations**, and initials step.		
4.4.6	The SM/CRS should verify the calculations, sign in the appropriate space for verification and close out and enter the time and date.	Operator provides Form 2 to the SM/CRS to verify the calculations, sign in the appropriate space for verification and close out and enter the time and date, and initials step.		
CUE:	**Sign (John Smith) and date/time in the SM/CRS Closing permit spaces, THEN provide back to the operator. (Inform the operator of name and that you are signing as the SM/CRS.)**			
4.4.7	On Form 1, **ENTER** the name of the SM/CRS closing out the valve permit and the number of hours the valves were open on this permit. The NCO entering this information should initial in the appropriate space.	Operator enters the name of the SM/CRS closing out the valve permit and the, ***HOURS USED THIS PERMIT.** The operator initials in the appropriate space on Form 1 and initials step. Examiner Note: Entering 42.5 in TOTAL HOURS PREVIOUS YEAR is not critical.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. STOP TIME: _____			

Task Standard: Operator Calculates Valve Open Time in accordance with Section 4.4 of OP-HC-103-105.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ001   **NAME:** _____

REV NUMBER: 03   **DATE:** _____

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ001

REVISION HISTORY

Rev #	Date	Description	Validation Required?
04	2/20/2019	Revised to current year and expected exam date.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ001   **REV#:** 03

         TASK: Purge The Containment

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

FORM 1

CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT LOG

Page __1__ of __1__

DATE	HOURS PREV. YEAR (NOTE 1)	HOURS AUTH. THIS PERMIT	NAME OF SM/CRS AUTHORIZING THIS PERMIT	NCO INITIAL	HOURS USED THIS PERMIT	TOTAL HOURS PREVIOUS YEAR (NOTE 1)	NAME OF SM/CRS CLOSING THIS PERMIT	NCO INITIAL
3/3/18	22.5	24	H. Davidson	$\mathcal{SD}$	5.5	29.0	A. West	$\mathcal{SD}$
6/25/18	18.5	24	G. Washington	$\mathcal{TRW}$	3.0	21.5	G. Clooney	$\mathcal{TRW}$
8/30/18	22	24	O.W. Holmes	$\mathcal{R}$	24.0	46.0	M. Keaton	$\mathcal{R}$
8/31/18	46	24	B. Lee	$\mathcal{E}$	3.0	49.0	V. Bono	$\mathcal{E}$
Today	35.5	24	A. Jones	$\mathcal{JS}$	**7.0**		**J. SMITH**	**INITIALS**

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

EXAMINER'S COPY

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

FORM 2
CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT

SECTION A

Date: **Today**   **NOTE**: This permit is valid only until 2400 of this date

Gaseous Effluent Permit #:   **020190001**

SECTION B
HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open During Previous Year (**NOTE 1**)

DATE	NUMBER OF HOURS
3/3/18	5.5
6/25/18	3.0
8/30/18	24.0
8/31/18	3.0

(1) Max. allowed for 365 days (Admin Limit)   **452 hrs**

(2) Total previous year (**NOTE 1**)   (-) 35.5

(3) Hours available this date   (=) 417
(line 1 minus line 2)

Hours authorized this date   24
(24 hours or ~~Line (3),~~ the hours available this date whichever is less)

NCO performing calculation   Date/Time

John Smith   Today/0100

SM/CRS verification and authorization   Date/Time

Andrew Jones   Today/0130

SECTION C
VALVE/LINE OPEN TIME (Note 2)

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle (NOTE 3)
0200	*0846*	*7.0*

Total number of hours valves/line open this permit: *7.0*

NCO performing calculations	*Operator's Signature*	Date/Time	*Date/Time*
SM/CRS Closing permit	*Examiner's Signature*	Date/Time	*Date/Time*

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

NOTE 2: Completed Form 2 should be filed in the AP-104 binder in the Control Room.

NOTE 3: When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)

EXAMINER'S COPY

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A plant shutdown is in progress for a Refueling outage.

2. The Reactor is shutdown.

3. At 0200 today Purging of the Primary Containment commenced.

4. At 0846 today Operational Condition 4 was entered.

5. At 1142 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

CALCULATE Valve Open Time in accordance with Section 4.4 of OP-HC-103-105.

JOB PERFORMANCE MEASURE

FORM 1

CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT LOG

Page __1__ of __1__

DATE	HOURS PREV. YEAR (NOTE 1)	HOURS AUTH. THIS PERMIT	NAME OF SM/CRS AUTHORIZING THIS PERMIT	NCO INITIAL	HOURS USED THIS PERMIT	TOTAL HOURS PREVIOUS YEAR (NOTE 1)	NAME OF SM/CRS CLOSING THIS PERMIT	NCO INITIAL
3/3/18	22.5	24	H. Davidson	$\mathcal{SD}$	5.5	29.0	A. West	$\mathcal{SD}$
6/25/18	18.5	24	G. Washington	$\mathcal{TRW}$	3.0	21.5	G. Clooney	$\mathcal{TRW}$
8/30/18	22	24	O.W. Holmes	$\mathcal{R}$	24.0	46.0	M. Keaton	$\mathcal{R}$
8/31/18	46	24	B. Lee	$\mathcal{E}$	3.0	49.0	V. Bono	$\mathcal{E}$
Today	35	24	A. Jones	$\mathcal{JS}$				

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

FORM 2
CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT

SECTION A

Date: _____**Today**_____   **NOTE**: This permit is valid only until 2400 of this date

Gaseous Effluent Permit #: _____**020190001**_____

SECTION B
HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open During Previous Year (**NOTE 1**)

DATE	NUMBER OF HOURS
3/3/18	5.5
6/25/18	3.0
8/30/18	24.0
8/31/18	3.0

(1) Max. allowed for 365 days (Admin Limit)   **452 hrs**

(2) Total previous year (**NOTE 1**)   (-) 35.5

(3) Hours available this date   (=) 417
   (line 1 minus line 2)

Hours authorized this date   24
(24 hours or Line (3), ~~the hours available this date~~ whichever is less)

NCO performing calculation	Date/Time
John Smith	Today/0100
SM/CRS verification and authorization	Date/Time
Andrew Jones	Today/0130

SECTION C
VALVE/LINE OPEN TIME (Note 2)

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle **(NOTE 3)**
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total number of hours valves/line open this permit: _____

NCO performing calculations _____ Date/Time _____

SM/CRS Closing permit _____ Date/Time _____

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

NOTE 2: Completed Form 2 should be filed in the AP-104 binder in the Control Room.

NOTE 3: When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

2019 NRC SROA1	Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ056   **REVISION:** 02

SAP BET: NOH05JPZZ56E

K/A NUMBER: 2.1.5   **IMPORTANCE FACTOR:**   RO: 2.9   SRO: 3.9

Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc..

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator(Classroom)/Perform

REFERENCES: OP-AA-105-102, Rev. 12

TOOLS, AND EQUIPMENT: OP-AA-105-102

ESTIMATED COMPLETION TIME: _____18_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____ **GRADE:** **SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                        Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

INITIAL CONDIITONS:

1. John Smith is in the process of license re-activation for the Control Room Supervisor position in accordance with OP-AA-105-102, NRC Active License Maintenance. Refer to the provided OP-AA-105-102, Attachment 2.
2. The Operations Training Manager has signified that the license holder is current in the Requal Program and Completion of plant-specific activation guide.
3. The License Coordinator has verified that medical/respiratory protection qualifications are current.
4. SRO John Smith and the Operations Support Manager have verified that the license holder is compliant with & concurs with restrictions on current NRC license.
5. SRO John Smith has completed the following:
    - Main Control Room Tour: Completed with a current CRS on July 3, 2019
    - Turbine Building Tour: Completed with the on watch SM on July 14, 2019
    - Reactor Building Tour: Completed with a current NCO on July 15, 2019
    - Station Service Water and Yard Tour: Completed with the on watch Yard Equipment Operator on July 20, 2019
    - Auxiliary Building Tour: Completed with a Current CRS on August 4, 2019.
    - Reviewed Shift Turnover responsibilities / procedure.
6. SRO John Smith completed the Hours on Shift as shown.

INITIATING CUE:

Today is August 12, 2019.

PERFORM the Shift Manager review of the OP-AA-105-102, Attachment 2, for John Smith's SRO license renewal for the Control Room Supervisor position.

COMPLETE the review <u>AND</u> **SIGN** the attachment, <u>IF</u> appropriate, <u>OR</u> **LIST** all gaps that require resolution before the form can be signed.

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue, a copy of OP-AA-105-102; the marked up Attachment 2 of OP-AA-105-102; <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-105-102				
4.2.2.	**DOCUMENT** the reactivation on Attachment 2, Reactivation of License Log . 1. The Shift Manager shall signify that the required OJT hours were completed.	***Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that not all tours were completed with an ACTIVE SRO license holder.**		
		*Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that the watch hours stood as the CRS ONLY [20 hours total] could be used towards the 40 hours of watchstanding requirements.		
		* Operator does NOT sign as the Shift Manager.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator determines license reactivation requirements have not been met in accordance with OP-AA-105-102.				

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ056   **NAME:**

REV NUMBER: 02   **DATE:**

QUESTION:

_____

_____

_____

_____

_____

RESPONSE:

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION:

_____

_____

_____

_____

_____

RESPONSE:

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ056

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	3/12/2019	Revised dates to coincide with examination. Editorial	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ056   **REV#:** 02

        TASK: Ensure The Operating Shift Is Adequately Manned

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: SRO

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. SRO John Smith is in the process of license re-activation for the Control Room Supervisor position in accordance with OP-AA-105-102, NRC Active License Maintenance. Refer to the provided OP-AA-105-102, Attachment 2.

2. The Operations Training Manager has signified that the license holder is current in the Requal Program and Completion of plant-specific activation guide.

3. The License Coordinator has verified that medical/respiratory protection qualifications are current.

4. SRO John Smith and the Operations Support Manager have verified that the license holder is compliant with & concurs with restrictions on current NRC license.

5. SRO John Smith has completed the following:

    *   Main Control Room Tour: Completed with a current CRS on July 3, 2019
    *   Turbine Building Tour: Completed with a current SM on July 14, 2019
    *   Reactor Building Tour: Completed with a current NCO on July 15, 2019
    *   Station Service Water and Yard Tour: Completed with the on watch Yard Equipment Operator on July 20, 2019
    *   Auxiliary Building Tour: Completed with a Current CRS on August 4, 2019.
    *   Reviewed Shift Turnover responsibilities / procedure.

6. SRO John Smith completed the Hours on Shift as shown.

INITIATING CUE:

Today is August 12, 2019.

PERFORM a Shift Manager review of the OP-AA-105-102, Attachment 2 for John Smith's SRO license renewal for the Control Room Supervisor position.

COMPLETE the review <u>AND</u> **SIGN** the attachment, <u>IF</u> appropriate, <u>OR</u> **LIST** all gaps that require resolution before the form can be signed.

⬤ **PSEG** *Nuclear LLC*	**Salem and Hope Creek Common**		**Page 10 of 11**
	OP-AA-105-102		Rev: **12**
	NRC ACTIVE LICENSE MAINTENANCE		

Attachment 2, Reactivation of License Log

License Holder's Name: *John Smith*

Date to resume Active status: *Today*

A.   Verification that the license holder is current in the Requal Program and Completion of plant-specific activation guide (if required).

     Verified by: *Operations Training Manager*   *Today*
                        Operations Training Manager   Date

B.   Verification that medical/respiratory protection qualifications are current.

     Verified by: ***License Coordinator***   ***Today***
                  Department Training Coordinator or License Coordinator   Date

C.   Verification that license holder is compliant with & concurs with restrictions on current NRC license.

     Verified by: John Smith   /   Today   *Operations Support Manager*   /   *Today*
                  Licensee   Date   Operations Support Manager   Date

D.   Completion of the following:

> **NOTE**
>
> - For LSRO/SRO reactivation for fuel handling duties, steps D1, D3, D4, and D5 must be performed within 1 week of the planned start of core alterations.
> - In the presence and under the sole direct supervision of an active RO or SRO, as appropriate apply to all steps below.

    1. Made a tour of the MCR, reviewing status of applicable systems/panels (ALL)

    2. Made a complete tour of the plant (RO/SRO only)

    3. Made a tour of refuel floor/fuel handling areas (LSRO/SRO for fuel handling only)

    4. Attended an Operations shift turnover meeting (LSRO/SRO for fuel handling only)

    5. Reviewed applicable unit log and Limiting Condition for Operation (LCO) log (LSRO/SRO for fuel handling only)

    6. Reviewed Shift Turnover responsibilities / procedure (ALL)

Section D Performed by: *John Smith*   *Today*
                          License Holder   Date

Page 1 of 2

⊛ **PSEG** *Nuclear LLC*	**Salem and Hope Creek Common**			**Page 11 of 11**
	OP-AA-105-102			Rev: 12
	NRC ACTIVE LICENSE MAINTENANCE			

E. Hours on Shift

1. The SRO/RO license holder has completed a minimum of 40 hours of shift functions in the presence and under the sole direct supervision of an active RO or SRO, as appropriate, in the position to which the individual will be assigned. Log hours in the Shift Position log.

2. The SRO-Limited license holder has completed a minimum of one (1) 8-hour shift in the presence and under the sole direct supervision of an active SRO/SRO-Limited in the position to which the individual will be assigned.

Shift Position Log

Date	Shift Position	Shift No.	No. Hours	Entered in Appropriate Log	Active License Signature
7/3/19	WCS	D	12	Yes/No	*Active License Signature*
7/14/19	SM	D	4	Yes/No	*Active License Signature*
7/15/19	CRS	D	8	Yes/No	*Active License Signature*
7/20/19	NCO	D	4	Yes/No	*Active License Signature*
7/25/19	SM	D	12	Yes/No	*Active License Signature*
7/29/19	WCS	N	12	Yes/No	*Active License Signature*
8/4/19	CRS	N	12	Yes/No	*Active License Signature*
	Plant tour under the sole direct supervision of an active license holder				

Reviewed by: _____

Shift Manager   Date

Final Review and Approval:

_____ _____ _____ _____
Shift Operations Manager   Date   Operations Training Manager   Date

Page 2 of 2

JOB PERFORMANCE MEASURE

STATION: Hope Creek

| | 2019 NRC SROA2 | COPY _____ OF _____ |

SYSTEM: Administrative

TASK NUMBER: 2992320302

TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

JPM NUMBER: 305H-JPM.ZZ049   **REVISION:** 01

SAP BET: NOH05JPZZ49E

K/A NUMBER: 2.1..25   **IMPORTANCE FACTOR:**   RO: 3.9   SRO: 4.2

Ability to interpret reference materials, such as graphs, curves, tables, etc..

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐   **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-116-1001, Rev. 5   HC.OP-DL.ZZ-0020, Rev. 41

TOOLS, AND EQUIPMENT: OP-HC-108-116-1001; Straight-edge

ESTIMATED COMPLETION TIME: _____8_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
                              Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2992320302

TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

INITIAL CONDIITONS:

1. Plant is operating at 100% power forty five (45) days following the last refueling outage ending on June 30, 2019.
   CURRENT DATE IS AUGUST 15, 2019.
2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicated 93F.
4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.
5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

       PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator: the initiating cue; completed copy of OP-HC-108-116-1001 Attachment 3; a <u>modified</u> copy of OP-HC-108-116-1001(Attachment 1 Date Modified and marked NOT FOR PLANT USE); <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-HC-108-116-1001				
4.4	Submit the completed time to CRS for review.	N/A	N/A	N/A
OP-HC-108-116-1001 **4. <u>MAIN BODY</u>**				
4.1	Utilizing Attachment 1, Spent Fuel Pool Decay Heat Load Determination, determine the approximate SFP decay heat rate for the current date.	***#Operator determines that the approximate SFP decay heat rate for the current date is approximately 8.6 [+0.4] MBtu/hr.**		
4.2	Select the series of curves from Attachment 2 for loss of cooling, with the initial pool temperature that most closely matches current pool temperature, (round up to the next highest Fuel Pool Temperature curve).	***# Operator selects Page 6 of ATTACHMENT 2 (rounding up 93F to 95F).**		
4.3	Utilizing the decay heat rate determined in 4.1, determine the time in hours for the SFP to reach 200 °F in the event normal cooling is lost. IF necessary, interpolate the heat load between lines.	***# Operator determines the time in hours for the SFP to reach 200°F in the event normal cooling is lost is approximately 44 [+2] hours. Therefore, Attachment 3 is <u>NOT</u> properly completed in accordance with OP-HC-108-116-1001.**		
CUE:	**If the operator does NOT correct the calculation, ask "What would be the correct number of hours to reach 200°F?"**			
CUE:	WHEN operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator performs the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ049   NAME: _____

REV NUMBER: 01   DATE: _____

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: SAT ☐   UNSAT ☐

QUESTION: _____
_____
_____
_____
_____
_____

RESPONSE: _____
_____
_____
_____
_____
_____

RESULT: SAT ☐   UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ049

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	3/12/2019	Revised revision numbers of referenced procedures. Modified dates and curves to support exam date.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ049   **REV#:** 01
TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: SRO

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ATTACHMENT 3

Spent Fuel Pool

Time to 200 °F

<u>   54   </u> Hrs

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Plant is operating at 100% power forty five (45) days following the last refueling outage ending on June 30, 2019.

CURRENT DATE IS AUGUST 15, 2019.

2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.

3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicated 93F.

4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.

5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK NUMBER: 4010590202/2990640305

TASK: Complete an Action Statement Log Sheet

2019 NRC	COPY _____ OF _____
SROA3	

JPM NUMBER: 305H-JPM.ZZ066   **REVISION:** 00

SAP BET: NOH05JP29E

K/A NUMBER: 2.2.23   **IMPORTANCE FACTOR:** RO: 3.1   SRO: 4.6

　　　　　　　Ability to track Technical Specification limiting conditions for operations.

ALTERNATE PATH: ☐

APPLICABILITY: 　　　　　　　**RO** ☐ 　　　　　　**SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-115-1001 Rev 37 　　　　HC.OP-ST.GJ-0001 Rev 3

　　　　　　　Tech Spec 3.6.4.2 Amendment 212

TOOLS, AND EQUIPMENT: HC Technical Specifications; Calendar; OP-HC-108-115-1001 Attachment 3; OP-HC-108-115-1001-F1; Blank HC.OP-ST.GJ-0001

ESTIMATED COMPLETION TIME: _____22_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____ **GRADE: SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
　　　　　　　　　　Signature

JOB PERFORMANCE MEASURE

SYSTEM: Equipment Control

TASK NUMBER: 4010590202/2990640305

TASK: Complete an Action Statement Log Sheet

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. HC.OP-ST.GJ-0001, Control Room Ventilation Heat Load Removal Test, was performed UNSATISFACTORILY.
3. The failure occurred one hour ago at _____. (**NOTE: ENTER** Current Time minus one hour here <u>AND</u> on the Trainee's Cue Sheet.)
4. SAP is currently unavailable, and no NOTF has been written.
5. SAP LCO Tracking is NOT available.

INITIATING CUE:

You are the CRS.

COMPLETE a manual Action Statement log entry for the UNSATISFACTORY performance of HC.OP-ST.GJ-0001, Control Room Ventilation Heat Load Removal Test, <u>AND</u> **SUBMIT** for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.

Determination of retests is NOT required at this time.

NOTE: A blank copy of HC.OP-ST.GJ-0001 is provided for reference.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u>: • A blank OP-HC-108-115-1001 Attachment 3 • Copy of OP- HC-108-115-1001 • A blank OP-HC-108-115-1001-F1 • Copy of HC.OP-ST.GJ-0001 • Technical Specifications			
CUE:	**PROVIDE** the operator the Initiating Cue [**ENTER** Current Time minus one hour] <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.3.1.		
4.3.1	Any time it is determined that a TECH SPECS/Tech Spec Implementation SSC is or will be INOPERABLE either due to a Condition Adverse to Quality identified via the NOTF process (Section 5.1), a planned activity (Section 5.2), or following a Plant Transient, the appropriate T/S LCO/Tech Spec Implementation Action Statement is entered.	Operator determines a T/S LCO must be entered.		
NOTE	The LCO Tracking Log may also be utilized to track "deficiencies" to Tech Spec and Important to Safety equipment at the discretion of the CRS or SM. **[70035985]**	Operator reads NOTE.		
4.3.2	**DETERMINE** if the T/S LCO/Tech Spec Implementation Action Statement is ACTIVE or TRACKING based on the following criteria:	N/A	N/A	N/A

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	ACTIVE: An Active T/S LCO/Tech Spec Implementation Action Statement is entered for those conditions where the SSC is INOPERABLE and the SSC design function is specifically required to be OPERABLE in the current Operational Condition by Technical Specifications/Tech Spec Implementation. An example of an Active T/S LCO/Tech Spec Implementation Action Statement is a failure of an Emergency Diesel Generator to satisfy its surveillance requirements in Operational Condition 1.	Operator determines failure requires ACTIVE LCO due to INOPERABLE SSC and the SSC design function is specifically required to be OPERABLE in the current Operational Condition by Technical Specification 3.7.2.2.		
	TRACKING: A Tracking T/S LCO/Tech Spec Implementation Action Statement is entered whenever any of the following conditions exists: …	Operator determines failure requires ACTIVE LCO due to absence of 100% redundant equipment IAW T/S 3.7.2.2.		
4.3.3	**IF** the cause of the SSC being INOPERABLE is a planned Operations, Maintenance, Radiation Protection, or Chemistry Evolution that satisfies the following criteria: **[CD-524G CD-538G CD-421Y]**	Operator determines the cause was NOT planned and this step does NOT apply.		
4.3.4	For short duration entry into a Tech Spec Action statement for unplanned transient conditions (i.e. less than one shift), the Control Room Narrative Log may be used to track the LCO entry and exit time. The entry should contain the following information: …	Operator determines that this step does not apply.		
4.3.5	For activities that cause a TS/Tech Spec Implementation/BDB SSC to be INOPERABLE that do not meet the criteria of Section 4.3.3 **OR** 4.3.4, **DOCUMENT** the condition as follows: …	Operator determines the cause does NOT meet the criteria of Section 4.3.3 or 4.3.4 and the following steps apply to document the condition.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
NOTE:	• TS LCO/Tech Spec Implementation/BDB Action Statement tracking may be accomplished using either the computerized SAP LCO Tracking System or Attachment 3 and OP-HC-108-115-1001-F1. … • When an INOPERABLE TS/Tech Spec Implementation SSC affects multiple LCO Action Statements, only one Action Statement is required	Operator reads NOTE.		
4.3.5.1	For SAP LCO tracking, **REFER TO** guidance provided in OP-AA-108-115-1001, SAP LCO Entry.	Based on Initial Conditions (Electronic LCO Tracking NOT available), operator recognizes this step does NOT apply.		
NOTE:	Preparation of OP-HC-108-115-1001-F1 is not limited to the SM/CRS. OP-HC-108-115-1001-F1 may be prepared by appropriate personnel in advance to support planned activities or, after the fact during plant transients. During normal operations, the SM/CRS remains responsible for the accuracy of the information provided and authorizing entry into Action Statements. During Refueling Outages, the SM/CRS may delegate authorization of entry into planned TS LCO/Tech Spec Implementation/BDB Action Statements entered into the computerized SAP LCO Tracking System to an actively licensed and proficient SRO for efficiency. However, the SM/CRS should remain cognizant of the status of all Action Statements.	Operator reads NOTE.		
4.3.5.2	For LCO tracking using Attachment 3 and OP-HC-108-115-1001-F1, PEFORM the following:	Based on Initial Conditions (Electronic LCO Tracking NOT available) and Initiating Cue, operator recognizes the following steps apply.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
a.	**ASSIGN** the next consecutive LCO Index Number obtained from the Action Statement Log Index (Attachment 3) …	Operator determines that this is the first entry for the current year (CUE) and ..		
CUE:	**"This is the first LCO of the new year."**			
a. (CONT)	**…** and LOG the T/S LCO/Tech Spec Implementation ACTION Statement on the Index. <u>IF</u> this is the first LCO of the new year, **ENSURE** the first two digits reflect the proper year (i.e. 15-001).	Operator assigns log number YY-001 from Attachment 19.		
b.	<u>IF</u> the unit is shutdown, <u>THEN</u> **COMPLETE** the Mode Restraint column by indicating Yes or No **AND** the restricted mode number, **OTHERWISE LEAVE** blank.	Operator determines the unit is not shutdown and leaves field blank.		
c.	**COMPLETE** Sections 1 and 2 of OP-HC-108-115-1001-F1 by performing the following: • **RECORD** the LCO Index Number (from Attachment 3)	Operator records YY-001 in LCO INDEX NUMBER. [YY=Year]		
	• **RECORD** the LCO Status (Active / Tracking)	Operator records *ACTIVE in LCO STATUS.		
	• **RECORD** the applicable Technical Specification/ Tech Spec Implementation LCO number. **<u>WHEN</u>** an INOPERABLE TECH SPECS/Tech Spec Implementation SSC affects multiple LCO Action Statements, **RECORD** the LCO number with the most limiting Action Time. **RECORD** "BDBEE" for BDBEE equipment.	Operator records *3.7.2.2 in TECH SPEC NUMBER.		
	• **RECORD** the Date/Time Entered.	Operator records *current date and *failure time from Initial Conditions in DATE/TIME ENTERED.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	• **RECORD** the Operational Condition Applicability for the LCO.	Operator records * **1, 2, 3, and *.** in the APPLICABILITY.		
	• **RECORD** the expiration Date/Time.	Operator records a Date/Time of failure time plus 30 days in DATE/TIME ACTION REQUIRED.		
	• **RECORD** the Date/Time Action Required. When recording the date and time that Action is required for an LCO Action Statement that has multiple actions, use the most limiting Action time. For Tracking Action Statements, record 'N/A'.	Operator records a Date/Time of *failure time plus 30 days** in DATE/TIME ACTION REQUIRED.		
	• **RECORD** Other Applicable T/S. List only active LCOs. Applicable tracking LCOs should be listed separately in the Summary Description of the Log Sheet.	Operator recognizes no other T/S apply and leaves blank.		
	• **RECORD** the Equipment description.	Operator records AVH403, Control Room Supply, or similar in EQUIPMENT.		
	• Briefly **STATE** the reason for the SSC condition in the Summary Description section and include a brief summary of actions required, including submittal of any special reports to the NRC. **NOTIFY** the Shift Operations Superintendent of any reporting requirements.	Operator enters verbiage from T/S 3.7.2.2 Action a. or similar.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	• For unavailable conditions associated with Fire in (A)(4) systems or components (refer to Exhibit 9) **INITIATE** Fire Department Notifications for required … • The individual being notified will come to the Control Room and sign the NOTIF# box next to … • For unavailable conditions associated with Fire in (A)(4) systems or components … • For recurring samples, analysis, hook-up of sample equipment, etc., the departmental … • When actions are no longer required or an instrument is to be restored to the …	Due to absence of compensatory actions, operator determines these Steps do not apply.		
	• **ENSURE** all applicable Non-Conforming Component/Material (NCCM) Evaluations, Notifications/Orders, Work Clearance Documents (WCD) etc., are entered on the Order and WCD Addendum. **INCLUDE** any surveillance required to restore the equipment to operability as part of the Addendum. Surveillance tests should be reviewed to determine if the appropriate prerequisites would exist for the equipment scheduled restoration.	Operator leaves ORDER AND WCD ADDENDUM blank, since none is available and determination of retests is NOT required IAW Initiating Cue.		
	• **RECORD** Redundant Equipment Operable (Y/N).	Operator enters Y in REDUNDANT EQUIPMENT OPERABLE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
d.	IF the INOPERABLE SSC will impact Secondary Containment Integrity per T/S 3.6.5.1 - during Fuel …	Based on Initial Conditions (OPCON 1), and absence of effect on Secondary Containment, operator recognizes this step does not apply.		
NOTE:	• For a planned entry into an action statement, SRO/STA concurrence is required, but the signature on the Action Statement Log Sheet is not required prior to entering the action statement. • For an unplanned entry into an action statement, SRO/STA concurrence should be obtained as soon as practical after entering the action statement. • If the person who completed Sections 1 and 2 of Attachment 19 (Step 4.3.5.2.c) was not an actively licensed and proficient SRO, or a qualified and proficient STA, then the following step requires concurrence review from an actively licensed and proficient SRO, and/or a qualified and proficient STA. The actively licensed and proficient SRO, and/or the qualified and proficient STA completing the concurrence review shall not be the same person who authorizes entry into the TECH SPECS/Tech Spec Implementation Action Statement in 4.3.5.2.f	Operator reads NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
e.	**OBTAIN** CONCURRENCE REVIEW from an actively licensed and proficient SRO and/or a qualified and proficient STA of plant conditions, T/S, existing active and tracking action statements, and, the T/S Action Statement Log, to ensure the equipment can be, or, is properly removed from service (for unplanned entry into a T/S LCO/ Tech Spec Implementation Action Statement) and, that redundant equipment is operable. For planned entry into a T/S LCO/ Tech Spec Implementation Action Statement, this review should be performed within a reasonable time prior to removal of the equipment from service to ensure plant conditions are reflective of conditions when the SSC will be removed form service. **[CD-079A]**	Operator submits for CONCURRENCE REVIEW.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator **COMPLETE**S a manual Action Statement log entry for the failure of AVH403, Control Room Supply, <u>AND</u> S**UBMITS** for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: _____ZZ066_____   **NAME:** _____

REV NUMBER: _____00_____   **DATE:** _____

QUESTION: _____

_____

_____

_____

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_____

RESPONSE: _____

_____

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ066

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	3/7/2019	Modified ZZ029.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ066   **REV#:**   00
     TASK: Complete an Action Statement Log Sheet

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: SRO

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

Attachment 3, TECHNICAL SPECIFICATION ACTION STATEMENT LOG INDEX

LCO INDEX NUMBER	TECH SPEC NUMBER	ACTIVE/ TRACKING	MODE RESTRAINT Y/N **	SUMMARY DESCRIPTION	PLANNED Y/N	ENTRY DATE/ TIME	EXPIRATION DATE/TIME/ CONDITION	EXIT DATE/ TIME
19-001	*3.7.2.2*	*ACTIVE*		*AVH403, Control Room Supply*	*N*	*DATE/ TIME*	*(Date+30D)/Time*	

**   **IF** unit mode changes, **RE-EVALUATE** and **REVISE** mode column as necessary.

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JOB PERFORMANCE MEASURE

EXAMINER'S COPY

Technical Specification Action Statement Log

1.0 ACTION STATEMENT LOG SHEET

LCO INDEX NUMBER:	*19-001*	**LCO STATUS (ACTIVE/TRACKING):**	*Active*
TECH SPEC NUMBER:	*3.7.2.2*	**DATE/TIME ENTERED:**	*Date/Time*
APPLICABILITY:	*1, 2, 3, and **	**DATE/TIME EXPIRATION:**	*(Date+30D)/Time*
OTHER APPLICABLE T/S:		**DATE/TIME ACTION REQUIRED:**	*(Date+30D)/Time*

EQUIPMENT: *Control Room Air Conditioning (AC) System*

SUMMARY DESCRIPTION (Include Summary of Actions Required)

AVH403, Control Room Supply, failed heat removal test.

3.7.2.2-Restore the inoperable subsystem to OPERABLE status within 30 days or be in at least

HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

(IF Required, Continue on OP-HC-108-115-1001-F3)

RESPONSIBLE DEPARTMENT NOTIFICATION(S)

SPECIAL REPORT REQUIRED: YES ☐ NO ☒   **REPORT INITIATION DUE DATE** __N/A or Blank__

NOTIFICATIONS FOR COMPENSATORY ACTIONS OR SURVEILLANCES *

NAME of DEPARTMENT and PERSON NOTIFIED	NOTIFICATION (DATE/TIME) ENTRY / EXIT	NAME of PERSON MAKING NOTIFICATION	NOTIF# (If applicable)
	N/A or Blank		

* **IF** entry into an Action Statement or failure to meet an Action Statement time limitation requires the submittal of a special report to the NRC,
THEN:
ENSURE the responsible department is notified of the reporting requirements,
AND, **NOTIFY** the SOS or other Operations Management within one hour,
AND, **ENSURE** Station Regulatory Assurance is notified of the reporting requirements,
AND, **INITIATE** a Notification IAW LS-AA-120, Notification Process.

REDUNDANT EQUIPMENT OPERABLE (Y/N) :	*Y*
Entry has been logged in the Control Room Narrative logs (SM/CRS Initial)	*Initials*

APPROVAL TO REMOVE FROM SERVICE, VERIFICATION OF REDUNDANT EQUIPMENT

CONCURRENCE	AUTHORIZATION
SRO/STA (print name)	SM/CRS (print name)
SRO/STA (signature) DATE/TIME	SM/CRS (signature) DATE/TIME

JOB PERFORMANCE MEASURE

Technical Specification Action Statement Log (Continued)

2.0 **ORDER AND WCD ADDENDUM**

DR / NOTF / ORDER WCD NUMBER	DESCRIPTION	SYSTEM	TASK/ TYPE	RESP. DEPT/ GROUP	STATUS
	AVH403, Control Room Supply	*GJ*	*NOTF (or NUCM)*	*H-O (or M)*	
	HC.OP-ST.GJ-0001	*GJ*	*ST*	*H-O*	

(IF Required, Continue on OP-HC-108-115-1001-F2)

RETURN TO SERVICE (SM/CRS INITIAL OR N/A ALL BOXES)

TAGS RELEASED, SYSTEM/EQUIPMENT FILLED & VENTED,
  RESTORED FOR OPERATION   : _____

SURVEILLANCE RETESTS & SPECIAL TEST/ACTIONS COMPLETE   : _____

RESPONSIBLE DEPARTMENTS - INFORMED   : _____

DCP CLOSEOUT CHECKLIST COMPLETED (CC-AA-103-1001 Att. 11)   : _____

ACTION STATEMENT LOG INDEX UPDATED   : _____

EXIT HAS BEEN LOGGED IN THE CONTROL ROOM NARRATIVE LOGS   : _____

VERIFICATION OF OPERABILITY REQUIREMENTS AND SYSTEM RESTORATION

CONCURRENCE	AUTHORIZATION
_____	_____
SRO/STA (print name)	SM/CRS (print name)
_____ _____	_____ _____
SRO/STA (signature) DATE/TIME	SM/CRS (signature) DATE/TIME

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JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. HC.OP-ST.GJ-0001, Control Room Ventilation Heat Load Removal Test, was performed UNSATISFACTORILY.
3. The failure occurred one hour ago at _____.
4. SAP is currently unavailable, and no NOTF has been written.
5. SAP LCO Tracking is NOT available.

INITIATING CUE:

You are the CRS.

COMPLETE a manual Action Statement log entry for the UNSATISFACTORY performance of HC.OP-ST.GJ-0001, Control Room Ventilation Heat Load Removal Test, <u>AND</u> **SUBMIT** for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.

Determination of retests is NOT required at this time.

NOTE: A blank copy of HC.OP ST.GJ-0001 is provided for reference.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Radiation Control

2019 NRC
SROA4

Copy _____ of _____

TASK NUMBER: 2990420302

TASK: Verify Compliance with Gaseous Release Permit

JPM NUMBER: 305H-JPM.ZZ003   **REVISION:** 04

SAP BET: NOH05JPZZ03E

K/A NUMBER: 2.3.6   **IMPORTANCE FACTOR:**   RO: 2.0   SRO: 3.8

Ability to approve release permits.

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐   **SRO** ☒

EVALUATION SETTING/METHOD: Simulator (Classroom)/Perform

REFERENCES: OP-HC-103-105, Rev. 1

TOOLS, AND EQUIPMENT: Prepared OP-HC-103-105; Calculator; Black, and Red Pens

ESTIMATED COMPLETION TIME: _____10_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: _____N/A_____ Minutes

---

JPM PERFORMED BY: _____   **GRADE: SAT** ☐   **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____N/A_____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____   **DATE:** _____
          Signature

JOB PERFORMANCE MEASURE

SYSTEM: Radiation Control

TASK NUMBER: 2990420302

TASK: Verify Compliance with Gaseous Release Permit

INITIAL CONDIITONS:

1.   A plant shutdown in accordance with HC.OP-IO.ZZ-0004 is in progress for a Refueling outage.
2.   The Mode Switch was placed in Shutdown yesterday at 2000.
3.   At 0100 today De-Inerting the Containment commenced in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.
4.   At 0336 today the De-Inerting lineup was secured.
5.   At 0500, De-Inerting the Containment re-commenced.
6.   At 0822 today Cold Shutdown was entered.
7.   At 1030 today Drywell and Suppression Chamber oxygen concentration indicated greater than 21%.
8.   At 1048 today De-Inerting was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

VERIFY AND **CLOSE OUT** today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.

JPM NUMBER:	ZZ003	NAME:	
REV NUMBER:	04	DATE:	

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue, partially completed OP-HC-103-105, <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.4.6.		
4.4.6	The SM/CRS should verify the calculations, sign in the appropriate space for verification and close out and enter the time and date.	Operator reviews Forms 1 & 2. IAW Step 4.4.3 of OP-HC-103-105 during calculation of valve open time the number must be rounded up. The Operator recognizes NCO incorrectly rounded down from 2.6 to 2.5 instead of rounding up to 3.0 in Section C of Form 2.		
CUE:	**IF the operator requests the NCO to make changes, <u>THEN</u> DIRECT the operator to make any required changes.**			
		*Operator corrects 2.5 to 3.0 in Section C of Form 2.		
		In Section C of Form 2, Operator recognizes NCO incorrectly entered the START time (0500 vice 0400) of the second purge period. Total hours should be 3.5 vice 4.5		
CUE:	**IF the operator requests the NCO to make changes, <u>THEN</u> DIRECT the operator to make any required changes.**			
		*Operator corrects start time from 0400 to 0500 and corrects the Total hours open to 3.5, in Section C of Form 2.		
		*Operator corrects the Total number of hours valves/line open this permit to 6.5, in Section C of Form 2.		
		*Operator signs and enters the current date and time in the SM/CRS Closing permit line.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator performs the SM/CRS verification and close out of a Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ003   **NAME:** _____

REV NUMBER: 04   **DATE:** _____

QUESTION: _____

_____

_____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

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RESPONSE: _____

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RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	3/12/2019	Modified initial conditions and year. Modified errors in times and Total Hours.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ003   **REV#:** 04
                    TASK: Verify Compliance with Gaseous Release Permit

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: $\geq$3.0 (LOR); or $\geq$2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: SRO

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

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FORM 2
CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT

SECTION A

Date: **Today**

NOTE: This permit is valid only until 2400 of this date

Gaseous Effluent Permit #: **020190003**

SECTION B
HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open During Previous Year **(NOTE 1)**

DATE	NUMBER OF HOURS
10/24/18	5.5
10/25/18	3.5
11/30/18	24.0
11/31/18	2.5

(1) Max. allowed for 365 days (Admin Limit) — **452 hrs**

(2) Total previous year (**NOTE 1**) — (-) 35.5

(3) Hours available this date (line 1 minus line 2) — (=) 416.5

Hours authorized this date (24 hours or ~~Line (3),~~ the hours available this date whichever is less) — 24

NCO performing calculation — Date/Time

John Smith — Today/0030

SM/CRS verification and authorization — Date/Time

Andrew Jones — Today/0045

SECTION C
VALVE/LINE OPEN TIME (Note 2)

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle **(NOTE 3)**
0100	0336	~~2.5~~ **3.0**
~~0400~~ **0500**	0822	~~4.5~~ **3.5**
	Total number of hours valves/line open this permit:	~~7.0~~ **6.5**

NCO performing calculations — *John Smith* — Date/Time — Today/Now

SM/CRS Closing permit — **Operator's Signature** — Date/Time — **Date/Time**

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

NOTE 2: Completed Form 2 should be filed in the AP-104 binder in the Control Room.

NOTE 3: When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)

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JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A plant shutdown in accordance with HC.OP-IO.ZZ-0004 is in progress for a Refueling outage.

2. The Mode Switch was placed in Shutdown yesterday at 2000.

3. At 0100 today De-Inerting the Containment commenced in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

4. At 0336 today the De-Inerting lineup was secured.

5. At 0500, De-Inerting the Containment re-commenced.

6. At 0822 today Cold Shutdown was entered.

7. At 1030 today Drywell and Suppression Chamber oxygen concentration indicated greater than 21%.

8. At 1048 today De-Inerting was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

VERIFY <u>AND</u> **CLOSE OUT** today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.

JOB PERFORMANCE MEASURE

TRAINING ONLY

<u>FORM 2</u>
CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT

SECTION A

Date: **Today**   **NOTE**: This permit is valid only until 2400 of this date

Gaseous Effluent Permit #: **020190003**

SECTION B
HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open During Previous Year (**NOTE 1**)

DATE	NUMBER OF HOURS
10/24/18	5.5
10/25/18	3.5
11/30/18	24.0
11/31/18	2.5

(1) Max. allowed for 365 days (Admin Limit) — **452 hrs**

(2) Total previous year (**NOTE 1**) — (-) 35.5

(3) Hours available this date (line 1 minus line 2) — (=) 416.5

Hours authorized this date — 24
(24 hours or Line (3), ~~the hours available this date~~ whichever is less)

NCO performing calculation — Date/Time
John Smith — Today/0030

SM/CRS verification and authorization — Date/Time
Andrew Jones — Today/0045

SECTION C
VALVE/LINE OPEN TIME (Note 2)

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle **(NOTE 3)**
0100	0336	2.5
0400	0822	4.5

Total number of hours valves/line open this permit: 7.0

NCO performing calculations — *John Smith* — Date/Time — Today/Now

SM/CRS Closing permit — Date/Time

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

NOTE 2: Completed Form 2 should be filed in the AP-104 binder in the Control Room.

NOTE 3: When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)

TRAINING ONLY

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Emergency Procedures/Plan

	2019 NRC SROA5	Copy _____ of _____

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

JPM NUMBER: 305H-JPM.ECG017 **REVISION:** 00

SAP BET: NOH05JPCL05E

K/A NUMBER: 2.4.38 **IMPORTANCE FACTOR:** RO: 2.4 SRO: 4.4

Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: EP-HC-325-100 Rev. 1   EP-HC-325-101 Rev. 0   EP-HC-325-102 Rev. 1

EAL Flowcharts and EAL Wallcharts   HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-325-F*[1-4]; EP-HC-325-101; EAL Flowcharts and EAL Wallcharts: HCGS ECG – EAL Technical Basis; Phone and EP Aid-031, Simulator Only

ESTIMATED COMPLETION TIME: _____13_____ Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: __15/13__ Minutes

---

JPM PERFORMED BY: _____ **GRADE:** **SAT** ☐ **UNSAT** ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: ____/____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

INITIAL CONDIITONS:
1. The plant was at 100% power with Plant Effluent activity of:
    - 1.12E+1 µCi/sec Noble Gas
    - 1.12E-2 µCi/sec I 131
2. The AD483 inverter was isolated to its backup AC supply.
3. Then, a Loss of Offsite Power occurred.
4. All Emergency Diesel Generators have failed to start and all vital buses are deenergized.
5. Due to a loss of rod position indication, the Control Room was unable to verify the reactor shutdown, and EOP-101A is being implemented.
6. The following conditions exist:
    - A, B, C, and D APRMS are reading 0% power.
    - RCIC is injecting.
    - Compensated RPV Level is –100" and rising slowly, after reaching a minimum value of –169".
    - RPV pressure is 900# being controlled with SRVs.
7. Efforts to energize the Vital buses have been unsuccessful; maintenance has reported that they should be able to restore the 'B' EDG to service in one hour.
8. The current 33 ft. elevation wind direction is from 32° at 11 mph.
9. DAPA monitors indicate:
    - 0.942E+00 R/HR DAPA A
    - 0.761E+00 R/HR DAPA B

INITIATING CUE:

Based on this information, **CLASSIFY** this event <u>AND</u> **MAKE** the initial notifications.

This is a time critical task, and has two time critical elements.

Time zero for the event is **<u>NOW</u>**.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue <u>AND</u> **ENTER** START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. **START TIME:**			
	EP-HC-325-102			
4.	**Classification Process**	N/A	N/A	N/A
NOTE	Comparison of redundant instrumentation, indications, and/or alarms should be used to confirm actual plant conditions.	Operator reads Note.		
4.1	The primary tools for determining the emergency classification level are the EAL wallcharts. The user of the EAL wallcharts may (but is not required to) consult the EAL Technical Bases in order to obtain additional information concerning the EALs under classification consideration. To use the EAL wallcharts, follow this sequence:	Operator reads text.		
4.2	Assess the event and/or plant conditions and determine which EAL Group is most appropriate.	Operator assesses the initial conditions, and determines that EALs that are applicable under all plant Operational Conditions (OPCONs), AND EALs applicable only under hot OPCONs apply to this classification.		
4.3	Review EAL categories and subcategories on the appropriate wallcharts.	Operator assesses the initial conditions, and determines that S is appropriate ECG categories; and S1, and S3, are appropriate subcategories.		
4.4	For each applicable subcategory, review EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).	Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in S1, and S3. Operator determines that SU1.1, SA1.1, and SS1.1 apply to the event.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.5	If the HOT conditions wallchart is employed, also review the Fission Product Barrier (FPB) Table as follows: a. Examine the FPB categories in the left column of the table. b. Select the category that most likely coincides with event conditions. c. Review all thresholds in this category for each fission product barrier. d. For each threshold that is exceeded, identify its point value and determine the classification level in accordance with the instructions on the Fission Product Barrier Table (or in EAL Technical Basis, Attachment 1).	Operator refers to FPB Table and identifies that the Initial Conditions do not meet any FPB Table thresholds.		
4.6	REVIEW the associated EALs as compared to the event and select the highest appropriate emergency classification. If identification of an EAL is questionable refer to paragraph 1 above.	Operator reviews the EALs identified in Step 4.3 and 4.4, and selects EAL SS1.1 as the highest emergency action level met or exceeded (SITE AREA EMERGENCY).		
4.7	If there is any doubt with regard to assessment of a particular EAL, the ECG EAL Technical Basis Document should be reviewed. Words contained in an EAL that appear in uppercase and bold print (e.g., **VALID**) are defined at the end of the basis for the EAL.	Operator reads step, and refers to the ECG EAL Technical Basis Document if deemed necessary.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.8	When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.	Operator requests STA/IA verification of classification. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.**			
4.9	Identify and implement the referenced ECG form based on the Emergency Classification Level. • Unusual Event — Implement EP-HC-325-F1 • Alert — Implement EP-HC-325-F2 • Site Area Emergency — Implement EP-HC-325-F3 • General Emergency — Implement EP-HC-325-F4 • Unusual Event (Common Site) — Implement EP-HC-325-F24 Refer to TABLE 1, Hope Creek Emergency Classification Description Table, as a guide for correct description wording for entry on the Initial Contact Message Form (ICMF) for all EALs.	Operator identifies and implements EP-HC-325-F3, and refers to EP-HC-325-101 as a guide for correct description wording for entry on the ICMF for all EALs.		

EP-HC-325-F3
ATTACHMENT 3
SITE AREA EMERGENCY

A.	<u>CLASSIFICATION</u>			
	1. **CALL** communicators to the Control Room.	Operator calls communicators to the Control Room and initials Step.		
CUE:	**After 2 minutes, report as the CM1 and CM2 communicators.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. **IF** a **Security Event** is in progress, **THEN IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.	Operator determines Step is N/A and marks N/A.		
	3. If time allows, **DIRECT** Classification **Independent Verification** to be performed	Operator requests STA/IA verification of classification and initials Step. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.**			
	4. After Classification **Independent Verification** is obtained: • **DECLARE** the SITE AREA EMERGENCY (enter time and date on ICMF)	Operator commences filling out ICMF and initials Step. ***Operator declares a Site Area Emergency, places time and date in the appropriate spots in Attachment 3,** and initials the step as the EC. Examiners Note: ENTER the declaration time that the operator entered on Att. 3. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time (15 min). **TIME:** _____		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **COMPLETE / APPROVE** the ICMF	***Operator places the EAL #SS1.1, a description of the event, checks there is NO Release in progress, enters the wind direction and speed, and initials as EC** in the appropriate spots in the ICMF, and initials the step as the EC. Examiners Note: See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EAL SS1.1. The operator may place the Examiner's name as the Communicator, or tell the Examiner to place his/her name as the Communicator.		
	5. If time allows, **OBTAIN** an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF and initials Step.		
CUE:	**IF the Operator requests a peer check to verify the EAL Classification, THEN INFORM the Operator that no one is available.**			
	6. Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)**	Operator activates/directs activation of the ERO per posted instructions titled Training Use Emergency Callout Activation and initials Step. Examiner Note: ENSURE the operator is using the Simulator Training Activation instructions.		
CUE:	**If asked/requested to activate the ERO Emergency Callout, STATE "The ERO Callout is complete."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **DIRECT** the Primary Communicator to implement ECG Attachment 6	***Operator provides the ICMF to CM1 and directs implementation of Att.6,** and initials Step. Examiner Note: The difference between the "DECLARED AT" TIME and this LOG TIME is the second critical time (13 min.). **TIME:** _____		
	• **DIRECT** the Secondary Communicator to implement ECG Attachment 8 for a SITE AREA EMERGENCY	***Operator directs CM2 to implement Att. 8 for a SITE AREA EMERGENCY** and initials Step.		
CUE:	**Role-play as Secondary Communicator and repeat back the directions given. Provide Terminating Cue.**			
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator declares a Site Area Emergency [ECG SS1.1], and makes notifications within identified Critical Times in accordance with EP-HC-325-102.

@Comments regarding any identified trainee failure to adhere to Operator Fundamentals of SER 3-05, Weaknesses in Operator Fundamentals, shall be noted in the comments. **[IER L1-11-3 Rec. 3b]**

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ECG017   **NAME:** _____

REV NUMBER: 00   **DATE:** _____

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

QUESTION: _____

_____

_____

_____

_____

_____

RESPONSE: _____

_____

_____

_____

_____

_____

RESULT: **SAT** ☐   **UNSAT** ☐

JOB PERFORMANCE MEASURE

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	3/14/2019	Modified JPM due to significant revision to ECG and supporting documents. Modified from ECG005.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ECG017   **REV#:** 00

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥3.0 (LOR); or ≥2.5 (ILT); or justification is provided.
X	3.	License level identified. (SRO,RO,STA,NLO)
X	4.	Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
X	5.	Initial setup conditions are identified.
X	6.	Initiating and terminating cues are properly identified.
X	7.	Task standards for successful completion are identified.
X	8.	Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
X	9.	JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
X	10.	Procedure(s) referenced by this JPM match the most current revision of that procedure.
X	11.	Cues both verbal and visual are complete and correct.
X	12.	Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
X	13.	Statements describing important actions or observations that should be made by the operator are included (if required.)
X	14.	Validation time is included.
X	15.	JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: SRO

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	5/24/2019
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONTACT MESSAGE FORM

I.   THIS IS ___NOT REQUIRED___, COMMUNICATOR IN THE ☒ CONTROL ROOM
                  (NAME)   ☐ TSC
                                                           ☐ EOF

AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II.   THIS IS NOTIFICATION OF AN **SITE AREA EMERGENCY** WHICH WAS

DECLARED AT ___TODAY'S TIME___ ON ___TODAY'S DATE___
                 (Time - 24 HR CLOCK)   (DATE)

EAL # ___SS1.1___, _____, _____

DESCRIPTION OF EVENT: ___LOSS OF POWER TO ALL VITAL BUSES___

_____

_____

_____

_____

III.   ☐ THERE **IS** A RELEASE IN PROGRESS DUE TO THE EVENT   Any release above normal, attributable to the event. See Basis for examples.

     ☒ THERE IS **NO** RELEASE IN PROGRESS DUE TO THE EVENT

IV.   33 FT. LEVEL WIND DIRECTION (From): ___32___ WIND SPEED: ___11___
       (From MET Computer /SPDS)   (DEGREES)   (MPH)

V.   NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

INITIALS
_____
EC Initials
(Approval to Transmit ICMF)

HCGS   Rev. 00

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was at 100% power with Plant Effluent activity of:
    *   1.12E+1 µCi/sec Noble Gas
    *   1.12E-2 µCi/sec I 131
2. The AD483 inverter was isolated to its backup AC supply.
3. Then, a Loss of Offsite Power occurred.
4. All Emergency Diesel Generators have failed to start and all vital buses are deenergized.
5. Due to a loss of rod position indication, the Control Room was unable to verify the reactor shutdown, and EOP-101A is being implemented.
6. The following conditions exist:
    *   A, B, C, and D APRMS are reading 0% power.
    *   HPCI is injecting.
    *   Compensated RPV Level is –100" and rising slowly, after reaching a minimum value of –169".
    *   RPV pressure is 900# being controlled with SRVs.
7. Efforts to energize the Vital buses have been unsuccessful; maintenance has reported that they should be able to restore the 'B' EDG to service in one hour.
8. The current 33 ft. elevation wind direction is from 32° at 11 mph.
9. DAPA monitors indicate:
    *   0.942E+00 R/HR DAPA A
    *   0.761E+00 R/HR DAPA B

INITIATING CUE:

Based on this information, **CLASSIFY** this event <u>AND</u> **MAKE** the initial notifications.

This is a time critical task, and has two time critical elements.

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