

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Manual Control

TASK: Perform Continuous Control Rod Withdrawal
Stuck Rod during Shutdown Rod Exercising

TASK NUMBER: 2140120101

INITIAL CONDITIONS:

1. Preparations for a Reactor startup are in progress IAW HC.OP-IO.ZZ-0002(Q).
2. The Reactor is shutdown and all rods are inserted.
3. Control Rod Exercising is in progress IAW HC.OP-SO.SF-0001(Q), Reactor Manual Control System Operation, Section 5.8. Control rods 02-19 through 10-27 have been exercised. See HC.OP-SO.SF-0001(Q) provided.

INITIATING CUE:

Exercise Control Rod 10-31 for the first time IAW HC.OP-SO.SF-0001(Q). Another operator will continue with the remaining Control Rods.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. EXAMINER CUE: If excessive time is taken reviewing the precautions and limitations, inform operator that all are satisfied.		
	5.8.1	ENSURE all prerequisites of Section 2.8 are satisfied.	Operator verifies prerequisites satisfied IAW Section 2.8. EXAMINER CUE: If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.		
	5.8.2- 5.8.5		Initiating cue provided states that these steps are completed and the operator should move to Step 5.8.6. Operator may check that these steps are completed. Cue appropriately.		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *	5.8.6	START TIME: _____ To select the desired control rod, PRESS the desired Control Rod Select PB on the ROD SELECT MODULE <u>AND</u> OBSERVE the following: A. Selected rod PB comes ON (bright white).	Operator selects rod 10-31(critical) and observes the 10-31 rod PB comes on.		
		B. CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C).	Operator observes that the POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C).		
		C. The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).	Operator observes that the Full Core Display (white) numbered rod identification light for rod 10-31 comes ON (10C650C).		
	5.8.7	ENSURE drive water pressure is in the normal range of 260-270 psid.	Operator observes on CRIDS that drive water pressure is in the normal range of 260-270 psid.		
# *	5.8.8	Simultaneously PRESS AND HOLD both the WITHDRAW PB <u>AND</u> the CONTINUOUS WITHDRAW PB <u>WHILE</u> observing the following: A. INSERT (white) light comes ON momentarily.	Operator simultaneously presses <u>AND</u> holds both the WITHDRAW PB <u>AND</u> the CONTINUOUS WITHDRAW PB <u>WHILE</u> observing the INSERT (white) light comes ON momentarily.		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		B. The WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON	Operator observes the WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON.		
		C. CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY indicates that the control rod does not move, and moves to Step 5.8.9 at this time or after the next sub-step.		
		D. Full Core Display FULL IN (green) light goes OUT, as applicable.	Operator may observe that the FULL IN light does not extinguish. Examiner Note: The operator may notify the CRS of the stuck rod. Examiner Cue: If asked for direction, inform the operator to continue in accordance with HC.OP-SO.SF-0001, Section 5.8.		
# *	5.8.9	IF the Control Rod CANNOT be moved off 00, <u>THEN PERFORM</u> the following: A. VENT Control Rod using INSERT PB (including CONTINUOUS INSERT PB).	Operator presses and holds the INSERT PB and the CONTINUOUS INSERT PB for some time then releases.		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *		B. ATTEMPT to withdraw Control Rod using WITHDRAW PB (including CONTINUOUS WITHDRAW PB).	Operator attempts to withdraw Control Rod 10-31 using the WITHDRAW PB, including CONTINUOUS WITHDRAW PB. Operator observes Rod movement.		
*	5.8.11	<p>WITHDRAW the control rod to position 48 AND PERFORM the following while giving the selected Control Rod a continuous withdraw signal: [T/S 4.1.3.6, TS 4.1.3.7]</p> <p>A. OBSERVE the following as indication of the Control Rod being coupled:</p> <ol style="list-style-type: none"> 1. ROD OVERTRAVEL alarm does <u>NOT</u> annunciate. 2. Red Full Out light illuminates on the Full Core Display. 3. RPIS indicates the Control Rod is full out (48). 4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod. 5. Stall flow reaches a steady value. 	<p>Operator withdraws the control rod to position 48 AND performs the following while giving the selected Control Rod a continuous withdraw signal:</p> <p>OBSERVE the following as indication of the Control Rod being coupled:</p> <ol style="list-style-type: none"> 1. ROD OVERTRAVEL alarm does <u>NOT</u> annunciate. 2. Red Full Out light illuminates on the Full Core Display. 3. RPIS indicates the Control Rod is full out (48). 4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod. 5. Stall flow reaches a steady value. <p>Examiner Cue: If asked about Stall Flow value, inform the operator that it is normal.</p>		

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# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		B. IF this is the first withdrawal, INDICATE on Attachment 4 the condition of Coupling Check.	Operator enters SAT on Attachment 4 for the Coupling Check for 10-31.		
		C. IF this is the first withdrawal, INDICATE on Attachment 4 the required drive water pressure for initial movement.	Operator indicates on Attachment 4 the drive pressure as indicated on CRIDS for the movement of 10-31.		
# *	5.8.12	INSERT the selected rod to 00, at the ROD SELECT MODULE, PRESS AND HOLD the INSERT PB AND OBSERVE the following: A. The INSERT (white) light comes ON.	Operator inserts 10-31 to 00 by pressing and holding the INSERT PB and observing: The INSERT (white) light comes ON.		
		B. CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.	CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.		
		C. Full Core Display FULL OUT (red) light goes OUT, as applicable.	Full Core Display FULL OUT (red) light goes OUT, as applicable.		
		D. <u>WHEN</u> the rod reaches the desired position, the INSERT light goes OUT <u>AND</u> the SETTLE light comes ON.	When the rod reaches 00, the operator releases the INSERT PB and observes the INSERT light goes OUT <u>AND</u> the SETTLE light comes ON.		
		E. <u>AFTER</u> ≈ 6 seconds, the SETTLE light goes OUT.	<u>AFTER</u> ≈ 6 seconds, the operator observes that the SETTLE light goes OUT.		

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	5.8.13	<u>IF</u> time permits, <u>THEN REPEAT</u> Steps 5.8.7 through 5.8.12 until either the stall flow promptly goes to its normal value <u>OR</u> the control rod has been fully withdrawn five times.	Operator determines that fully withdrawing the control five times is not required, since stall flow was normal.		
	5.8.14	RECORD the Final Control Rod Position <u>AND ENTER</u> initials for performance on Attachment 4.	Operator enters 00 as the final position for 10-31 on Attachment 4.		
	5.8.15	REPEAT Steps 5.8.6 through 5.8.14 for each of the desired Control Rods.	Operator states that 10-31 has been exercised IAW HC.OP-SO.SF-0001.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Preparations for a Reactor startup are in progress IAW HC.OP-IO.ZZ-0002(Q).
2. The Reactor is shutdown and all rods are inserted.
3. Control Rod Exercising is in progress IAW HC.OP-SO.SF-0001(Q), Reactor Manual Control System Operation, Section 5.8. Control rods 02-19 through 10-27 have been exercised. See HC.OP-SO.SF-0001(Q) provided.

INITIATING CUE:

Exercise Control Rod 10-31 for the first time IAW HC.OP-SO.SF-0001(Q). Another operator will continue with the remaining Control Rods.

JOB PERFORMANCE MEASURE
SIMULATOR INSTRUCTIONS

Reset to IC-14

Insert Malfunction: CD031031

Insert Event Trigger #1: zdlccins
dmf CD031031

Markup HC.OP-SO.SF-0001:

1. Complete Attachment 5a
2. Fill in steps 5.8.1-5.8.5
3. Complete entries in Attachment 4 for rods 02-19 through 10-27
4. Lock the Mode Switch in REFUEL
5. Bypass the RWM

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormals & Control Room Alarm Responses

TASK: Respond To A Low Turbine Hydraulic Pressure

TASK NUMBER: 4000570401

INITIAL CONDITIONS:

1. Plant is operating at 100% power.

INITIATING CUE:

Swap the in-service EHC pumps.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Abnormals & Control Room Alarm Responses
 TASK: Respond To A Low Turbine Hydraulic Pressure

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains and locates procedure HC.OP-SO.CH-0001.	Operator obtains the correct procedure.		
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. Examiner Cue: If excessive time is taken to review precautions and limitations, inform operator that all are satisfied.		
		Operator determines beginning step of the procedure.	Operator determines correct beginning step of procedure to be 5.15.		
	5.15.1	ENSURE all prerequisites of Section 2.15 are satisfied.	Operator ensures that all prerequisites have been satisfied. Examiner Cue: If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.		
	5.15.2	STATION an equipment operator at the EHC Skid to monitor pump performance during swap.	Examiner Cue: Inform the operator that an equipment operator is standing by to monitor pump performance.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Abnormals & Control Room Alarm Responses

TASK: Respond To A Low Turbine Hydraulic Pressure

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *	5.15.3	START: _____ PERFORM the following to alternate the EHC Pumps (Panel 10C651C): A. PRESS HYDR FLUID PUMP B(A)P116 MAN push-button <u>AND</u> Observe AUTO lamp extinguish <u>AND</u> MAN lamp backlight illuminates.	Operator presses the HYDR FLUID PUMP BP116 MAN push-button <u>AND</u> observes AUTO lamp extinguishes <u>AND</u> MAN lamp backlight illuminates.		
# *	5.15.3.	B. PRESS HYDR FLUID PUMP B(A)P116 START push-button.	Operator presses the HYDR FLUID PUMP BP116 START push-button and observes the START push-button illuminates.		
	5.15.3	C. OBSERVE that B(A)P116, HYDR FLUID PUMP, starts <u>AND</u> develops flow, as indicated by AI-6427B(A), MOTOR AMPS, for both pumps indicating approximately the same current.	Operator observes the BP116, HYDR FLUID PUMP, starts <u>AND</u> develops flow, as indicated by AI-6427B(A), MOTOR AMPS, for both pumps indicating approximately the same current.		
# *	5.15.3	D. VERIFY HYDR FLUID PUMP A(B)P116 is in manual <u>AND</u> the AUTO lamp is extinguished <u>AND</u> MAN lamp backlight is illuminated.	Operator presses the AP116 MAN push-button <u>AND</u> observes AUTO lamp extinguishes <u>AND</u> MAN lamp backlight illuminates.		

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Abnormals & Control Room Alarm Responses

TASK: Respond To A Low Turbine Hydraulic Pressure

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *	5.15.3	E. PRESS HYDR FLUID PUMP A(B)P116 STOP push-button	Operator presses the AP116 STOP push-button <u>AND</u> observes the START lamp extinguish <u>AND</u> STOP lamp backlight illuminates. Note: The operator may notice the reduction of system pressure at any time while performing the following.		
*	5.15.3	F. OBSERVE that A(B)P116, HYDR FLUID PUMP, stops <u>AND</u> that B(A)P116, HYDR FLUID PUMP, maintains system pressure. (1550 - 1700 psig using CRIDS Point A3290 <u>OR</u> equivalent)	Operator observes that AP116, HYDR FLUID PUMP, stops <u>AND</u> that BP116, HYDR FLUID PUMP, maintains system pressure. (1550 - 1700 psig using CRIDS point A3290 <u>OR</u> equivalent)		

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Abnormals & Control Room Alarm Responses

TASK: Respond To A Low Turbine Hydraulic Pressure

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	5.15.3	G. <u>IF</u> the B(A)P116, HYDR FLUID PUMP, fails to maintain system pressure, <u>THEN IMMEDIATELY START</u> A(B)P116, HYDR FLUID PUMP. STOP TIME: _____	Operator observes that the BP116, HYDR FLUID PUMP, fails to maintain system pressure. <u>THEN IMMEDIATELY STARTS</u> AP116, HYDR FLUID PUMP by PRESSING HYDR FLUID PUMP AP116 START push-button and observing that the pump starts AND develops flow, as indicated by AI-6427A, MOTOR AMPS, for both pumps indicating approximately the same current. Examiner Cue: If asked, direct the operator to start the AP116, "A" HYDR FLUID PUMP. Examiner Note: Starting the AP116, HYDR FLUID PUMP will prevent low pressure alarm. If the low pressure alarm is received, then consider this step UNSAT.		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- 1. Plant is operating at 100% power.**

INITIATING CUE:

Swap the in-service EHC pumps.

JOB PERFORMANCE MEASURE
SIMULATOR INSTRUCTIONS
(OPTIONAL)

1. INITIALIZE THE SIMULATOR INTO IC-1
2. INSERT MALFUNCTION, TC16 EHC pump discharge filter plugging, @ 100% ON ET-1
3. INSERT REMOTE FUNCTIONS, TC05 EHC pump A discharge filter replacement AND TC06 EHC pump B discharge filter replacement @ REPLACE. BOTH ON ET-2.
4. SET ET-1 TO ZDTUEHTA.
5. SET ET-2 TO ZDTUEHSA Command: dmf tc16.

WHEN THE "A" EHC PUMP IS STOPPED ENSURE ET-1 BECOMES ACTIVE.

WHEN "A" EHC PUMP IS STARTED ENSURE ENSURE ET-2 BECOMES ACTIVE AND TC16 IS DELETED.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Recirculation System

TASK: Conduct Reactor Recirculation Two Loop Operation
Raise Reactor Recirculation Pump Speed >100%

TASK NUMBER: 2020130101

INITIAL CONDITIONS:

Hope Creek is operating near the end of the Operating Cycle.

INITIATING CUE:

Raise Recirculation flow to 104% Total Core Flow. Do not exceed 104 Mlbm/hr Recirculation Flow. Limit the power rise to $\leq 1\%$ /minute.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Recirculation System

TASK: Conduct Reactor Recirculation Two Loop Operation / Raise Reactor Recirculation Pump Speed >100%

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains/locates procedure HC.OP-SO.BB-0002	Operator obtains the correct procedure.		
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
		Operator determines beginning step of the procedure.	Operator determines correct beginning step of procedure to be 5.2.5.		
		START TIME: _____			
# *	5.2.5	To CONTROL Recirc Pumps speed above 100% Total Core Flow: A. Intermittently PRESS SIC-R620 MASTER SPEED INCREASE push button <u>UNTIL</u> 102% Total Core Flow is reached.	Operator intermittently presses the SIC- R620 MASTER SPEED INCREASE push button <u>UNTIL</u> 102Mlbm/hr Total Core Flow is reached. Examiner Note: Rate of power change should not exceed 1%/min.		
# *		B. PRESS SIC-R621A PUMP A SPD CONT MANUAL push button.	Operator presses the SIC-R621A PUMP A SPD CONT MANUAL push button and observes that the MAN push button is illuminated.		
# *		C. PRESS SIC-R621B PUMP B SPD CONT MANUAL push button.	Operator presses the SIC-R621B PUMP B SPD CONT MANUAL push button and observes that the MAN push button is illuminated.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Recirculation System

TASK: Conduct Reactor Recirculation Two Loop Operation / Raise Reactor Recirculation Pump Speed >100%

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *		D. INCREASE Recirculation Pumps speed to 105% Total Core Flow, as necessary, by intermittently pressing SIC-R621A PUMP A SPD CONT AND SIC-R621B PUMP B SPD CONT INCREASE push buttons until desired speed is reached.	Operator raises Recirculation Pumps speed to 104% Total Core Flow (104 Mlbm/hr), as necessary, by intermittently pressing SIC-R621A PUMP A SPD CONT AND SIC-R621B PUMP B SPD CONT INCREASE push buttons until desired speed is reached. Examiner Note: Rate of power change should not exceed 1%/min. Operator informs the CRS that Total Core Flow is 104 Mlbm/hr.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

Hope Creek is operating near the end of the Operating Cycle.

INITIATING CUE:

Raise Recirculation flow to 104% Total Core Flow. Do not exceed 104 Mlbm/hr Recirculation Flow. Limit the power rise to $\leq 1\%$ /minute.

JOB PERFORMANCE MEASURE
SIMULATOR INSTRUCTIONS

Reset simulator to IC-2

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Feedwater
TASK: Start a Secondary Condensate Pump
Place 2nd Secondary Condensate Pump In-service
TASK NUMBER: 2590020101
JPM NUMBER: [RO B.1.d]

ALTERNATE PATH: K/A NUMBER: 256000A4.01
IMPORTANCE FACTOR: 3.3 3.3
RO SRO
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AE-0001(Q), Rev.: 30

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: (14) Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A

JPM PERFORMED BY: _____ GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump
Place 2nd Secondary Condensate Pump In-service

TASK NUMBER: 2590020101

INITIAL CONDITIONS:

1. A plant startup is in progress IAW HC.OP-IO.ZZ-0003.
2. Reactor pressure is 500 psig.

INITIATING CUE:

Start the second Secondary Condensate Pump BP102 IAW HC.OP-SO.AE-0001(Q).

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains and locates procedure HC.OP-SO.AE-0001.	Operator obtains the correct procedure.		
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. Examiner Cue: If excessive time is taken to review precautions and limitations, inform operator that all are satisfied.		
	5.1.1	ENSURE all prerequisites of Section 2.1 are satisfied.	Operator may review prerequisites of Section 2.1 are satisfied. Examiner Cue: If excessive time is taken to review the prerequisites, inform operator that all are satisfied.		
		Operator determines beginning step of the procedure.	Operator determines correct beginning step of procedure to be 5.1.17.		
	5.1.17	<u>WHEN</u> required by HC.OP-IO.ZZ-0003(Q), Startup from Cold Shutdown to Rated Power THEN REFER TO Step 5.1.11 AND START additional Secondary Condensate Pump.	Operator refers to Step 5.1.11.		

OPERATOR TRAINING PROGRAM
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NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME: _____			
	5.1.11	<p>WHEN required by HC.OP-IO.ZZ-0003(Q), Startup from Cold Shutdown to Rated Power START the first Secondary Condensate Pump A(B,C)P137, as follows:</p> <p>A. ENSURE at least two Primary Condensate Pumps are running.</p>	Operator observes that 2 Primary Condensate Pumps are in operation.		
		<p>B. START lube oil system for Secondary Condensate Pump A(B,C) as follows:</p> <p>1. OBSERVE LI-1671A(B,C), Secondary Condensate Pump Lube Oil Reservoir Level, indicates a normal level between LOW and HIGH marks (local).</p>	<p>Operator directs a field operator to verify that Lube Oil Reservoir level is normal on LI-1671B.</p> <p>Examiner Cue: As the field operator, report that LI-1671B indicates that SCP "B" Lube Oil reservoir level is normal.</p>		
*		<p>2. PRESS SEC CNDS PUMP A(B,C) AUX LUBE OIL PMP START push-button.</p>	Operator depresses SEC CNDS PUMP AUX LUBE OIL PUMP BP153 START PB and verifies the START indicator is illuminated.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		3. OBSERVE PI-1669A(B,C), AUX LUBE Condensate Pump A(B,C) Oil Pressure, indicates approximately 7 to 9 psig (local).	Operator directs a field operator to verify that Aux Lube Oil Pump Discharge Pressure is 7-9 psig on PI-1669B. Examiner Cue: As the field operator, report that PI-1669B indicates 9 psig.		
		C. ENSURE HV-1651A(B,C), SEC CNDS PUMP A(B,C) DISCH VLV, for the pump to be run is closed.	Operator observes that HV-1651B CLOSE indicator is illuminated and OPEN indicator is extinguished.		
		D. OBSERVE SEC CNDS PUMP A(B,C) START ENABLE is illuminated.	Operator observes SEC CNDS PUMP B START ENABLE indicator is illuminated.		
		E. ENSURE valve FV-1650A(B,C), MIN FLOW VALVE FLOW CONTROL (FIC-1650A(B,C)), is in AUTO with a setpoint of 5500 gpm. (Local Panel A(B,C)C102).	Operator directs a field operator to verify that FV-1650B Flow Controller is in AUTO and set at 5500 gpm. Examiner Cue: As the field operator, report that FV-1650B is in AUTO and the STPT is 5500 gpm at local panel AC102.		

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NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		F. START SEC CNDS Pump A(B,C) <u>AND PERFORM</u> the following: 1. OBSERVE FV-1650A(B,C), SEC CNDS PUMP A(B,C) MIN FLOW VLV OPEN, is illuminated.	Operator depresses SEC CNDS PUMP BP137 START PB and observes the START indicator is illuminated and the STOP indicator is extinguished. Operator observes FV-1650B OPEN indicator is illuminated and CLOSE indicator is extinguished. Examiner Note: Depressing the SEC CNDS PUMP BP137 START PB is critical.		
		2. OBSERVE AI-6317A(B,C), SEC CNDS PUMP A(B,C) MOT AMPS, indicates < 279 amps (<481 amps for CP137).	Operator observes that BP137 Motor Current on AI-6317B indicates approximately 150 amps.		
		G. PRESS SEC CNDS Pump A(B,C) AUX LUBE OIL PMP STOP push- button.	Operator depresses "B" AUX LUBE OIL PUMP BP153 STOP PB and observes the STOP indicator is illuminated and START indicator is extinguished.		
		H. PRESS SEC CNDS Pump A(B,C) AUX LUBE OIL PMP AUTO push- button.	Operator depresses "B" AUX LUBE OIL PUMP AUTO PB and observes the AUTO indicator is illuminated and the MAN indicator is extinguished. Examiner Note: <u>IF</u> the operator requests Chemistry to place another demineralizer in service, INSERT RT-1 .		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		I. <u>IF</u> TWO Secondary Condensate Pumps are now in service <u>THEN</u> PRESS AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC CLOSE PB.	Operator depresses the AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC CLOSE push button and observes that the CLOSE push button is illuminated and the AUTO push button is extinguished.		
	5.1.12	TAKE manual control of feedwater as follows: PRESS the START UP LEVEL CONTROLLER A/M push-button as required to place controller in manual ("M" (manual) light illuminated).	Operator presses the START UP LEVEL CONTROLLER A/M push button as required to place controller in manual and observes the "M" (manual) light is illuminated.		
	5.1.13	OPEN HV-1651A(B,C), SEC CNDS PUMP DISCH VALVE.	Operator opens HV-1651B SEC CNDS PUMP DISCH VALVE.		
	5.1.14	CLOSE HV-1654, SEC CONDENSATE PUMP BYP.	Operator observes that HV-1654, SEC CONDENSATE PUMP BYP is closed.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.15	Intermittently PRESS START UP LEVEL CONTROLLER "DMND" INCREASE <u>OR</u> DECREASE push-button's as required to attain desired stable Reactor Vessel level as directed by Integrated Operating Procedure.	Operator intermittently presses the START UP LEVEL CONTROLLER "DMND" INCREASE <u>OR</u> DECREASE push-button's as required to attain desired stable Reactor Vessel level as directed by Integrated Operating Procedure. Examiner Cue: If asked for a desired RPV level, respond, Desired level is 35 inches.		
	5.1.16	<u>WHEN</u> desired stable Reactor Vessel level is attained, <u>THEN PLACE</u> START UP LEVEL CONTROLLER in AUTO as follows: A. On MASTER LEVEL CONTROLLER PRESS "SEL" (select) push-button as necessary to select SPT (level setpoint).	When RPV level is stable at 35 inches, the operator places the START UP LEVEL CONTROLLER in AUTO by pressing the "SEL" (select) push-button as necessary to select SPT (level setpoint).		
		B. On MASTER LEVEL CONTROLLER, PRESS LVL SPT INC <u>OR</u> DECR push-buttons as required to establish the desired REACTOR Level Setpoint.	On the MASTER LEVEL CONTROLLER, the operator presses the LVL SPT INC <u>OR</u> DECR push-buttons as required to establish the desired REACTOR Level Setpoint(35").		

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump/ Place 2nd Secondary Condensate Pump In-service

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		C. On MASTER LEVEL CONTROLLER, PRESS "SEL" push-button as necessary to select LEVEL ERROR. (Level Error should be Zero.) • <u>IF</u> required, REPEAT Steps 5.1.16.A & B <u>UNTIL</u> level error is Zero.	On MASTER LEVEL CONTROLLER, the operator presses the "SEL" push-button as necessary to select LEVEL ERROR and observes that the Level Error is zero. If not, the operator repeats Steps 5.1.16.A & B <u>UNTIL</u> level error is Zero.		
		D. PRESS the A/M push-button on STARTUP LEVEL CONTROLLER ("A" auto light should be illuminated).	Operator presses the A/M push-button on STARTUP LEVEL CONTROLLER and observes the "A" auto light is illuminated.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- 1. A plant startup is in progress IAW HC.OP-IO.ZZ-0003.**
- 2. Reactor pressure is 500 psig.**

INITIATING CUE:

Start the second Secondary Condensate Pump BP102 IAW HC.OP-SO.AE-0001(Q).

JOB PERFORMANCE MEASURE
SIMULATOR INSTRUCTIONS

Reset to IC-10

Insert Remote Function: FW03 IN on Remote Trigger #1

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Reactor Protection
TASK: Defeat RPS Interlocks
TASK NUMBER: 2001040501
JPM NUMBER: 305H-JPM.SB-012-02 [RO B.1.e]

ALTERNATE PATH: K/A NUMBER: 295037EA1.01
IMPORTANCE FACTOR: 4.6 4.6
RO SRO
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-EO.ZZ-0320, Rev. 2

TOOLS AND EQUIPMENT: EOP-320 Implementation Kit

VALIDATED JPM COMPLETION TIME: 6 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A

JPM PERFORMED BY: _____ GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Protection

TASK: Defeat RPS Interlocks

TASK NUMBER: 2001040501

INITIAL CONDITIONS:

1. The plant has experienced a failure to scram.
2. All scram valves have opened but the Scram Discharge Volume is full.
3. RPV level is being maintained at -50 inches.
4. HC.OP-EO.ZZ-0101, Reactor/Pressure Vessel (RPV) Control, is being executed.
5. Draining the SDV and attempting a manual scram is required.

INITIATING CUE:

Using the Implementation Kit provided, defeat RPS interlocks IAW HC.OP-EO.ZZ-0320.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Reactor Protection
 TASK: Defeat RPS Interlocks

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains/locates procedure HC.OP-EO.ZZ-0320.	Examiner Cue: Provide the operator with the EOP-320 Procedure and Implementation Kit.		
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. Examiner Cue: If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.		
	5.2	<u>Defeating RPS Interlocks</u>	Operator determines correct beginning step to be 5.2.		
	5.2.1	ENSURE that Prerequisites have been satisfied IAW Section 2.2.	Operator ensures that prerequisites have been satisfied. Operator verifies power is available to RPS by observing the Normal and Alternate Power Supply lamps are illuminated on 10-C610. Examiner Cue: If asked, inform operator that section 2.1 of the procedure, defeating ARI Interlocks has been performed. Examiner Cue: If excessive time is taken ensuring the prerequisites are complete, inform operator that all are satisfied.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection
TASK: Defeat RPS Interlocks

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		START TIME: _____			
*	5.2.2	On H11-P609, front, Division 1, left test box, INSERT a jumper between test point C71A-K10A-2A (first column-first row, red jack) and test point C71A-K12E-2B (fourth column-second row, black jack).	Operator installs jumper between test points C71A-K10A-2A and C71A-K12E-2B.		
*	5.2.3	On H11-P609, front, Division 3, left test box, INSERT a jumper between test point C71A-K10C-2A (third column-fourth row, red jack) and test point C71A-K12G-2B (fourth column-third row, black jack).	Operator installs jumper between test points C71A-K10C-2A and C71A-K12G-2B.		
*	5.2.4	On H11-P611, front, Division 2, left test box, INSERT a jumper between test point C71A-K10B-2A (fourth column-fourth row, red jack) and test point C71A-K12F-2B (first column-second row, black jack).	Operator installs jumper between test points C71A-K10B-2A and C71A-K12F-2B.		
*	5.2.5	On H11-P611, front, Division 4, left test box, INSERT a jumper between test point C71A-K10D-2A (third column-third row, red jack) and test point C71A-K12H-2B (fourth column-second row, black jack).	Operator installs jumper between test points C71A-K10D-2A and C71A-K12H-2B.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant has experienced a failure to scram.
2. All scram valves have opened but the Scram Discharge Volume is full.
3. RPV level is being maintained at -50 inches.
4. HC.OP-EO.ZZ-0101, Reactor/Pressure Vessel (RPV) Control, is being executed.
5. Draining the SDV and attempting a manual scram is required.

INITIATING CUE:

Using the Implementation Kit provided, defeat RPS interlocks IAW HC.OP-EO.ZZ-0320.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Instrument Air System
TASK: Manually Operate The Emergency Instrument Air Compressor
TASK NUMBER: 2780040201
JPM NUMBER: [SRO(U) B.1.b-RO B.1.f]

ALTERNATE PATH: K/A NUMBER: 295019AA1.01
IMPORTANCE FACTOR: $\frac{3.5}{RO}$ $\frac{3.3}{SRO}$
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001(Q), Rev.: 0
HC.OP-AB.ZZ-0131(Q), Rev.: 18

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: (2) Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION: _____ N/A

JPM PERFORMED BY: _____ GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Instrument Air System

TASK: Manually Operate The Emergency Instrument Air Compressor

TASK NUMBER: 2780040201

INITIAL CONDITIONS:

1. A leak has developed in the Instrument Air System.
2. HC.OP-AB.ZZ-0131, Loss of Instrument Air and/or Service Air, is being performed.
3. The Emergency Instrument Air Compressor (EIAC) has failed to automatically start.

INITIATING CUE:

Start the Emergency Instrument Air Compressor (EIAC).

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Instrument Air System
TASK: Manually Operate The Emergency Instrument Air Compressor

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
			Examiner Note: The operator can chose to use either HC.OP-AB.ZZ-0001 or HC.OP-AB.ZZ-0131 as guidance to start the EAIC.		
		<u>HC.OP-AB.ZZ-0001</u>			
		Operator obtains and locates procedure HC.OP-AB.ZZ-0001 Hard Card on 10C650A.	Operator obtains the correct procedure.		
		START TIME: _____			
# *	1.0	PLACE the 10K100 (Emergency Instrument Air Compressor) in service as follows: A. PRESS the 10K100 MAN PB.	Operator depresses the 10K100 MAN push button and observes that the EAIC did not start.		
# *		B. IF the 10K100 did not start or tripped THEN PERFORM the following: 1. PRESS AND HOLD 10K100 STOP PB for five seconds to clear the trip logic.	Operator depresses and holds the 10K100 STOP push button for at least 5 seconds.		
# *		2. PRESS the 10K100 START Pb	Operator depresses the 10K100 START push button and observes that the EAIC starts and informs the CRS. Examiner Cue: Provide Terminating Cue.		
		STOP TIME: _____			

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Instrument Air System
TASK: Manually Operate The Emergency Instrument Air Compressor

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		<u>HC.OP-AB.ZZ-0131</u>			
		START TIME: _____			
		Operator obtains and locates procedure HC.OP-AB.ZZ-0131.	Operator obtains the correct procedure.		
# *	4.5	IF the EIAC failed to start <u>THEN</u> PERFORM the following: <ul style="list-style-type: none">PRESS the MAN PB (the EIAC should start),	Operator depresses the 10K100 MAN push button and observes that the EAIC did not start.		
		<ul style="list-style-type: none">IF the EIAC did not start or tripped,		N/A	N/A
# *		THEN PRESS AND HOLD the STOP PB for 5 seconds to clear the trip logic,	Operator depresses and holds the 10K100 STOP push button for at least 5 seconds.		
# *		<ul style="list-style-type: none">PRESS the START PB	Operator depresses the 10K100 START push button and observes that the EAIC starts and informs the CRS.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- 1. A leak has developed in the Instrument Air System.**
- 2. HC.OP-AB.ZZ-0131, Loss of Instrument Air and/or Service Air, is being performed.**
- 3. The Emergency Instrument Air Compressor (EIAC) has failed to automatically start.**

INITIATING CUE:

Start the Emergency Instrument Air Compressor (EIAC).

JOB PERFORMANCE MEASURE
SIMULATOR INSTRUCTIONS

Restart the MST in the **Development Load**

Reset to IC-1.

Set yp:flag(40)=1

EVENT TRIGGERS:

<i>Initial</i>	ET #	Description
___	1.	EVENT ACTION: ZDIAKCE COMMAND: SET YP:FLAG(40) = 0 PURPOSE: RESETS EAIC TRIPS WHEN STOP PB IS DEPRESSED

MALFUNCTION SUMMARY:

<i>Initial</i>	Description	Delay	Ramp	Remote/Event	Init	Final
___	1. IA02 GRADUAL LOSS OF INSTRUMENT AIR					60
___	2. IA01B SERVICE AIR COMPRESSOR B FAILURE					

Acknowledge alarms

Freeze the simulator when below 84-psig Instrument Air pressure and the EAIC has not started.

APPROVED:

[Signature]
Manager - Hope Creek Operations

7/18/01

Date

CATEGORY II

TRANSIENT PLANT CONDITIONS

1.0 SYMPTOMS

Transient condition requiring entry into an AOP or EOP.

2.0 AUTOMATIC ACTIONS

None

3.0 IMMEDIATE OPERATOR ACTIONS

None

4.0 SUBSEQUENT OPERATOR ACTIONS

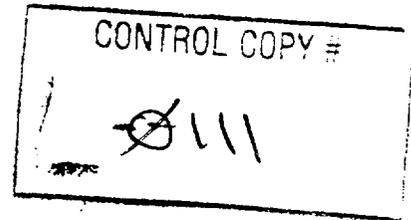
REFER TO appropriate Attachment

5.0 DISCUSSION

The following attachments are posted at the desired operating station to allow quick access should a plant transient occur requiring their usage:

- Attachment 1 - Reactor Scram
- Attachment 2 - A(B) RHR Drywell Spray
- Attachment 3 - A(B) RHR Torus Cooling/Spray
- Attachment 4 - A(B,C,D) LPCI Injection
- Attachment 5 - A(B) Core Spray Loop
- Attachment 6 - RCIC Injection /
RCIC Full Flow Test Operation/
HPCI Injection /
HPCI Full Flow Test Operation

- Attachment 7 - Service Air Operation
- Attachment 8 - 10K100 Operation
- Attachment 9 - Post LOCA PCIG System Operation
- Attachment 10 - TACS Transfer to A(B) Loop
- Attachment 11 - SJAE Swap to A(B)
- Attachment 12 - Post LOCA 480VAC Operation
- Attachment 13 - SRV/ADS Operation



ATTACHMENT 8

10K100 Operation

- 1.0 **PLACE** the 10K100 (Emergency Instrument Air Compressor) in service as follows: _____
 - A. **PRESS** the 10K100 MAN PB. _____
 - B. **IF** the 10K100 did not start or tripped
THEN PERFORM the following: _____
 - 1. **PRESS AND HOLD** 10K100 STOP PB for five seconds to clear the trip logic. _____
 - 2. **PRESS** the 10K100 START PB _____
 - 3. **IF** the 10K100 still fails to start
THEN PERFORM the following: _____
 - a. **PRESS** the 10K100 REMOTE PB _____
 - b. **DISPATCH** an operator to start the 10K100 locally LAW
HC.OP-SO.KB-0001(Q), Instrument Air System Operation. _____

END

PSEG NUCLEAR L.L.C.

HOPE CREEK GENERATING STATION

HC.OP-SO.KJ-0001(Q) - Rev. 35

EMERGENCY DIESEL GENERATORS OPERATION

CONTROL COPY#
111

USE CATEGORY: I

FIELD COPY EXISTS

REVISION SUMMARY

Biennial Review performed Yes ___ No N/A ___

The following changes are considered editorial changes based on an allowance in NC.DM-AP.ZZ-0001(Q) for:

- Changing a procedure to reflect an identical change approved in an equal or higher tier procedure. (HC.OP-ST.KJ-0001(Q), Rev. 46)
 - Rewording or adding text for clarification.
1. **Order 70019025**
Step 5.1.8 - TI-6614-A1(B1, C1, D1) Jacket Water Temperature range has been changed from 105 - 155°F to 105 - 162°F.
 2. **Order 80025709**
The following valves have been revised to add unit and system designators [1-KJ] to eliminate confusion:
 - V-018; Steps 5.1.5.E, 5.1.5.Q, Attachment 1 [Section 5.1]
 - V-019; Table KJ-002, Attachment 1 [Section 5.1]
 - V-020; Table KJ-002, Attachment 1 [Section 5.1]
 - V-021; Table KJ-002, Attachment 1 [Section 5.1]
 - V-022; Table KJ-002, Attachment 1 [Section 5.1]
 3. **Notification 20062525**
Attachment 1, Step 5.11 has been revised to 1-KJ-V236 through 1-KJ-V243; Air Receiver Drain Vlv [this change has been incorporated to conform with actions taken in Step 5.11.5.B].

IMPLEMENTATION REQUIREMENTS

Effective date 10/05/01

Pending approval and issuance of HC.OP-ST.KJ-0001(Q); Revision 46

APPROVED:


Manager - Hope Creek Operations

10/24/01
Date

PSEG NUCLEAR L.L.C.

HOPE CREEK GENERATING STATION

HC.OP-SO.KJ-0001(Q) - Rev. 35

EMERGENCY DIESEL GENERATORS OPERATION

USE CATEGORY: I

FIELD COPY EXISTS

CONTINUATION SHEET

REVISION SUMMARY

4. **NOTE 5.7.4.F** has been re-worded. This change has been incorporated to conform to NC.NA-WG.ZZ-0001(Q); Writers Guide [“never use a Note to convey a required action”].
Editorial change
5. **NOTE 5.9.4.B & 5.9.5.D (Sections B)** have been re-worded without changing the intent.
Editorial change
6. **Order 80026008**
Attachment 2 [page 5 of 7] has been revised to add an additional notation regarding DFOST level.
This change conforms with monthly STs. **Editorial change**

EMERGENCY DIESEL GENERATORS OPERATION

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1.0	PURPOSE	3
2.0	PREREQUISITES	3
3.0	PRECAUTIONS AND LIMITATIONS.....	5
4.0	EQUIPMENT REQUIRED	10
5.0	PROCEDURE.....	11
5.1	Placing EDGs in Standby	11
5.2	EDG Auto Initiation/Observation	21
5.3	Manual Emergency Starting from Control Room.....	23
5.4	Manual Emergency Starting of the EDGs from Remote Panels	25
5.5	Manual Emergency Starting of EDGs from Local Control Panels	27
5.6	Non-Emergency Operation of the EDGs.....	28
5.7	Shutdown of the EDGs.....	34
5.8	Manual Makeup to Lube Oil Crankcase.....	39
5.9	Barring over the EDGs.....	40
5.10	Transferring Lube Oil from EDG Crankcase using L.O. Prelube Keepwarm Pump.....	47
5.11	Makeup to Air Start Subsystem Receivers from Alternate Compressors 1A(B,C,D)-K402	49

EMERGENCY DIESEL GENERATORS OPERATION

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
6.0	RECORDS	52
7.0	REFERENCES.....	52
ATTACHMENTS		
Attachment 1	Independent Verification Worksheet.....	55
Attachment 2	Log Sheet.....	68
Attachment 3	Start/Failure Criteria.....	75

EMERGENCY DIESEL GENERATORS OPERATION

1.0 PURPOSE

This procedure outlines the steps necessary for placing the Emergency Diesel Generators (EDGs) in Standby, Emergency Diesel Generator Automatic Initiation/Observation and Emergency Diesel Generator Manual Operation.

2.0 PREREQUISITES

2.1 Placing EDGs in Standby

- 2.1.1 All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure. _____
- 2.1.2 Emergency Diesel Generator valves and breakers are aligned IAW applicable SAP/WCM operational mode. [CD-445Y] _____
- 2.1.3 Diesel Fuel Oil Storage and Transfer System is in service. _____
- 2.1.4 Safety and Turbine Auxiliary Cooling Water System is in service AND capable of supplying cooling water to the Emergency Diesel Generators. _____
- 2.1.5 Low Pressure Carbon Dioxide System is in service. _____
- 2.1.6 Diesel Area Ventilation System is in service. _____
- 2.1.7 Demineralized Water is available to Jacket Water Sub-System. _____

2.2 EDG Auto Initiation/Verification

None

2.3 Manual Emergency Starting from Control Room

System is in standby IAW Section 5.1. _____

2.4 Manual Emergency Operations of EDGs from Remote Panels

System is in Standby IAW Section 5.1. _____

2.5 Manual Emergency Starting of EDGs from Local Control Panels

System is in Standby IAW Section 5.1. _____

2.6 Non-Emergency Operation of the EDGs

System is in Standby IAW Section 5.1. _____

2.7 Shutdown of the EDGs

None _____

2.8 Manual Makeup to Lube Oil Crankcase

None _____

2.9 Barring over the EDGs

All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure. _____

2.10 Transferring Lube Oil from EDG Crankcase using L.O. Prelube Keepwarm Pump

2.10.1 All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure. _____

2.10.2 Lube Oil Heater is cleared/tagged IAW Table - KJ-010. _____

2.10.3 Sufficient waste oil disposal facilities are available
AND handle IAW NC.NA-AP.ZZ-0037(Q); Environmental Control. _____

2.11 Makeup to Air Start Subsystem Receivers from Alternate Compressors 1A(B,C,D)-K402

All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure. _____

3.0 · PRECAUTIONS AND LIMITATIONS

3.1 Precautions

- 3.1.1 **ENSURE** compliance with operability requirements of Technical Specifications 3/4.8.1.1 - A.C. Sources - Operating or 3/4.8.1.2 - A.C. Sources -Shutdown. _____

- 3.1.2 The 86B - EDG Backup Lockout Relays are powered from their Control Panels Alternate 125 VDC Class 1E Power supply, 1A(B,C,D) D417-16 respectively.
IF this power supply becomes unavailable, compliance with TS surveillance requirement 4.8.1.1.2.h.14.b can not be maintained, AND the respective EDG must be declared inoperable. _____

- 3.1.3 Upon synchronization of Emergency Diesel Generator with the grid, a minimum of 10% load (443 Kw) should be applied immediately to prevent reverse power. [CD-181B] _____

- 3.1.4 IF the Emergency Diesel Generator has been running for a cumulative period of 4 hours at < 20% load (886 Kw), the Emergency Diesel Generator should be loaded to ≥ 85% (3766 Kw) load for at least 1 hour AND before shutdown following any extended low load operation in order to burn out carbon deposits. [CD-181B, CD-319X, CD-309Y, PR 970404138] _____

- 3.1.5 DO NOT transfer lube oil to Lube Oil Makeup Tanks until satisfactory sample results have been obtained. _____

- 3.1.6 DO NOT acknowledge any flashing BREAKER TRIP lights before the EDG BRKR has closed or the EDG BRKR will not close. _____

- 3.1.7 In a non-accident scenario, the Emergency Diesel Generator should be manually tripped upon CO₂ System initiation. _____

- 3.1.8 During an accident/LOCA, the Operator may shutdown the Emergency Diesel Generator, OR run it to provide the necessary minimum power for operation. However, instrumentation/control readings may be erratic, and voltage regulator controls may fluctuate. _____

- 3.1.9 At no time shall more than one Emergency Diesel Generator be in parallel with the grid. [CD-395D] _____

- 3.1.10 All high pressure hoses shall be disconnected with extreme caution due to high pressure air that may be trapped in the lines. _____

- 3.1.11 Unless necessitated by emergency conditions, Crankcase Lube Oil OR Jacket Water used in one Diesel Generator should not be transferred for use to any other Diesel. **CONTACT** the System Engineer prior to any such evolutions. _____

- 3.1.12 During normal operation, IF the Jacket Water temperature decreases below 143°F, a NOTF (notification) should be issued to investigate. _____

- 3.1.13 The Main Lube Oil Sump (Crankcase) oil level must be between the FULL (high) mark and approximately 1½" below the FULL (high) mark on the dipstick when the EDG is shutdown. Oil may be added through the gravity fill connection to raise level to the FULL mark. (35 gals. is required to raise the oil level 1 inch). _____

- 3.1.14 Upon continuous operation of any diesel for two or more days, **ARRANGE** for a new shipment of lube oil. [970903131] _____

- 3.1.15 The Emergency Diesel generators shall not be used for peaking service IAW Section 8.1.7.2 of the UFSAR. [970825224] _____

- 3.1.16 To ensure that actual DFOST level is $\geq 44,800$ gallons, indicated level must be $> 47,000$ gallons. This is due to inaccuracies related to fuel oil specific gravity and temperature. **REFER** to Engineering Calculation SC-JE-0051-1. For more accurate level indication see HC.OP-SO.JE-0001(Q), Attachment 1. [CD-449H] _____

- 3.1.17 Each diesel has two, 100% redundant Voltage Rectifier Sections within each voltage regulator - one is normally in-service and the other remains deenergized in standby. The selection between the "1" or "2" Rectifier Section is accomplished via a Selection Switch located in the 1A(B,C,D)-C-420 Panel(s). [80020863] _____

In the event a local status light indicates a "DIODE FAILURE", the Selector Switch may be used to isolate the failed Rectifier Section and energize the backup rectifier.

The Transfer Switch is NOT designed to operate under any loaded condition. The engine MUST be shutdown prior to switch operation.

3.2 Limitations

- 3.2.1 **ENSURE** all components listed on Attachment 1; Independent Verification Worksheet, which were manipulated and left in a final position, are initialed, indicating an independent verification is required. **PERFORM** the required verifications IAW NC.NA-AP.ZZ-0005(Q) following final restoration. _____

- 3.2.2 The Emergency Diesel Generator is rated for 4430 Kw load, 4160 volts at 0.8 power factor and 60Hz at 514 rpm continuous operation, AND 10% overload (4873 Kw) for 2 hours during a 24 hour period. [CD-319X] _____

- 3.2.3 The Emergency Diesel Generator Operating Log Sheets (Attachment 2) shall be completed anytime an EDG is run for > 15 minutes. _____

- 3.2.4 **OBSERVE** Rocker Arm Lube Oil Tank level (engine) once/shift during EDG operation and weekly during all other times. [CD-335Y] _____

- 3.2.5 The minimum lube oil temperature for EDG operability and EDG non-emergency starts is 120°F. _____

- 3.2.6 The minimum jacket water temperature for the purpose of determining EDG operability and EDG non-emergency starts is 105°F. (A jacket water temperature of 160 - 180°F is the normal range during normal operation.) _____

- 3.2.7 Whenever the EDG engine STOP PB is pressed, OR START/STOP Control Switch placed in STOP, a 140 sec time delay is activated, preventing an engine start until the relay has timed out. The operator should be aware that attempting to start the engine (other than with an emergency start signal), during that period, will actuate the Starting Air System through its normal start sequence for as long as 7 seconds. This could potentially deplete the Air Start Receivers of all available air. _____

- 3.2.8 The order generated to clean fuel oil and lube oil filters or strainers shall require the residue to be analyzed. This analysis is required to determine the source of the contamination and whether there's a need to replace the oil and/or clean the storage tank. [CD-314Y, CD-326Y] _____

3.3 Interlocks

3.3.1 Emergency Diesel Generator auto starts upon receipt of the following signals:

- Voltage at both the 4.16Kv preferred incoming feeder breakers is < 92% of normal voltage. (time delay 20 sec.)
OR
- 4.16Kv bus voltage is < 70% of normal
AND the voltage at both the preferred incoming feeder breakers is < 92% of normal voltage.
OR
- Low-Low Reactor Water Level (-129" inches wide range).
OR
- High Drywell pressure (1.68 psig).
OR
- Manual initiation of Core Spray System
AND
- The following permissives are satisfied:
 - The Barring Device is disconnected.
 - EDG Breaker Failure Lockout Relay (86F) is reset.
 - EDG Backup Lockout Relay (86B) is reset.
 - EDG Regular Lockout Relay (86R) is reset.
 - The Start Failure Relay (SFR) is de-energized.
 - Shutdown Relay (SDR) is de-energized.
 - Control Power Circuits are energized.

3.3.2 Manual operations performed from Local Control Panels are NOT overridden by auto-initiation signals.

3.3.3 An Emergency Diesel Generator trips upon receipt of any of the following signals to the Regular 86R or Backup 86B Lockout Relays: _____

- Engine Overspeed
- Generator Regular Differential Overcurrent
- Generator Backup Differential Overcurrent
- Generator Phase Overcurrent
- Emergency Stop PB
- Lube Oil Pressure Low
- Bus Differential Relay for bus to which EDG is connected.

3.3.4 While in TEST, an Emergency Diesel Generator trips upon receipt of any of the following signals: _____

- Bus Overcurrent
- EDG Reverse Power
- EDG Low Field Current
- EDG Over Excitation

NOTE 3.3.5

Under-frequency trips the Emergency Diesel Generator Output Breaker IF the Diesel Generator is "running in test." A Diesel Generator ground fault functions similarly WHEN "running in test."

3.3.5 The synchronizing check relay will prevent closure of the 4Kv Emergency Diesel Generator Breaker IF incoming AND running voltages are out of phase. _____

4.0 EQUIPMENT REQUIRED

- Key #51 - KIRK - Diesel Emg Takeover/Local Cont. (Work Control)
- Lube Oil Transfer Rig.
- Designated Air Start Subsystem Crosstie Hoses (3) and Tee with installed vent (if available)
- 5/8" Combination Wrench

CAUTION 5.6.9

Upon synchronization, a minimum 10% load (443 Kw) should be applied immediately to prevent reverse power. [CD-319X, CD-309Y]

5.6.9 **SYNCHRONIZE** either from Control Room
OR from Remote Generator Control Panel 1A(B,C,D)-C422 El. 130'
as follows: [CD-297Y]

NOTE 5.6.9

Continuous Operation of the EDGs at less than 840 Kw is not recommended. Prolonged operation under low loads results in carbon deposits inside engine cylinders. [CD-379Y]

- A. **SYNCHRONIZE** from Control Room as follows:
1. **TURN** selected GEN BRKR SYNC CHECK SW ON.
 2. **PRESS** DIESEL ENG GOV DROOP MODE PB AND ENSURE that the DROOP MODE light is on.
 3. IF necessary, **ADJUST** the GENERATOR A(B,C,D) VOLTS slightly higher (0.5 of an increment, approximately 50 Volts) than associated BUS (RUN) VOLTS by pressing GEN VR RAISE OR LOWER PBs. [CD-388H]
 4. **ADJUST** EDG Speed by pressing DIESEL ENG GOV INCR OR DECR until SYNCHROSCOPE pointer is moving **SLOWLY** in the **FAST** (clockwise) direction.
 5. WHEN the SYNCHROSCOPE pointer is at 3 minutes to 12 O'clock position, **CLOSE** 40107(40207,40307,40407) GEN BRKR.

Continued next page

5.6.9.A (continued)

- 6. **RAISE** Generator load to 500 Kw using DIESEL ENG GOV INCR push-button AND ADJUST KiloVar loading to approximately 100 to 500 KvARs using GEN VR INCR OR DECR push-buttons. _____
- 7. **TURN OFF** selected GEN BRKR SYCH CHECK SW. _____

NOTE 5.6.9.A.8

The Emergency Diesel Generator is rated for 4430 Kw load, 4160 volts at 0.8 power factor and 60Hz continuous operation, and 10% overload (4873 Kw) for 2 hours during a 24 hour period. [CD-319X]

The KvAR load may be applied to the Generator incrementally with the Kw loading.

- 8. **RAISE** EDG load in 500 Kw increments by pressing DIESEL ENG GOV INCR PB, (STOP at 1000 Kw increments for 3 to 5 minutes to stabilize pressures and temperatures). [CD-931D] _____
- 9. **USING** GEN VR RAISE OR LOWER PBs, **ADJUST** Generator Reactive Load (KvARS) as directed by OS/CRS. [CD-225G] _____

NOTE 5.6.9.B

IF the EMERGENCY TAKEOVER Switch is in the EMERGENCY TAKEOVER position, synchronizing is not required from Remote Generator Control Panel 1A(B,C,D)-C422 El. 130'.

- B. **SYNCHRONIZE** from Remote Generator Control Panel 1A(B,C,D)-C422 El. 130' as follows: _____
 - 1. **PUSH** REMOTE PB at 10C651E. _____
 - 2. **TURN** SYNCHRONIZING SWITCH ON. _____
 - 3. **VERIFY** the DIESEL ENG GOV DROOP MODE light is ON. _____

Continued next page

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generators

TASK: Perform Non-Emergency Operation of the Diesel Generators

TASK NUMBER: 2640030101

INITIAL CONDITIONS:

1. The plant is at power.
2. A manual start and synchronization of the "B" Diesel Generator is required.
3. Load dispatcher has been informed of parallel grid operation.
4. "B" Diesel Generator is not required to be barred over.
5. All fluid level and mechanical pre-start checks and Rocker Arm Prelube Pump checks at the Remote Panel (El. 130') have been completed.
6. "B" Diesel Generator was started from the Control Room IAW HC.OP-SO.KJ-0001, Section 5.6, Non-Emergency Operation of the EDGs.

INITIATING CUE:

Synchronize and load the B EDG to 2000 KW and 500-1000 KVAR.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Diesel Generators
TASK: Perform Non-Emergency Operation of the Diesel Generators

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator reviews precautions and limitations.	Operator reviews all precautions and limitations. Examiner Cue: If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied. Examiner Note: This procedure is a Category I procedure, however, it is not critical to initial the appropriate steps.		
		Operator determines correct section of procedure.	Operator determines correct section of procedure to be Step 5.6.9.		
		START TIME: _____			
*	5.6.9	SYNCHRONIZE either from Control Room <u>OR</u> from Remote Generator Control Panel 1A(B,C,D)-C422 El. 130' as follows: [CD-297Y] A. SYNCHRONIZE from Control Room as follows: 1. TURN selected GEN BRKR SYNC CHECK SW ON.	Examiner Note: Upon synchronization, a minimum 10% load (approx. 443 KW) should be applied immediately to prevent reverse power. Operator inserts key into Gen BRKR Sync check SW, turns B EDG GEN BRKR SYNC CHECK SW (sync checkswitch) ON, and observes phase indicators illuminate. Operator initials appropriate step.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Diesel Generators

TASK: Perform Non-Emergency Operation of the Diesel Generators

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		2. PRESS DIESEL ENG GOV DROOP MODE PB AND ENSURE that the DROOP MODE light is on.	Operator presses the B diesel generator DROOP MODE Pb and verifies the indicator is illuminated. Operator initials appropriate step.		
		3. IF necessary, ADJUST the GENERATOR A(B,C,D) VOLTS slightly higher (0.5 of an increment, approximately 50 Volts) than associated BUS (RUN) VOLTS by pressing GEN VR RAISE <u>OR</u> LOWER PBs. [CD-388H]	Operator adjusts B generator voltage as indicated on VI6411B slightly higher than Bus volts as indicated on VI6412B USING GEN VR RAISE/LOWER Pb. Operator initials appropriate step.		
*		4. ADJUST EDG Speed by pressing DIESEL ENG GOV INCR <u>OR</u> DECR until SYNCHROSCOPE pointer is moving SLOWLY in the FAST (clockwise) direction.	Operator Adjusts B diesel speed by pressing DIESEL ENG GOV INCR/DECR Pbs such that the synchroscope pointer moves slowly in the fast direction (clockwise). Operator initials appropriate step.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Diesel Generators
TASK: Perform Non-Emergency Operation of the Diesel Generators

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *		5. <u>WHEN</u> the SYNCHROSCOPE pointer is at 3 minutes to 12 O'clock position, CLOSE 40107 (40207,40307,40407) GEN BRKR.	Operator closes B generator breaker (40207) when synchroscope pointer is at 3 minutes to 12 o'clock position. GEN BRKR CLOSE indicator illuminates and the trip indicator extinguishes. Synchroscope rotation stops. Operator initials appropriate step.		
# *		6. RAISE Generator load to 500 Kw using DIESEL ENG GOV INCR push-button <u>AND</u> ADJUST KiloVar loading to approximately 100 to 500 KvaR using GEN VR INCR <u>OR</u> DECR push-buttons.	Operator increases B generator load to ~500KW as indicated on WI6394B by pressing DIESEL ENG GOV INCR Pb., and adjusts KiloVar loading to 100-500 KvaR as indicated on VARI6395B using GEN VR INC <u>OR</u> DEC Pbs. Operator initials appropriate step.		
		7. TURN OFF selected GEN BRKR SYCH CHECK SW.	Operator turns key to turn off the "B" GEN BRKR SYCH CHECK SW. Operator initials appropriate step.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Emergency Diesel Generators
TASK: Perform Non-Emergency Operation of the Diesel Generators

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		8. RAISE EDG load in 500 Kw increments by pressing DIESEL ENG GOV INCR PB, (STOP at 1000 Kw increments for 3 to 5 minutes to stabilize pressures and temperatures). [CD-931D]	Examiner Note: The KVAR load may be applied to the Generator incrementally with the Kw loading. Operator Increases B generator load to 2000 KW in 500KW increments (STOP at 1000 KW increments for 3 to 5 minutes to stabilize pressures and temperatures) by depressing DIESEL ENG GOV INCR Pb and observing WI6394B. Operator initials appropriate step.		
*		9. USING GEN VR RAISE <u>OR</u> LOWER PBs, ADJUST Generator Reactive Load (KVARS) as directed by OS/CRS. [CD-225G] STOP TIME: _____	Operator Increases B generator Reactive Load to 500-1000 KVAR using GEN VR RAISE/LOWER Pbs and observing Gen VR indicator VARI6395B. Operator initials appropriate step.		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at power.
2. A manual start and synchronization of the "B" Diesel Generator is required.
3. Load dispatcher has been informed of parallel grid operation.
4. "B" Diesel Generator is not required to be barred over.
5. All fluid level and mechanical pre-start checks and Rocker Arm Prelube Pump checks at the Remote Panel (EI. 130') have been completed.
6. "B" Diesel Generator was started from the Control Room IAW HC.OP-SO.KJ-0001, Section 5.6, Non-Emergency Operation of the EDGs.

INITIATING CUE:

Synchronize and load the B EDG to 2000 KW and 500-1000 KVAR.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Reactor Protection System
TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set
RPS MG Set Failure To Start
TASK NUMBER: 2120050101
JPM NUMBER: [RO B.2.a]

ALTERNATE PATH: K/A NUMBER: 212000A2.01
IMPORTANCE FACTOR: 3.7 3.9
RO SRO
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Auxilliary Building/Simulate

REFERENCES: HC.OP-SO.SB-0001(Q) Rev. 16

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: (5) Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION: _____ N/A

JPM PERFORMED BY: _____ GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set
RPS MG Set Failure To Start

TASK NUMBER: 2120050101

INITIAL CONDITIONS:

1. RPS B is being powered from the ALTERNATE B FEED.
2. Maintenance has been completed on 1BG401, RPS MG SET B.
3. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 5.5.2.D.

INITIATING CUE:

Start the 1BG401, RPS MG SET B, in preparation to transfer RPS Bus B power from RPS Alternate Transformer B to RPS MG SET B in accordance with, Section 5.5 of HC.OP-SO.SB-0001.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set / RPS MG Set Failure To Start

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains/locates procedure HC.OP-SO.SB-0001.	Operator obtains the correct procedure.		
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. Examiner 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 correct beginning step to be 5.5.		
	5.5.1	ENSURE all prerequisites of Section 2.5 are satisfied.	Operator ensures prerequisites satisfied IAW Section 2.5. Examiner Cue: If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.		
		START TIME: _____	N/A	N/A	N/A
# *	5.5.2	IF start of 1A(B)G401, RPS MG Set, is necessary, THEN PERFORM the following (A[B] MG Set Local Panel): A. PRESS AND HOLD the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	Operator presses and holds the BG401 MOTOR ON push-button and observes the Red MOTOR ON lamp illuminates. Examiner Cue: The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set / RPS MG Set Failure To Start

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		<p>B. OBSERVE A-C VOLTS Generator Output Voltage AND PERFORM the following:</p> <p>1. IF voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, THEN RELEASE the MOTOR ON push-button.</p>	<p>Operator observes A-C VOLTS Generator Output Voltage and expects a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds.</p> <p>Examiner Cue: The meter indented rises and stabilizes at approximately 100 volts.</p> <p>Operator decides to procede to Step 5.5.2.B.2.</p>		
		<p>2. IF voltage does NOT increase to 115 - 125 volts, THEN PERFORM the following:</p> <p>a. RELEASE the MOTOR ON push-button.</p>	<p>Operator releases the BG401 MOTOR ON push-button.</p>		
# *		<p>b. PRESS AND HOLD MOTOR OFF push-button.</p>	<p>Operator presses and holds the BG401 MOTOR OFF push-button.</p> <p>Examiner Cue: The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated.</p>		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set / RPS MG Set Failure To Start

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		c. <u>WHEN</u> the MOTOR ON light extinguishes, <u>THEN RELEASE</u> the MOTOR OFF push-button.	When the BG401 MOTOR ON light extinguishes, the operator releases the BG401 MOTOR OFF push-button. Examiner Cue: If asked about restarting the MG Set, inform the operator that one restart attempt is allowed and restart can be attempted while the MG Set is spinning.		
		d. REPEAT Step 5.5.2.A.	Operator returns to Step 5.5.2.A.		
# *	5.5.2	<u>IF</u> start of 1A(B)G401, RPS MG Set, is necessary, <u>THEN PERFORM</u> the following (A[B] MG Set Local Panel): A. PRESS AND HOLD the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	Operator presses and holds the BG401 MOTOR ON push-button and observes the Red MOTOR ON lamp illuminates. Examiner Cue: The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.		
# *		B. OBSERVE A-C VOLTS Generator Output Voltage <u>AND PERFORM</u> the following: 1. <u>IF</u> voltage increases to 115 - 125 volts <u>AND</u> has been stabilized for approximately 5 seconds, <u>THEN RELEASE</u> the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage expecting an increase to 115-125 volts. Examiner Cue: The meter indented has risen from 0 volts, and has stabilized at approximately 120 volts for approximately 5 seconds. Operator then releases the BG401 MOTOR ON push-button.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set / RPS MG Set Failure To Start

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		2. <u>IF</u> voltage does <u>NOT</u> increase to 115 - 125 volts, <u>THEN</u> PERFORM the following: a. RELEASE the MOTOR ON push-button.		N/A	N/A
		b. PRESS AND HOLD MOTOR OFF push-button.		N/A	N/A
		c. <u>WHEN</u> the MOTOR ON light extinguishes, <u>THEN</u> RELEASE the MOTOR OFF push-button.		N/A	N/A
		d. REPEAT Step 5.5.2.A.		N/A	N/A
# *		C. <u>WHEN</u> 1 minute of MG Set operation has elapsed, <u>THEN</u> PLACE RPS MG Set 1A(B)G401 GENERATOR OUTPUT breaker to ON <u>AND INITIAL</u> Attachment 1.	Operator waits one minute, then places the RPS MG Set BG401 GENERATOR OUTPUT breaker to ON and initials Attachment 1. Examiner Cue: The breaker identified is in the stated position.		

OPERATOR TRAINING PROGRAM
 JOB PERFORMANCE MEASURE

NAME: _____
 DATE: _____

SYSTEM: Reactor Protection System

TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set / RPS MG Set Failure To Start

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		D. REQUEST Maintenance Department to CHECK AND ADJUST (as necessary), the RPS MG Set(s) output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (1AN411) (unloaded) IAW HC.MD-PM.SB-0001(Q), <u>OTHERWISE</u> , VERIFY A-C VOLTS at local panel meter is 115 to 125 volts.	Operator requests maintenance to check and adjust if necessary RPS MG Set B output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN411 (unloaded) IAW HC.MD-PM.SB-0001(Q), otherwise, verify A-C VOLTS at local panel meter is 115 to 125 volts. Examiner Cue: Respond as necessary and provide Terminating Cue.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. RPS B is being powered from the ALTERNATE B FEED.
2. Maintenance has been completed on 1BG401 RPS MG SET B.
3. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 5.5.2.D.

INITIATING CUE:

Start the 1BG401, RPS MG SET B, in preparation to transfer RPS Bus B power from RPS Alternate Transformer B to RPS MG SET B in accordance with, Section 5.5 of HC.OP-SO.SB-0001.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Containment Atmosphere Control
TASK: Perform Weekly Drywell & Suppression Chamber Oxygen
Concentration Verification
TASK NUMBER: 2290060201
JPM NUMBER: [SRO(U) B.2.b-RO B.2.b]

ALTERNATE PATH: K/A NUMBER: 223001A1.06
IMPORTANCE FACTOR: 3.1 3.3
RO SRO
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Reactor Bldg/Perform

REFERENCES: HC.OP-ST.GS-0001(Q), Rev. 19

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: (5) Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: Minutes

ACTUAL TIME CRITICAL COMPLETION: N/A

JPM PERFORMED BY: _____ GRADE: SAT UNSAT

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Containment Atmosphere Control

TASK: Perform Weekly Drywell & Suppression Chamber Oxygen Concentration Verification

TASK NUMBER: 2290060201

INITIAL CONDITIONS:

1. Performance of the Drywell and Suppression Chamber Oxygen Concentration Verification – Weekly, HC.OP-ST.GS-0001(Q), is required. (Provided)

INITIATING CUE:

Line up to sample the Drywell using the Drywell Supplementary Oxygen Analyzer 1GSAY-5042.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Containment Atmosphere Control
TASK: Perform Weekly Drywell & Suppression Chamber Oxygen Concentration Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator reviews precautions and limitations.	Operator reviews precautions and limitations. Examiner Cue: If excessive time is taken to review precautions and limitations, inform operator that all are satisfied.		
		Operator determines beginning step of the procedure.	Operator determines correct beginning step of procedure to be 5.1.		
	5.1	<u>Drywell and Suppression Chamber Oxygen Concentration Using Supplemental Analyzers 1GSAY-5042 and 1GSAY-5043(1EC2000)</u>		N/A	N/A
	5.1.1	<u>IF</u> this is the first subsection of the procedure to be performed LOG test start time in the Control Room log(s)	Operator contacts the Main Control Room to have the procedure start time logged in the Control Room Log. Examiner Cue: The start time has been logged.		
	5.1.2	ENSURE that all prerequisites have been satisfied IAW Section 2.1.	Operator ensures that all prerequisites have been satisfied IAW Section 2.1. Examiner Cue: If excessive time is taken to review prerequisites, inform operator that all are satisfied.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Containment Atmosphere Control
TASK: Perform Weekly Drywell & Suppression Chamber Oxygen Concentration Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	5.1.3	<u>IF</u> this is the first subsection of the procedure to be performed, ENSURE on Attachment 1, Section 1 of the OS/CRS Data and Signature Sheet has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.	Operator ensures on Attachment 1, Section 1 of the OS/CRS Data and Signature Sheet has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.		
		START TIME: _____		N/A	N/A
*	5.1.4	To align Drywell Supplementary Oxygen Analyzer 1GSAY-5042 to sample the Drywell, PERFORM the following: (Leak Detection Skid 10-S935, Rx Bldg 162' Rm 4614) (Also REFER to Attachment 3) A. CONNECT Analyzer 1GSAY-5042 to the Leak Detection Skid by making up quick disconnects at P-SK-V9988 Smpl Sup Isln <u>AND</u> P-SK-V9990 Smpl Rtn Isln.	Operator connects the Analyzer 1GSAY-5042 to the Leak Detection Skid by making up quick disconnects at P-SK-V9988 Smpl Sup Isln <u>AND</u> P-SK-V9990 Smpl Rtn Isln. (Refer to Attachment 3.) Examiner Cue: The quick disconnects are connected at the points identified.		
# *		B. VERIFY flowmeter 1GSFI-11451 has its needle valve fully closed.	Operator verifies flowmeter 1GSFI-11451 has its needle valve fully closed. Examiner Cue: The valve indicated is in the stated condition.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Containment Atmosphere Control
TASK: Perform Weekly Drywell & Suppression Chamber Oxygen Concentration Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*		C. SELECT/VERIFY the Percent Range Switch is in the 5% position. (Located under enclosure cover)	Operator places the Percent Range Switch is in the 5% position. (Located under enclosure cover) Examiner Cue: The switch indicated is in the stated position.		
		D. VERIFY Leak Detection Pump 10-P270 is in operation. (Red PUMP ON lamp on Skid 10-S935 Control Panel)	Operator verifies that the Red PUMP ON lamp on Skid 10-S935 Control Panel is illuminated. Examiner Cue: The indicated is illuminated.		
		E. VERIFY the following valves are closed: <ul style="list-style-type: none"> • P-SK-V9991 Grab Smpl Isln Vlv • P-SK-V9992 Grab Smpl Isln Vlv 	Operator verifies that P-SK-V9991, Grab Smpl Isln Vlv, and P-SK-V9992, Grab Smpl Isln Vlv, are closed. Examiner Cue: The valves indicated are in the stated condition.		
# *		F. OPEN the following Leak Detection valves: <ul style="list-style-type: none"> • P-SK-V9988 Smpl Sup Isln • P-SK-V9990 Smpl Ret Isln 	Operator opens P-SK-V9988, Smpl Sup Isln, and P-SK-V9990, Smpl Ret Isln. Examiner Cue: The valves indicated are in the stated condition.		

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Containment Atmosphere Control
TASK: Perform Weekly Drywell & Suppression Chamber Oxygen Concentration Verification

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
# *		G. THROTTLE OPEN the needle valve on Rotometer 1GSFI-11451 to establish a flow of 250 cc/m. <u>IF</u> after the needle valve has been opened completely the required flow cannot be established, slowly THROTTLE P-SK-V9989 Inst Root Viv for FV-4007 to bypass more flow through the analyzer <u>AND</u> establish required flow.	Operator throttles open the needle valve on Rotometer 1GSFI-11451 to establish a flow of 250 cc/m. Examiner Cue: Indication identified reads the stated value.		
		H. SAMPLE the Drywell for ten minutes <u>AND</u> RECORD on Attachment 2. [T/S 4.6.6.2]	Operator determines the need to wait 10 minutes to record the sample results. Examiner Cue: Provide the Terminating Cue.		
		STOP TIME: _____			

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- 1. Performance of the Drywell and Suppression Chamber Oxygen Concentration Verification – Weekly, HC.OP-ST.GS-0001(Q), is required. (Provided)**

INITIATING CUE:

Line up to sample the Drywell using the Drywell Supplementary Oxygen Analyzer 1GSAY-5042.

ATTACHMENT 1

(Page 1 of 3)

**OS/CRS DATA AND SIGNATURE SHEET
DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION
VERIFICATION - WEEKLY**

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1 Regular Surveillance JS
INITIALS

1.1.2 Retest/Other _____
INITIALS

1.1.3 IF not performing the complete test,
THEN LIST subsection(s)/valves to be performed, as well
as marking N/A on the applicable subsection(s)/valves
on the Attachment(s) that will not be performed,
OR, that do not require an independent verification IAW
NC.NA-AP.ZZ-0005(Q); Station Operating Practices.

5.1 (5.1.1 – 5.1.4)
SUBSECTION(S)/VALVE(S)

1.2 Plant Conditions

1.2.1 Operational Condition 1

1.2.2 Reactor Power Level 100%

1.2.3 GMWe 1123

1.3 Permission to Perform the Test

1.3.1 Permission granted to perform this test.

John Smith / Today
OS/CRS DATE-TIME

ATTACHMENT 1

(Page 2 of 3)

**OS/CRS DATA AND SIGNATURE SHEET
DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION
VERIFICATION - WEEKLY**

2.0 **POST TEST INFORMATION**

2.1 The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 4.6.6.2 and the test is considered:

2.1.1 SATISFACTORY (All acceptance criteria is marked SAT)

_____/_____
OS/CRS DATE-TIME

2.1.2 UNSATISFACTORY and
IF necessary the T/S ACTION statement has been implemented.

_____/_____
OS/CRS DATE-TIME

2.1.3 Order No. _____

2.1.4 Remarks _____

ATTACHMENT 2

(Page 1 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.0 TEST INFORMATION

1.1 Drywell And Suppression Chamber Oxygen Concentration Using Supplemental Analyzers 1GSAY-5042 AND 1GSAY-5043(IEC2000)

STEP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF/ DATE
5.1.4.H	DRYWELL	< 4%			

*

STEP	NOMENCLATURE	# REQ POSITION	PERF	VERIF
5.1.4.N	NEEDLE VALVE ROTOMETER 1GSFI-11451	CLOSED		
	P-SK-V9988 SMPL SUP ISLN	CLOSED		
	P-SK-V9990 SMPL RET ISLN	CLOSED		
	QUICK DISCONNECT AT P-SK-V9988	OFF		
	QUICK DISCONNECT AT P-SK-V9990	OFF		

May be changed under direction of OS/CRS.

STEP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF/ DATE
5.1.5.I	SUPPRESSION CHAMBER	< 4%	N/A	N/A	N/A

*

* Acceptance Criterion - the SAT/UNSAT block is marked SAT.

ATTACHMENT 2

(Page 2 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.1 Drywell And Suppression Chamber Oxygen Concentration Using Supplemental Analyzers 1GSAY-5042 AND 1GSAY-5043(1EC2000)

STEP	NOMENCLATURE	# REQ POSITION	PERF	VERIF
5.1.5.O	REFRIGERANT/DRYER 10-F-105	OFF	N/A	N/A
	SAMPLE PUMP 10-P-101	OFF	N/A	N/A
	1-GS-V163 SAMPLE ISLN	CLOSED	N/A	N/A
	1-GS-V152 SUPP CHMBR O ₂ ANLYZR 1EC200 UPSTRM INLET ISLN VLV	CLOSED	N/A	N/A
	1-GS-V153 SUPP CHMBR O ₂ ANLYZR 1EC200 DNSTRM INLET ISLN VLV	CLOSED	N/A	N/A
	1-GS-V154 SUPP CHMBR O ₂ ANLYZR 1EC200 DNSTRM OUTLET ISLN VLV	CLOSED	N/A	N/A
	1-GS-V155 SUPP CHMBR O ₂ ANLYZR 1EC200 UPSTRM OUTLET ISLN VLV	CLOSED	N/A	N/A
	HV-4959A H ₂ /O ₂ ANLZR SUPP CHMBR SUCT	CLOSED	N/A	N/A
	HV-4965A H ₂ /O ₂ ANLZR SUPP CHMBR SUCT	CLOSED	N/A	N/A
	HV-4966A H ₂ /O ₂ ANLZR RET	CLOSED	N/A	N/A
	HV-5022A H ₂ /O ₂ ANLZR RET	CLOSED	N/A	N/A

May be changed under direction of OS/CRS.

ATTACHMENT 2

(Page 3 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.2 Drywell And Suppression Chamber Oxygen Concentration Using 1AC200

STEP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF/ DATE
5.2.4.G	DRYWELL DOME	< 4%	N/A	N/A	N/A
	DRYWELL SUCTION LOWER	< 4%	N/A	N/A	N/A
	SUPPRESSION CHAMBER	< 4%	N/A	N/A	N/A

*
*
*

* Acceptance Criterion - the SAT/UNSAT block is marked SAT.

STEP	NOMENCLATURE	ACTUAL	PERF
5.2.4.H	PCV-5742A1 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742A2 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987A2 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987A4 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742B1 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742B2 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987B2 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987B4 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A

NOTE 1 - Analyzer is inoperable when the I/S Reagent Gas bottle pressure is < 20#. [PR 980316166]

ATTACHMENT 2

(Page 4 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION -
WEEKLY

STEP	NOMENCLATURE	AS LEFT POSITION	PERF	VERIF
5.2.4.H.4 AND 5.2.6	PCV-5742A1 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742B1 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A

NOTE - IF the indicated valve was NOT manipulated in Step 5.2.4.H,
ENTER N/A in the "PERF" column.

ATTACHMENT 2

(Page 5 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.2 Reagent Gas Bottles

STEP	NOMENCLATURE	AS FOUND POSITION	AS LEFT POSITION	PERF	VERIF
5.2.4.1.1 5.2.4.1.2 5.2.6	PCV-5742A1 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A1 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B1 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B1 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A

ATTACHMENT 2

(Page 6 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION WEEKLY

1.3 Drywell And Suppression Chamber Oxygen Concentration Using 1AC200

STEP	NOMENCLATURE	# REQ POSITION	PERF	VERIF
5.2.4.K AND 5.2.6	HV-4955A H ₂ /O ₂ ANLZR DRYWL DOME SUCT	CLOSED	N/A	N/A
	HV-4983A H ₂ /O ₂ ANLZR DRYWL DOME OUTBD	CLOSED	N/A	N/A
	HV-5019A H ₂ /O ₂ ANLZR DRYWL SUCT	CLOSED	N/A	N/A
	HV-4984A H ₂ /O ₂ ANLZR DRYWL SUCT	CLOSED	N/A	N/A
	HV-4959A H ₂ /O ₂ ANLZR SUPP CHAMBER SUCT	CLOSED	N/A	N/A
	HV-4965A H ₂ /O ₂ ANLZR SUPP CHAMBER SUCT	CLOSED	N/A	N/A
	HV-4966A H ₂ /O ₂ ANLZR RET INBD	CLOSED	N/A	N/A
	HV-5022A H ₂ /O ₂ ANLZR RET OUTBD	CLOSED	N/A	N/A
	HV-5741A H ₂ /O ₂ ANLZR H ₂ SUP HDR	OPEN	N/A	N/A
	FUNCT SEL SWITCH H ₂ /O ₂ ANLZR 1AC200	SAMPLE	N/A	N/A
	MODE SWITCH H ₂ /O ₂ ANLZR 1AC200	STANDBY	N/A	N/A

May be changed under direction of OS/CRS.

ATTACHMENT 2

(Page 7 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.2 Drywell And Suppression Chamber Oxygen Concentration Using 1BC200

STEP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF/ DATE
5.2.5.G	DRYWELL DOME	< 4%	N/A	N/A	N/A
	DRYWELL SUCTION LOWER	< 4%	N/A	N/A	N/A
	SUPPRESSION CHAMBER	< 4%	N/A	N/A	N/A

* Acceptance Criterion - the SAT/UNSAT block is marked SAT.

1.2 Drywell And Suppression Chamber Oxygen Concentration Using 1BC200

STEP	NOMENCLATURE	ACTUAL	PERF
5.2.5.H	PCV-5742B1 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742B2 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987B2 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987B4 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742A1 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-5742A2 (20% H ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987A2 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A
	PCV-4987A4 (20% O ₂ in N ₂)	NOTE 1 PSI	N/A

NOTE 1 - Analyzer is inoperable when the I/S Reagent Gas bottle pressure is < 20#. [PR 980316166]

ATTACHMENT 2

(Page 7 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION -
WEEKLY

STEP	NOMENCLATURE	AS LEFT POSITION	PERF	VERIF
5.2.5.H.4 <u>AND</u> 5.2.6	PCV-5742A1 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742B1 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) REAGENT GAS BOTTLE ISOLATION VALVE	N/A	N/A	N/A

NOTE - IF the indicated valve was NOT manipulated in Step 5.2.5.H,
ENTER N/A in the "PERF" column.

ATTACHMENT 2

(Page 8 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.3 Reagent Gas Bottles

STEP	NOMENCLATURE	AS FOUND POSITION	AS LEFT POSITION	PERF	VERIF
5.2.5.L.1 5.2.5.L.2 5.2.6	PCV-5742B1 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B1 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742B2 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B2 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987B4 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A1 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A1 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-5742A2 (20% H ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A2 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) Reagent Gas Bottle Isolation Valve	N/A	N/A	N/A	N/A
	PCV-4987A4 (20% O ₂ in N ₂) Reagent Gas Bottle Regulator Downstream Isolation Valve	N/A	N/A	N/A	N/A

ATTACHMENT 2

(Page 9 of 9)

CONTROL ROOM DATA SHEET

DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION VERIFICATION - WEEKLY

1.3 Drywell And Suppression Chamber Oxygen Concentration Using 1BC200

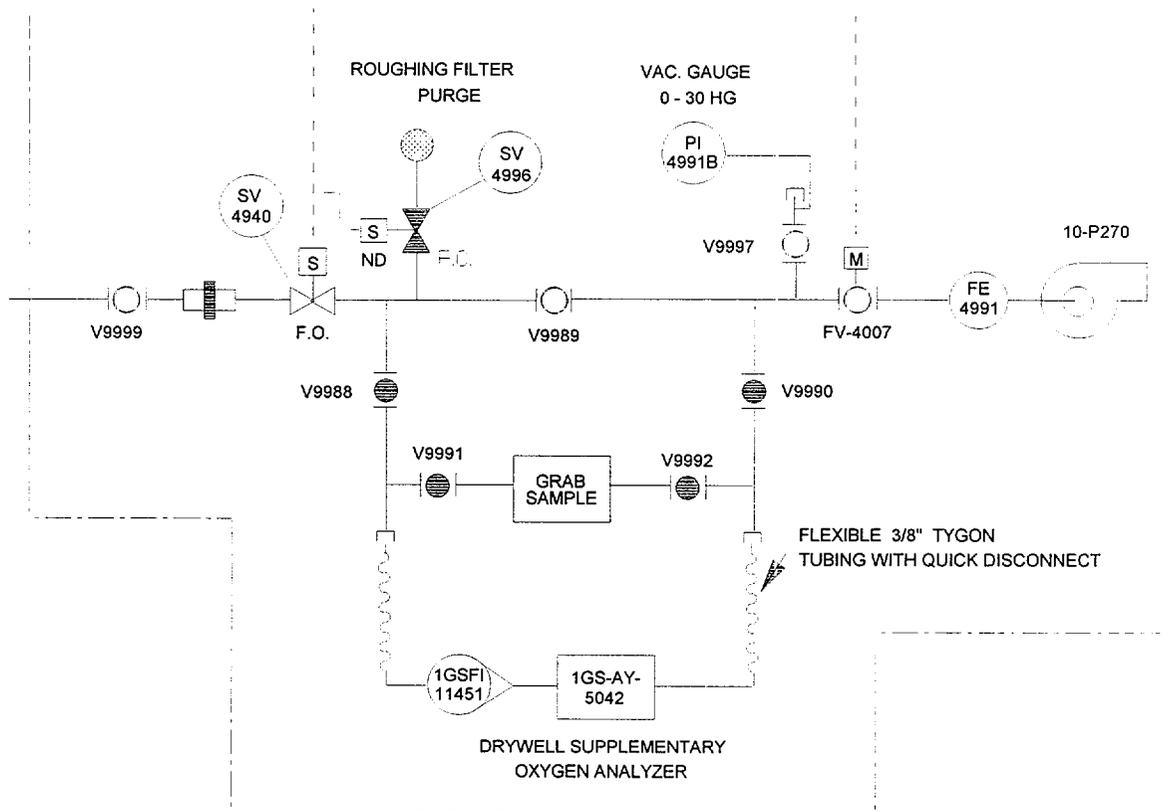
STEP	NOMENCLATURE	# REQ POSITION	PERF	VERIF
5.2.5.I AND 5.2.6	HV-4955B H ₂ /O ₂ ANLZR DRYWL DOME SUCT	CLOSED	N/A	N/A
	HV-4983B H ₂ /O ₂ ANLZR DRYWL DOME OUTBD	CLOSED	N/A	N/A
	HV-5019B H ₂ /O ₂ ANLZR DRYWL SUCT	CLOSED	N/A	N/A
	HV-4984B H ₂ /O ₂ ANLZR DRYWL SUCT	CLOSED	N/A	N/A
	HV-4959B H ₂ /O ₂ ANLZR SUPP CHAMBER SUCT	CLOSED	N/A	N/A
	HV-4965B H ₂ /O ₂ ANLZR SUPP CHAMBER SUCT	CLOSED	N/A	N/A
	HV-4966B H ₂ /O ₂ ANLZR RET INBD	CLOSED	N/A	N/A
	HV-5022B H ₂ /O ₂ ANLZR RET OUTBD	CLOSED	N/A	N/A
	HV-5741B H ₂ /O ₂ ANLZR H ₂ SUP HDR	OPEN	N/A	N/A
	FUNCT SEL SWITCH H ₂ /O ₂ ANLZR 1BC200	SAMPLE	N/A	N/A
	MODE SWITCH H ₂ /O ₂ ANLZR 1BC200	STANDBY	N/A	N/A

May be changed under direction of OS/CRS.

ATTACHMENT 3

(Page 1 of 1)

DRYWELL SUPPLEMENTARY OXYGEN ANALYZER 1GS-AY-5042
DRYWELL AND SUPPRESSION CHAMBER OXYGEN CONCENTRATION
VERIFICATION - WEEKLY



STGS.DOC

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: HOPE CREEK
SYSTEM: Abnormal Procedures
TASK: Respond to a Failed Open Safety Relief Valve
TASK NUMBER: 4000210401
JPM NUMBER: [SRO(U) B.2.a-RO B.2.c]

ALTERNATE PATH: K/A NUMBER: 239002A2.03
IMPORTANCE FACTOR: 4.1 4.2
RO SRO
APPLICABILITY: EO RO STA SRO

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate
REFERENCES: HC.OP-AB.ZZ-0121(Q), Rev. 8
TOOLS AND EQUIPMENT: Fuse pullers. (Provide or simulate)
VALIDATED JPM COMPLETION TIME: (2) Minutes
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

CAUTION: No plant equipment shall be operated during the performance of a JPM without the following:
1. Permission from the OS or Unit CRS;
2. Direct oversight by a qualified individual (determined by the individual granting permission based on plant conditions).
3. Verification of the "as left" condition by a qualified individual.

ACTUAL JPM COMPLETION TIME: _____ Minutes
ACTUAL TIME CRITICAL COMPLETION: _____ Minutes
JPM PERFORMED BY: _____ GRADE: SAT UNSAT
REASON, IF UNSATISFACTORY:
EVALUATOR'S SIGNATURE: _____ DATE: _____

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Abnormal Procedures

TASK: Respond to a Failed Open Safety Relief Valve

TASK NUMBER: 4000210401

INITIAL CONDITIONS:

1. The Reactor is shutdown due to the "D" SRV being open.
2. HC.OP-AB.ZZ-0121, Failed Open Safety/Relief Valve, is being executed.

INITIATING CUE:

Use the fuse pullers provided (simulated) to pull the LOGIC "B" fuses for the "D" SRV IAW HC.OP-AB.ZZ-0121.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

SYSTEM: Abnormal Procedures

TASK: Respond to a Failed Open Safety Relief Valve

# *	STEP NO.	STEP (*Denotes a Critical Step) (#Denotes a Sequential Step)	STANDARD	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains and locates procedure HC.OP-AB.ZZ-0121.	Operator obtains the correct procedure.		
	4.3	IF the "SV ENRGZ" light is lit (the valve is being held open electrically), THEN PULL its associated fuses to close the affected valve. (REFER TO Attachment 1 for fuse assignment, Exhibit 1 for the location of Cabinets 10C628 & 10C631 (in lower Relay Room) and Exhibit 2 for the location of the fuses within Cabinets 10C628 & 10C631.) AND CONTROL any fuses pulled IAW applicable administrative procedures)	Operator reviews procedure and determines that fuses F9 and F10 need to be pulled at 10C628 (ADS DIV 2).		
*	ATT. 1	START TIME: _____ At panel 10C628 (ADS DIV 2) the operator pulls fuses F9 and F10.	Operator pulls fuses F9 and F10 at panel 10C628 (ADS DIV 2). Examiner Cue: The fuses that you have indicated are pulled.		
		STOP TIME: _____	Operator notifies MCR of status of fuses. Examiner Cue: Acknowledge as MCR.		

Terminating Cue: Repeat back message from the operator on the status of the JPM, and then state "This JPM is complete"

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

- 1. The Reactor is shutdown due to the "D" SRV being open.**
- 2. HC.OP-AB.ZZ-0121, Failed Open Safety/Relief Valve, is being executed.**

INITIATING CUE:

Use the fuse pullers provided (simulated) to pull the LOGIC "B" fuses for the "D" SRV IAW HC.OP-AB.ZZ-0121.

Field Copy Exists

Effective Date

11/30/01

APPROVED:

[Signature]
Manager - Hope Creek Operations

11/18/01
Date

CATEGORY II

FAILED OPEN SAFETY/RELIEF VALVE CONTROL COPY#
111

1.0 SYMPTOMS

- Alarms
 - ADS/SAFETY RELIEF VLV NOT CLOSED (C1-A3)
 - SUPPR. POOL TEMP HIGH (C8-F1)
- OPEN indication on the safety relief valve (SRV) and/or its associated acoustic monitor.
- Lowering generator output
- Rising suppression pool temperature
- SRV tail pipe temperature rising
- Lowering of indicated steam flow

2.0 AUTOMATIC ACTIONS

None

3.0 IMMEDIATE OPERATOR ACTIONS

PRESS the appropriate SRV OPEN and CLOSE pushbuttons, **AND** as necessary, **REPEAT** several times, in an attempt to re-close or re-seat the SRV. [CD-912X, CD-220C]

- 4.6 **TERMINATE** all venting OR purging of the Suppression Chamber. _____

- 4.7 **START** Suppression Pool Cooling IAW HC.OP-AB.ZZ-0001(Q) Att. 3
AND MONITOR the Suppression Pool temperature. _____

- 4.8 **IF** at any time the average water temperature is $\geq 95^{\circ}\text{F}$
THEN REFER TO T/S 3.6.2.1
AND IMPLEMENT HC.OP-DL.ZZ-0026(Q), Attachment 3f or 3g as applicable.
[CD-220C] _____

- 4.9 **DEMONSTRATE** the Suppression Chamber/Drywell Vacuum Breakers
operable within twelve hours after any discharge of steam to the Suppression
Chamber from the SRV's by performing HC.OP-ST.GS-0004(Q).
[T/S 4.6.4.1.b.1] _____

- 4.10 An external visual examination of the Suppression Chamber
shall be made after Safety/Relief Valve operation
WITH the Suppression Chamber average water temperature $\geq 177^{\circ}\text{F}$
AND Reactor Coolant System pressure > 100 psig.
[T/S 4.6.2.1.d, CD-220C] _____

- 4.11 **AFTER** the event has been terminated
ENSURE that the required number of Main Steam Safety Relief Valves
are operable. **[T/S 3.5.1.d, T/S 3.4.2.1]** _____

**ATTACHMENT 1
SAFETY RELIEF VALVE FUSES ***

<u>VALVE</u>	<u>LOGIC "B"</u> 10C628 (ADS DIV 2)		<u>LOGIC "D"</u> 10C631A (ADS DIV 4)	
A	F3	F4	F3	F4
B	F5	F6	F5	F6
C	F7	F8	F7	F8
D	F9	F10	F9	F10
E	F11	F12	F11	F12
F	F13	F14		
G	F15	F16		
H	F17	F18		
J	F19	F20		
K	F21	F22		
L	F23	F24		
M	F25	F26		
P			F14	F15
R	F29	F30		

* Example

B21C	F3A
10 amp	F3

← FUSE DESIGNATOR

EXHIBIT 2
(Page 1 of 1)
SAFETY RELIEF VALVE FUSE LOCATIONS
CABINET's 10C628 & 10C631

LOGIC "B"
10C628 (ADS DIV 2)

