JOB PERFORMANCE MEASURE

NRC24 – JPM A

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 3780050501

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

JPM NUMBER: 305H-JPM.KL003 **REVISION:** NRC24

SAP BET: NOH05JPKL03E

K/A NUMBER: 223001 A4.11 **IMPORTANCE FACTOR:** RO: 3.5 SRO: 3.5

ALTERNATE PATH: ☒

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 12 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 3780050501

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

INITIAL CONDIITONS:

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

INITIATING CUE:

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

JPM NUMBER: KL003 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

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

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

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
ACTION D				
NOTE 7	7. Opening of the Reactor Building Post Accident Compressor Suction Valves in Step D.3 or D.5 may cause a rise in Primary Containment Oxygen concentrations. Monitor Drywell and Suppression Chamber Oxygen Concentration for compliance. **[TS 3.6.6.2]**	Operator reads and initials NOTE.		
D.3	**PLACE** B PCIG Compressor in service as follows: A. **CLOSE** HV-5162.	***#Operator presses the HV-5162 CLOSE PB,** observes the HV-5162 CLOSE light is illuminated and OPEN light is extinguished, and initials Step.		
	B. **OPEN** HV-5160B using Key Lock Switch.	***#Operator inserts key and rotates HV-5160B switch to OPEN,** observes the HV-5160B OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
	C. **ENSURE** B PCIG Compressor SAFETY LOCKOUT is RESET.	Operator contacts Reactor Building Equipment Operator and ensures B PCIG Compressor SAFETY LOCKOUT is RESET.		
CUE:	**IF contacted as Reactor Building Equipment Operator, THEN after approximately 1 minute, TRIGGER ET-4 AND REPORT that the Safety Circuit Lockout is reset.**			
	D. **PRESS** B PCIG Compressor AUTO LEAD PB.	***Operator presses the B PCIG Compressor AUTO LEAD PB,** observes the B PCIG Compressor AUTO LEAD light is illuminated, the BK202 START light illuminate and the STOP light extinguish, and initials Step.		
EXAMINER NOTE: B PCIG may trip before completion of Step D.4.				
D.4	**ENSURE** the following valves are OPEN: • HV-5156A	Operator observes the HV-5156A OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• HV-5156B	Operator observes the HV-5156B OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
B PCIG Compressor Trip				
		Operator recognizes trip of B PCIG Compressor by: • BK202 START light extinguishes and the STOP light illuminates • OHA A1-A5 INST GAS PANEL A/B C213		
CUE:	**RESPOND appropriately to the operator reporting the trip of B PCIG Compressor was a Low Oil Pressure trip. IF direction is requested STATE RESTORE Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, Subsequent Action D.**			
D.5	If B PCIG Compressor is not available, PLACE A PCIG Compressor in service as follows: A. **CLOSE** HV-5147.	***#Operator presses the HV-5147 CLOSE PB,** observes the HV-5147 CLOSE light is illuminated and OPEN light is extinguished, and initials Step.		
	B. **OPEN** HV-5160A using Key Lock Switch.	***#Operator inserts key and rotates HV-5160A switch to OPEN,** observes the HV-5160A OPEN light is illuminated and CLOSE light is extinguished, and initials Step.		
	C. **ENSURE** A PCIG Compressor SAFETY LOCKOUT is RESET.	Operator contacts Reactor Building Equipment Operator and ensures A PCIG Compressor SAFETY LOCKOUT is RESET.		
CUE:	**IF contacted as Reactor Building Equipment Operator, THEN after approximately 1 minute, TRIGGER ET-6 AND REPORT that the Safety Circuit Lockout is reset.**			
	D. **PRESS** A PCIG Compressor AUTO LEAD PB.	***Operator presses the A PCIG Compressor AUTO LEAD PB,** observes the A PCIG Compressor AUTO LEAD light is illuminated, the AK202 START light illuminate and the STOP light extinguish, and initials Step.		

JPM NUMBER: KL003 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

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

Task Standard: Operator restores Primary Containment Instrument Gas in accordance with HC.OP-AB.COMP-0002, PRIMARY CONTAINMENT INSTRUMENT GAS, Subsequent Action D. When “B” PCIG Compresssor Trips, the operator places “A” PCIG Compressor in auto lead by closing valve HV-5147, closing HV-5160A, and depressing the A PCIG Compressor AUTO LEAD PB.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: KL003 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KL003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	5/26/10	New JPM. Validation required. Validated with 2 RO's. Avg validation time 12 minutes.	Y
01	7/28/10	Fixed trigger numbers ET-4 and ET-6 in text to agree with snap.	N
02	5/12/11	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Modified Setup instructions. Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
03	9/20/12	Added Task Standard to JPM. Updated Reference procedure revision only. Editorial change only. No validation required. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only.	N
04	10/12/2015	Revised format. Editorial changes to CUEs. Corrected typographical errors in NOTE numbers. No changes to operator responses and timing. Editorial change only. . No validation required. Successfully used during 2011 and 2012 LOR Annual Exams.	N
05	10/22/2015	Added cause of compressor trip to CUE. Revised ET-3 conditions to ensure Overrides not inserted if operator performs Steps out of sequence. Deleted ET-5 since it is not needed due to compressor alarm is received on compressor trip. Used during 2015 LOR Annual Exam.	N
06	5/23/2019	Deleted one of the References. Editorial	Y
07	9/21/21	KA #s changed to reflect revision to NUREG 1123. Editorial.	N
07	9/7/22	Steps reviewed to ensure accuracy. No changes to reference procedure	N
NRC24	10-10-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: KL003
TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
J. Van Schaick	SRO	On File	9/7/22
K. Kreider	RO	On File	9/7/22

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: KL003 **REV#:** NRC24

INITIAL CONDITIONS:

I.C.	
Initial	

_____ **INITIALIZE** the simulator to a 100 percent power IC.

_____ **ENSURE** SSW Pump C O/S in AUTO.

_____ **INSERT** PC03A in the tripped condition.

_____ **ARM** AND **DEPRESS** A PCIS Manual PB and allow valves to travel to required positions.

_____ **LOWER** PCIG Gas pressure to ~88 psig using IA03 Loss of drywell instrument gas, then set to 0%.

_____ **ACKNOWLEDGE** alarms, AND place simulator in FREEZE.

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

_____ **ENSURE** associated Events file open.

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

_____ **ENSURE** a copy of HC.OP AB.COMP-0002 is available.

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

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

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE:

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

REMOTE SCHEDULE:

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

OVERRIDE SCHEDULE:

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

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

JOB PERFORMANCE MEASURE

NRC24 – JPM B

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Reactor/Turbine Pressure Regulating System

TASK NUMBER: 4000570401

TASK: Respond To A Low Turbine Hydraulic Pressure

JPM NUMBER: 305H-JPM.CH002 **REVISION:** NRC24

SAP BET: NOH05JPCH02E

K/A NUMBER: 241000 A2.06 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 3.3

ALTERNATE PATH: ☒

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.CH-0001, Rev. 53

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 8 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor/Turbine Pressure Regulating System

TASK NUMBER: 4000570401

TASK: Respond To A Low Turbine Hydraulic Pressure

INITIAL CONDIITONS:

1. The plant is at 100% power, steady state.
2. The BP116 EHC pump is in MAN and running, the AP116 is in Standby.
3. The BP116 EHC is scheduled for maintenance and will be Cleared and Tagged next shift.
4. An Equipment Operator is standing by to support the swap.

INITIATING CUE:

SWAP In service EHC pumps; **PLACE** AP116 in service, AND BP116 in Standby IAW HC.OP-SO.CH-0001 Step 5.12.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	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.		
CUE:	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.12.		
5.12.1	**ENSURE** all prerequisites of Section 2.12 are satisfied.	Operator reviews Prerequisites and initials each Prerequisite in the space provided in the procedure.		
5.12.2	**STATION** an equipment operator at the EHC Skid to monitor pump performance during swap.	The operator contacts the equipment operator.		
CUE:	**Inform the operator that an equipment operator is standing by to monitor pump performance.**			
NOTE	During the performance of this evolution, EHC pressure should be monitored closely since the pump placed in standby will not auto start until placed in AUTO.			
5.12.3	**PERFORM** the following to alternate the EHC Pumps (Panel 10C651C): A. **PRESS** HYDR FLUID PUMP B(A)P116 MAN push-button AND **OBSERVE** AUTO lamp extinguish AND MAN lamp backlight illuminates.	***#Operator presses the HYDR FLUID PUMP AP116 MAN pushbutton**, and initials Step.		
	B. **PRESS** HYDR FLUID PUMP B(A)P116 START push-button.	***#Operator presses the HYDR FLUID PUMP AP116 START pushbutton**, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	C. **OBSERVE** that B(A)P116, HYDR FLUID PUMP, starts AND develops flow, as indicated by AI-6427B(A), MOTOR AMPS, for both pumps indicating approximately the same current.	Operator observes the AP116, HYDR FLUID PUMP, starts AND develops flow, as indicated by AI-6427A/B, MOTOR AMPS, for both pumps indicating approximately the same current and initials Step.		
	D. **VERIFY** HYDR FLUID PUMP A(B)P116 is in manual AND the AUTO lamp is extinguished AND MAN lamp backlight is illuminated.	Operator verifies that BP116 MAN push-button lamp backlight is illuminated and initials Step.		
	E. **PRESS** HYDR FLUID PUMP A(B)P116 STOP push-button.	***#Operator presses the BP116 STOP push-button**, and initials Step.		
	F. **OBSERVE** that A(B)P116, HYDR FLUID PUMP, stops AND that B(A)P116, HYDR FLUID PUMP, maintains system pressure. (1550 - 1700 psig using CRIDS Point A3290 OR equivalent)	#Operator observes that BP116, HYDR FLUID PUMP, stops AND that AP116, HYDR FLUID PUMP, does NOT maintain system pressure. (1550 - 1700 psig using CRIDS Point A3290 OR equivalent), and initials Step.		
CUE:	**If asked to start BP116, direct the operator to start the BP116, HYDR FLUID PUMP B.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	G. IF the B(A)P116, HYDR FLUID PUMP, fails to maintain system pressure, THEN IMMEDIATELY **START** A(B)P116, HYDR FLUID PUMP.	Based on previous step, operator determines this step applies, ***#Operator immediately starts BP116 by pressing HYDR FLUID PUMP BP116 START pushbutton,** and initials Step. Examiner Note: Starting the BP116, HYDR FLUID PUMP will prevent low pressure and turbine trip/reactor scram. If the turbine trips, then consider this step UNSAT. Operator observes that the pump starts AND develops flow, as indicated by AI-6427A/B, MOTOR AMPS, for both pumps indicating approximately the same current.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: After placing the EHC pump in Manual, the Operator starts the “A” EHC PP by depressing the HYDR FLUID PUMP AP116 START pushbutton. Once adequate flow is established (by observing amperage is approximately the same for both pumps), the operator stops the “B” EHC HYDR FLUID PUMP BP116 by depressing the BP116 STOP push-button.

The operator then observes that system pressure is not being maintained as required and starts EHC PP BP116 by pressing HYDR FLUID PUMP BP116 START pushbutton and observes that system pressure recovers to required band.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: CH002 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: CH002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
13	7/26/19	Revised reference procedure revision number. - Editorial	N
14	8/15/20	Revised reference procedure revision number. No changes to JPM steps.	N
15	8/26/21	Revised KA #s to reflect NUREG 1123 revision. Validated & used during the 2021 annual exam.	Y
16	8-7-23	Reference procedure revised. No change to procedure steps.	N
NRC24	10-15-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: CH002
TASK: Respond To A Low Turbine Hydraulic Pressure

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
Taylor	RO	ON FILE	10-6-21
Harrell	RO	ON FILE	10-6-21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: CH002 **REV#:** 16

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to full power.

_____ **ENSURE** the BP116 EHC pump is in service in MAN and the AP116 is in Standby in AUTO.

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

_____ **ENSURE** associated Events file open.

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

Initial	Description

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

EVENT FILE:

Initial	ET	
	1	Event code: **zdtuehtb** Description: EHC Pump 'B' STOP pushbutton
	2	Event code: **zdtuehsb** Description: EHC Pump 'B' START pushbutton

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction TC16 to 100.00000 on event 1	EHC pump discharge filter plugging
	None	None	Insert malfunction TC16 to 0.00000 delete in 1 on event 2	EHC pump discharge filter plugging

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote TC05 after 3 to REPLACE on event 2	TC05 EHC pump A discharge filter replacement
	None	None	Insert remote TC06 after 3 to REPLACE on event 2	TC06 EHC pump B discharge filter replacement

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power, steady state.
2. The BP116 EHC pump is in MAN and running, the AP116 is in Standby.
3. The BP116 EHC is scheduled for maintenance and will be Cleared and Tagged next shift.
4. An Equipment Operator is standing by to support the swap.

INITIATING CUE:

SWAP In service EHC pumps; PLACE AP116 in service, AND BP116 in Standby IAW HC.OP-SO.CH-0001 Step 5.12.

JOB PERFORMANCE MEASURE

NRC24 – JPM C

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Main Generator

TASK NUMBER: 3450030101/4000370401

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

JPM NUMBER: 305H-JPM.MA002 **REVISION:** NRC24

SAP BET: NOH05JPMA02E

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

ALTERNATE PATH: ☒

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.MA-0001 Rev. 68 HC.OP-AR.ZZ-0014 Rev. 47

HC.OP-AB.BOP-0002 Rev. 21

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 15 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Main Generator

TASK NUMBER: 3450030101/4000370401

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

INITIAL CONDIITONS:

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

INITIATING CUE:

SYNCHRONIZE AND **LOAD** the Main Generator IAW HC.OP-SO.MA-0001. Begin at Step 5.2.12.
PERFORM the initial synchronization using the 500KV BS6-5 breaker.
MAINTAIN Load Set at 30% to support four hour soak for required testing.

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

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

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

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	• Synchroscope pointer steady at 12 o'clock position	Operator observes UNIT SYNCHRONIZING SYNCHROSCOPE pointer steady at 12 o'clock position. and initials Step.		
	OHA D3-C5 TURBINE GENERATOR VIB HI			
CUE:	**Acknowledge any RO alarm reports.**			
CUE:	**Inform the operator to "Take any required actions."**			
Examiner Note:	**The operator may proceed directly to HC.OP-AB.BOP-0002**			
	Operator refers to procedure HC.OP-AR.ZZ-0014, Attachment C5.	Operator obtains procedure HC.OP-AR.ZZ-0014.		
	HC.OP-AR.ZZ-0014, OVERHEAD ANNUNCIATOR WINDOW BOX D3			
1.	**DETERMINE** bearing(s) in alarm CRIDS points A2519 - A2530. IF unable to determine on CRIDS OR Main Control Room System 1 computer, THEN **DISPATCH** an operator to Panel 10C366 to monitor vibration IAW Attachment C5-1.	Operator determines Bearing #10 vibration is in alarm. Operator may dispatch a building operator to the #10 bearing.		
CUE:	**As Turbine Building Operator, REPORT "strong vibrations felt at the bearing."**			
2.	**ENTER** HC.OP-AB.BOP-0002(Q), Main Turbine.	Operator notifies CRS to enter HC.OP-AB.BOP-0002.		
CUE:	**As CRS acknowledge operator notification to enter BOP-0002.**			
NOTE	Journal Vibration should be validated on the velocity X and Y probes in System 1 AND on an adjacent bearing when possible.	Operator reads and initials Note.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
3.	IF a valid Journal Vibration exceeds the following, immediately **PRESS** Main Turbine TRIP PBs. Turbine Speed / Journal Vibration Bearings 1 - 10 / Journal Vibration Bearings 11 - 12 < 800 rpm: 8 mils / 8 mils 800 - 1400 rpm: 14 mils / 8 mils 1800 rpm: 12 mils / 8 mils	***RO trips Main Turbine using both MAIN TURBINE TRIP push buttons on 10C651D after reaching 12mils.**		
	HC.OP-AB.BOP-0002, MAIN TURBINE			
Examiner Note:	**The operator may take either the Immediate Operator Actions, OR the Retainment Override actions. Annotate appropriately.**			
	IMMEDIATE ACTIONS **CONDITION** Bearing 1–10 Vibration ≥12mils @ 1800 RPM Bearing 11–12 Vibration ≥8 mils @ 1800 RPM **ACTION** A. IF Reactor Power is ≥18%** THEN LOCK the Mode Switch in Shutdown. B. **IMMEDIATELY TRIP** the Main Turbine.	Operator determines that bearing 10 is ≥12 mils @ 1800 RPM. ***Operator immediately trips the Main Turbine by depressing both TRIP push buttons on 10C651D after reaching 12mils** and initials Action. **Examiners Note: Since reactor power is <18% the reactor SHOULD NOT be scrammed.**		

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

Task Standard: Operator synchronizes and loads the Main Generator IAW HC.OP-SO.MA-0001, steps 5.2.12 .a thru 5.2.12.E. Then responds to OHA D3-C5 TURBINE GENERATOR VIB HI, and enters procedure HC.OP-AB.BOP-0002, or HC.OP-AR.ZZ-0014 for a turbine generator malfunction.

Operator determines that bearing 10 is ≥12 mils @ 1800 RPM and. trips the Main Turbine by depressing both TRIP push buttons on 10C651D after bearing 10 reaches 12mils.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: MA002 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: MA002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	3/20/2019	Modified formatting of steps due to procedure revisions. Editorial	N
03	7/24/2019	Incorporated comments from NRC validation.	Y
04	8/27/2019	Revised Reference Procedure revision numbers. Editorial.	N
05	10/18/21	Reference procedure revised. KA #s changed to reflect NUREG 1123 revision. Editorial.	N
NRC24	10-15-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: MA002
TASK: Synchronize and Load the Main Generator/Respond To A Turbine Generator Malfunction

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
C. BOXER	RO	ON FILE	5/23/2019
J. SINNETT	SRO	ON FILE	5/23/2019

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: MA002 **REV#:** 05

INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to an IC with the Main Turbine rolling at 1800 rpm, and ready to synchronize the Main Generator through Step 5.2.12 of HC.OP-SO.MA-0001.
	ENSURE RX Power is <18% RTP
	ENSURE that Turbine Load Set Ramp Rate is set to 5% on the DEHC HMI.
	ENSURE Sync Scope is **ON**
	ENSURE that any screen OTHER THAN CONTROL; SPEED-LOAD is selected on both DEHC HMIs.

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

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

EVENT FILE:

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

MALFUNCTION SCHEDULE:

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

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

INITIAL CONDITIONS:

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

INITIATING CUE:

SYNCHRONIZE AND **LOAD** the Main Generator IAW HC.OP-SO.MA-0001. Begin at Step 5.2.12

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

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

JOB PERFORMANCE MEASURE

NRC24 – JPM D

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Condensate

TASK NUMBER: 2560010101

TASK: Fill And Startup The Condensate System

JPM NUMBER: 305H-JPM.AD002 **REVISION:** NRC24

SAP BET: NOH05JPAD01E

K/A NUMBER: 256000 A4.01 **IMPORTANCE FACTOR:** RO: 3.8 SRO: 3.8

ALTERNATE PATH: ☒

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AD-0001 Rev. 45

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: _____ Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Condensate

TASK NUMBER: 2560010101

TASK: Fill And Startup The Condensate System

INITIAL CONDIITONS:

1. Preparations for a Reactor Startup are being performed in accordance with HC.OP-IO.ZZ-0002, Step 5.1.2.
2. The Condensate System is being placed in service IAW HC.OP-SO.AD-0001.

INITIATING CUE:

START Primary Condensate Pump AP102 in accordance with HC.OP-SO.AD-0001(Q), Condensate System Operation. Currently at Step 5.1.12.

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; marked up copy of HC.OP-SO.AD-00001; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews Prerequisites.	Operator reviews Prerequisites are met Section 2.1.		
	Operator reviews Precautions And Limitations.	Operator reviews Precautions And Limitations Section 3.0.		
CUE:	**IF excessive time is taken reviewing Precautions And Limitations, THEN INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.12.		
5.1.12	**START** a Primary Condensate Pump A(B,C)P102 as follows: • **ENSURE** the PRI CNDS PUMP RM CLR 1A(B,C)VH112 is in service.	Operator contacts Equipment Operator to ensure PRI CNDS PUMP RM CLR 1AVH112 is in service, and initials Step..		
CUE:	**Respond as the Equipment Operator that PRI CNDS PUMP RM CLR 1AVH112 is in service.**			
	• **OPEN** 1-AP-V108 (1-AP-V109, 1-AP-V110) Seal Wtr to Pri Cond Pump A(B,C)P102. Rm. 1104A (1104B, 1104C).	***#Operator contacts Equipment Operator to OPEN 1-AP-V108 Seal Wtr to Pri Cond Pump AP102. Rm. 1104A, and initials Step.**		
CUE:	**Respond as the Equipment Operator that 1-AP-V108 is open.**			
	• **PRESS** HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC LOCKOUT/AUTO PB AND **VERIFY** AUTO comes on.	***#Operator presses HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC LOCKOUT/AUTO PB AND verifies AUTO is illuminated,** and initials Step.		
	• IF HV-1680A(B,C) PRI CNDS PMP DISCH VLV AUTO PB is NOT on, **PRESS** HV-1680A(B,C) PRI CNDS PMP DISCH VLV LOCKOUT/AUTO PB AND **VERIFY** AUTO comes on.	***#Operator presses HV-1680A PRI CNDS PMP DISCH VLV LOCKOUT/AUTO PB**, **verifies that AUTO is illuminated**, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CAUTION	**Automatic trips on timed opening of discharge and minimum flow valve during pump start have been eliminated. Manual pump trip is required if there is a failure in the discharge valve not being full open after 99 seconds or the HV-1710 not showing dual indication after 75 seconds.**	Operator reads and initials CAUTION.		
	• **OBSERVE** PRI CNDS PUMP A(B,C) START ENABLE is on.	Operator observes PRI CNDS PUMP C START ENABLE is on, and initials Step.		
	• **PRESS** PRI CNDS PUMP A(B,C)P102 START PB.	***#Operator presses PRI CNDS PUMP AP102 START pushbutton**, and observes the AP102 START illuminate and the STOP extinguish, and initials Step.		
	• **OBSERVE** the following: • HV-1680A(B,C) PRI CNDS PMP A(B,C) DISCH VLV OPEN is on.	Operator observes HV-1680A OPEN pushbutton is illuminated, and initials Step.		
	• AI-6318A(B), AI-6349, PRI CNDS PUMP A(B), C, MOT AMPS, indicates < 120 amps. (< 208 amps for CP102)	Operator observes AI-6318A, AI-6349 indicates <120 amps, and initials Step.		
	• Computer Point A2696 PRI CNDS PMP DISCH HDR PRESS indicates approx. 170 psig.	Operator observes Computer Point A2696 PRI CNDS PMP DISCH HDR PRESS indicates approx. 170 psig, and initials Step.		
	• HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC OPEN is on.	Operator observes cycling OPEN and CLOSE indications for HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC. **Examiner Note:** The operator may notify the CRS at any time of the misoperation of HV-1710.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**Respond/Acknowledge as the Control Room Supervisor, as appropriate.**			
		Operator observes/reports the following: • CRIDS D2228, PRI CNDS RECIRC VLV OPEN FAIL, is in alarm **NOTE: Digital Alarm will happen approximately 75 seconds after pump start.**		
CUE:	**Respond as the Equipment Operator IF necessary, that HV-1710 does not appear to be open.**			
	Operator applies CAUTION "Manual pump trip is required if there is a failure in HV-1710 not showing dual indication after 75 seconds".	***#Operator presses the STOP pushbutton for AP102,** and informs the CRS.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator verifies HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC is in AUTO, then verifies HV-1680A PRI CNDS PMP DISCH VLV is in AUTO. The operator then places the "A" Primary Condensate pump in service by depressing PRI CNDS PUMP AP102 START pushbutton.

IAW HC.OP-SO-AD-0001 per Caution at step 5.1.12. (HV-1710 not showing dual indication after 75 seconds), the operator trips PRI CNDS PUMP AP102 by pressing the stop PB.

NOTE: The HV-1710 dual open indication is required to ensure adequate suction pressure and prevent pump damage on subsequent primary and secondary condensate pump starts.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: AD002 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AD002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
NRC24	10-10-23	New JPM.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: AD002
TASK: Fill And Startup The Condensate System

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
A. Ward	SRO	On File	8-31-23
S. Todd	RO	On File	8-31-23

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: AD002 **REV#:** NRC24

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to an IC with preparations for a reactor startup IAW HC.OP-IO.ZZ-0002 are in progress.

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

Initial	Description

_____ **ENSURE** conditions are satisfactory to start the third PCP IAW HC.OP-IO.ZZ-0002.

_____ **MARK UP** HC.OP-SO.AD-0001, Section 5.1, Steps 5.1.1 through 5.1.11.
ENSURE LOCKOUT is illuminated for HV-1680A PRI CNDS PMP DISCH VLV LOCKOUT/AUTO PB
_____ **ENSURE LOCKOUT** is illuminated for HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC LOCKOUT VLV

_____ **INSERT** OVERRIDE.

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

EVENT FILE:

Initial	ET #	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
			Insert override Insert override 5A149_F_DI to On	HV-1710 CLOSE-PRI CNDS FLOW PATH-MIN FLOW RECIRC (DI)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Preparations for a Reactor Startup are being performed in accordance with HC.OP-IO.ZZ-0002, Step 5.1.2.
2. The Condensate System is being placed in service IAW HC.OP-SO.AD-0001.

INITIATING CUE:

START Primary Condensate Pump AP102 in accordance with HC.OP-SO.AD-0001(Q), Condensate System Operation. Currently at Step 5.1.12.

JOB PERFORMANCE MEASURE

NRC24 – JPM E

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Emergency Diesel Generator

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

JPM NUMBER: 305H-JPM.KJ008 **REVISION:** NRC24

SAP BET: NOH05JPKJ08E

K/A NUMBER: 264000 A4.04 **IMPORTANCE FACTOR:** RO: 4.1 SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.KJ-0001 Rev. 80 HC.OP-SO.PB-0001 Rev 31

TOOLS, AND EQUIPMENT: HC.OP-SO.PB-0001

ESTIMATED COMPLETION TIME: 14 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Diesel Generator

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

INITIAL CONDIITONS:

1. All Class 1E 4.16Kv Busses were shifted to their Alternate Feeder Breaker Alignment in accordance with HC.OP-SO.PB-0001.
2. An improper tagout of the 40108 breaker, in preparation for work on breaker 40108, caused the AG400 EDG to start and load onto the 10A401 bus.
3. All tagged components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 4.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

SHIFT the breaker alignment on the 10A401 bus from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5. **INFORM** the CRS when ready to unload and stop the Diesel Generator.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue; HC.OP-SO.PB-0001 (marked up); AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews Precautions and Limitations.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.7.5, but may review 5.7.1-4.		
NOTE	IF the Diesel started on a LOCA signal, the applicable LOCA signals …	Operator reads NOTE and initials NOTE.		
5.7.1	**ENSURE** that the prerequisites of Section 2.7 have been satisfied.	Operator reviews Prerequisites, completes Attachment 1, Section 2.0, and initials each Prerequisite in the space provided in the procedure.		
CUE:	**If excessive time is taken reviewing Prerequisites, inform operator that all are satisfied.**			
5.7.5	**SHIFT** breaker alignment on the desired Class 1E 4160V Busses (listed in Table PB-002, Section 5.4) from the Diesel Generator Breaker to the Normal (Alternate) FEED BRKR as follows: A. **PRESS** DIESEL ENG GOV INCR push-button AND **INCREASE** Generator frequency to 61 Hz.	***#Operator presses the DIESEL ENG GOV INCR push-button,** observes engine frequency rise to 61 Hz on FI-6393A,and initials Step.		
	B. **PRESS** DIESEL ENG GOV DROOP MODE push-button AND **ENSURE** that the DROOP MODE light for EDG is illuminated.	***#Operator depresses the DIESEL ENG GOV DROOP MODE push-button,** observes the DROOP MODE light is illuminated, and initials Step.		
	C. IF required, **ADJUST** EDG frequency to 60 Hz by pressing the DIESEL ENG GOV INCR OR DECR push-buttons as applicable.	Operator adjusts frequency to 60 Hz by pressing the DIESEL ENG GOV INCR OR DECR push-buttons, observes frequency at approximately 60 Hz on FI-6393A, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	D. **PLACE** the Normal (Alternate) FEED BRKR-SYNC KEYLOCK Switch in the ON position.	***Operator places the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position,** observes the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position, the Sync Scope rotating, and initials Step.		
NOTE	The synchroscope indicator light goes out when near the 12 o'clock position.	Operator reads NOTE and initials NOTE.		
	E. **ENSURE** the DROOP MODE light for the Diesel AND the SYNC indicator lights are ON. **[PR 980401119]**	Operator observes the DROOP MODE light for the Diesel is ON, observes the SYNC indicator lights are ON while the sync scope is off 12 O'clock position, and initials Step.		
	F. **ENSURE** that the Normal AND Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF. **INITIAL** Attachment 1 for the Alternate(Normal) Feeder Breaker. **[CD-056H]**	Operator ensures that the Normal and Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF and initials Step.		
	G. **PERFORM** the following to synchronize across AND **CLOSE** the Normal (Alternate) FEED BRKR: 1. IF desired, **TRANSFER** the Diesel Generator Voltage Regulator to MANUAL by pressing the GEN VR MAN PB.	Operator determines that this is Not desired and marks Step N/A.		
CUE:	**If asked if it is desired to transfer the Diesel Generator Voltage Regulator to MANUAL, inform operator that it is NOT desired.**			
	2. IF necessary, **ADJUST** the Running Voltage using the GEN VR RAISE OR LOWER PBs, to match Diesel Generator Running Voltage WITH Bus Incoming Voltage.	Operator ensures the Diesel Generator Running Voltage and Bus Incoming Voltage are matched on VI-6411A and VI-6412A (adjustment using the GEN VR LOWER PB should be required), and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	3. **ADJUST** DG Speed UNTIL the SYNCHROSCOPE pointer is moving slowly in the SLOW (counter clockwise) direction by pressing the DIESEL ENG INCR OR DECR PB.	***Operator presses the DIESEL ENG INCR OR DECR PB as necessary to move the pointer in the counter-clockwise direction,** observes the synchroscope pointer rotating in the SLOW direction, and initials Step.		
	4. WHEN synchroscope pointer is at 3 minutes past 12 O'clock (before pointer reaches 12 O'clock in its direction of travel), THEN **CLOSE** the Normal (Alternate) FEED BRKR AND **INITIAL** Attachment 1.	***When synchroscope pointer is approximately 3 minutes past 12 O'clock, the operator closes the Alternate FEED BRKR (40101) by pressing the 40101 CLOSE PB,** observes the Alternate FEED BRKR (40101) CLOSE light illuminates and the green TRIP light extinguishes, and initials Step.		
	H. **PRESS** the AUTO CLOSE BLOCK PB for the Normal(Alternate) Feed Breaker AND **VERIFY** that the AUTO CLOSE BLOCK PB is illuminated AND **INITIAL** Attachment 1. **[CD-056H]**	***Operator presses the AUTO CLOSE BLOCK PB for 40101,** observes that the AUTO CLOSE BLOCK PB is illuminated for 40101, and initials Step.		
	I. **PLACE** the Normal (Alternate) FEED BRKR – SYNC KEYLOCK Switch in the OFF position.	***Operator places the Alternate (40101) FEED BRKR-SYNC KEYLOCK Switch in the OFF position,** observes that the synchroscope de-energizes, and initials Step.		
	J. As directed by the CRS, **UNLOAD** AND **STOP** the Diesel Generator IAW HC.OP-SO.KJ-0001(Q).	Operator informs the CRS of the status of the EDG.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

JPM NUMBER:	KJ008	**NAME:**	
REV NUMBER:	NRC24	**DATE:**	

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
Task Standard:		HC.OP-SO.PB-0001, Step 5.7.5, the operator PRESSES DIESEL ENG GOV INCR push-button AND INCREASES Generator frequency to 61 Hz. Then the operator places the EDG in DROOP, and places the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position. Then, the operator presses the DIESEL ENG INCR OR DECR PB as necessary to move the pointer in the counter-clockwise direct and approximately 3 minutes past 12 O'clock, the operator closes the Alternate FEED BRKR (40101) by pressing the 40101 CLOSE PB. The operator then presses the AUTO CLOSE BLOCK PB for 40101 and then places the Alternate (40101) FEED BRKR-SYNC KEYLOCK Switch in the OFF position. Breaker alignment on the 10A401 bus has now shifted from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5.		

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: KJ008 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KJ008

REVISION HISTORY

Rev #	Date	Description	Validation Required?
06	9/29/2017	Minor changes to Operator Actions (editorial). Updated procedure revision number (no changes to Steps.) Incorporated NRC comments.	N
07	8-4-20	Revised due to reference procedure revision. No change to JPM steps. Editorial	N
08	8/9/21	Revised due to reference procedure revision. No change to JPM steps. KA# changed due to revision NUREG 1123. Editorial	N
NRC24	11-8-23	JPM steps verified. No change to reference procedure. Task Standard updated.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: KJ008
TASK: Perform Non-Emergency Operation of the Diesel Generator

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
J. Koskey	RO	On file	11-8-23
S. Todd	RO	On File	11-8-23

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: KJ008 **REV#:** NRC24

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to rated power, MOL.

_____ **TRANSFER** 10A401 to the ALTERNATE FEED BRKR.

_____ **START**, **PARALLEL**, AND **LOAD** EDG A.

_____ **ENSURE** Isochronous light is ON.

_____ **OPEN** breaker 40101.

_____ **ACKNOWLEDGE** overhead AND local alarms.

_____ **ADJUST** generator voltage for bus voltage ~4300 volts.

_____ **ADJUST** bus frequency to 60 Hertz.

_____ **SWAP** busses 10A402, 403, AND 404 to Alternate infeeds.

_____ **ENSURE** AUTO CLOSE BLOCK is ON for closed infeed breakers, AND OFF for open infeed breakers.

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

Initial	Description

_____ **MARKUP** HC.OP-SO.PB-0001 through step 5.7.4, INCLUDING Attachment 1.

_____ **ENSURE** copies are available for pre-brief if desired.

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. All Class 1E 4.16Kv Busses were shifted to their Alternate Feeder Breaker Alignment in accordance with HC.OP-SO.PB-0001.
2. An improper tagout of the 40108 breaker, in preparation for work on breaker 40108, caused the AG400 EDG to start and load onto the 10A401 bus.
3. All tagged components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 4.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

SHIFT the breaker alignment on the 10A401 bus from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5.

INFORM the CRS when ready to unload and stop the Diesel Generator.

JOB PERFORMANCE MEASURE

NRC24 – JPM F

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Safety & Turbine Auxiliaries Cooling

TASK NUMBER: 3080050101

TASK: Transfer TACS to the Standby SACS Loop

JPM NUMBER: 305H-JPM.EG002 **REVISION:** NRC24

SAP BET: NOH05JPEG02E

K/A NUMBER: 400000 A4.01 **IMPORTANCE FACTOR:** RO: 3.8 SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Att.10, Rev. 43

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 9 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Safety & Turbine Auxiliaries Cooling

TASK NUMBER: 3080050101

TASK: Transfer TACS to the Standby SACS Loop

INITIAL CONDIITONS:

1. The plant is at 100% power.
2. TACS is being supplied by SACS Loop A.
3. SACS Pump AP210 has developed an oil leak on the inboard pump bearing and there is no oil level in the bubbler.
4. There is no line break in the system.
5. SACS Pump DP210 has been checked for a start.

INITIATING CUE:

TRANSFER TACS to the B SACS loop IAW HC.OP-AB.ZZ-0001 Attachment 10 (Hard Card).
STOP SACS Pump AP201.
ENSURE SACS cooling is aligned to the A RHR Heat Exchanger AND secured to the B RHR Heat Exchanger.
There are no additional operators available to assist in the swap.

JPM NUMBER: EG002 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-AB.ZZ-0001 Attachment 10, Page 2 of 2, TACS TRANSFER TO B LOOP.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator enters the Date and Time, and determines correct beginning step to be 1.0.		
1.0	IF 'A' Loop TACS is isolating, THEN **LOCKOUT**: • HV-2522 / 2496A • HV-2522 / 2496C	Operator determines this step is not applicable and marks the Steps N/A.		
2.0	**VERIFY** no Line Break in the TACS System.	Operator reviews Initiating Cue and/or observes normal SACS Head Tank Levels, and determines no line break exists, and initials Step		
3.0	**ENSURE** B and D SACS Pumps in service, IF required, THEN **START** the B(D) Pump as follows: A. **ENSURE** REMOTE PB is OFF.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D REMOTE light is extinguished, and initials Step.		
	B. **PLACE** the B(D) Pump in MAN.	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D MAN pushbutton,** observes the MAN light illuminates and the AUTO light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. **START** the B(D) SACS Pump. _____/_____ Date/Time	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D DP210 START pushbutton,** observes the PUMP D DP210 START light illuminates and the STOP light extinguishes, enters the Date and Time, and initials Step.		
CUE:	**IF asked for status of 'D' SACS pump after the start, REPORT post start checks are satisfactory.**			
	D. **OBSERVE** LOW DIFF PRESS light extinguishes.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D LOW DIFF PRESS light is not illuminated, and initials Step.		
4.0	**ENSURE** the following valves are OPEN/OPENING: • HV-2522/2496B	***#Operator presses the LOOP B ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS INBD SPLY/RTN HV 2522B HV 2496B OPEN pushbutton,** observes the HV 2522B HV 2496B OPEN light illuminates, and the CLOSE light extinguishes, and initials Step.		
	• HV-2522/2496D	***#Operator presses the LOOP B ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS OUTBD SPLY/RTN HV-2522D/HV-2496D OPEN pushbutton,** observes the HV 2522D HV 2496D OPEN light illuminates, and the CLOSE light extinguishes, and initials Step.		
5.0	WHEN a positive indication is observed that valves in Step 4.0 are OPEN/OPENING, THEN **ENSURE** the following valves are CLOSED/CLOSING: • HV-2522 / 2496A	***#Operator presses the LOOP A ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS INBD SPLY/RTN CLOSE pushbutton for HV 2522 HV 2496A,** observes the CLOSE lights illuminate and the HV 2522A HV 2496A OPEN light extinguishes, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• HV-2522 / 2496C	***#Operator presses the LOOP A ISLN TACS CLG/HYDR PNEU ACCUM AIR TACS OUTBD SPLY/RTN CLOSE pushbutton for HV 2522 HV 2496C,** observes the CLOSE lights illuminate and the HV 2522C HV 2496C OPEN light extinguishes, and initials Step.		
6.0	**ENSURE** the B AND D SACS Pumps are in AUTO.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP B AUTO light is illuminated and MAN light is extinguished, ***#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D AUTO pushbutton,** observes the AUTO light illuminates and the MAN light extinguishes, and initials Step.		
7.0	**PERFORM** the following IF required: A. **ADJUST OPEN** HV-2512A to ≈4500 gpm SACS flow to "A" RHR Hx.	***#Operator presses the HV2512A INCR pushbutton until flow on FI- 2511A (CRIDS, or equivalent) indicates ≈4500 gpm,** and initials Step.		
	B. **CLOSE** HV-2512B	***#Operator presses the HV2512B DECR pushbutton until the HV2512B OPEN light extinguishes** and initials Step.		
	C. PRESS AND HOLD INCR PB UNTIL EG-HV-2512B indicates DUAL.	***#Operator presses and Holds INCR PB UNTIL HV2512B indicates dual** and initials Step.		
CUE:	**If asked, DIRECT the operator to secure SACS Pump AP210.**			

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	D. **PLACE** the A(C) SACS Pump in MAN.	Operator presses the SAFETY AUXILIARIES COOLING LOOP A PUMPS PUMP A MAN pushbutton, and/or observes the MAN light illuminates and the AUTO light extinguishes(d), and initials Step. EXAMINER NOTE: The pump should have already swapped to MAN.		
	E. **STOP** the A(C) SACS Pump.	***#Operator presses the SAFETY AUXILIARIES COOLING LOOP A PUMPS PUMP A STOP pushbutton,** observes the PUMP A STOP light illuminates and the AP210 START light extinguishes, and initials Step.		
CUE:	**Inform operator that LOCKOUT HV-2522 / -2496A, HV-2522 / -2496C.is NOT desired at this time**			
8.0	IF desired, LOCKOUT HV-2522 / -2496A, HV-2522 / -2496C.			
9.0	**ENSURE** proper Service Water pump alignment IAW HC.OP-SO.EA-0001	Operator observes that a SSW pump is operating in each loop, and initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator transfers TACS to SACS Loop B in accordance with HC.OP-AB.ZZ-0001 Attachment 10. Steps 1 thru 9, Then stops the “A” SACs pump and observes that a SSW pump is operating in each loop.				

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: EG002 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EG002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
13	7/20/2016	Revised format, Initiating Cue, Simulator setup, and observed indications. No changes to operator actions. Validated for NRC exam.	Y
14	9/18/2017	Procedure Revision Number changed. Editorial.	N
15	8/9/21	Reference procedure revised. KA # changed due to revision of NUREG 1123. Editorial. No changes to JPM steps	N
15	6/6/22	Reference procedure revised. No change to JPM steps. Editorial.	N
16	7-18-23	Revalidated procedure steps. No changes. JPM used during 2022 annual exams,	N
NRC24	10-11-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: EG002
TASK: Transfer TACS to the Standby SACS Loop

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
S. Maier	SRO	2016 ILOT NRC EXAM	7/18/2016
M. Ouellette	RO	2016 ILOT NRC EXAM	7/18/2016

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: EG002 **REV#:** NRC24

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to 100% power, MOL.

_____ **ENSURE** TACS is supplied by the A SACS loop.

_____ **ENSURE** the B SACS pump is in service and the D SACS pump is in Standby.

_____ **ENSURE** only one SSW Pump running in each loop.

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

Initial	Description

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

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

1. The plant is at 100% power.
2. TACS is being supplied by SACS Loop A.
3. SACS Pump AP210 has developed an oil leak on the inboard pump bearing and oil level in the bubbler is slowly lowering.
4. There is no line break in the system.
5. SACS Pump DP210 has been checked for a start.

INITIATING CUE:

TRANSFER TACS to the B SACS loop IAW HC.OP-AB.ZZ-0001 Attachment 10 (Hard Card).

STOP SACS Pump AP201.

ENSURE SACS cooling is aligned to the A RHR Heat Exchanger AND secured to the B RHR Heat Exchanger.

There are no additional operators available to assist in the swap.

JOB PERFORMANCE MEASURE

NRC24 – JPM G

STATION: Hope Creek

SYSTEM: Nuclear Instrumentation

TASK NUMBER: 2150050101

TASK: Bypass And Restore An LPRM Detector

Copy _____ of _____

JPM NUMBER: 305H-JPM.SE003 **REVISION:** NRC24

SAP BET: NOH05JPSE03E

K/A NUMBER: 215005 A4.03 **IMPORTANCE FACTOR:** RO: 3.2 SRO: 3.2

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.SE-0001, Rev. 30

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 15 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Nuclear Instrumentation

TASK NUMBER: 2150050101

TASK: Bypass And Restore An LPRM Detector

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. LPRM 16-25C has failed.
3. Condition C of HC.OP-AB.IC-0004(Q), Neutron Monitoring, is being implemented.

INITIATING CUE:

BYPASS LPRM 16-25C in accordance with Section 4.6 of HC.OP-SO.SE-0001.
Another operator will log Technical Specification operability.
Reactor Engineering has determined **NOT** to prevent the LPRM from being used for the Core Monitoring System (CMS) calculations in accordance with Step 4.6.17 at this time.

JPM NUMBER: SE003 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; a marked up copy of Section 2.0, and Attachment 2 of HC.OP-SO.SE-0001 AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.6.1.		
4.6.1	**ENSURE** all prerequisites are satisfied IAW Section 3.6.	Operator ensures that all prerequisites are satisfied IAW Section 3.6.		
4.6.2	**DETERMINE** LPRM assignments. (REFER to Attachment 2)	Operator determines that LPRM 16-25C belongs to APRM B NUMAC, and initials Step.		
NOTE	T/S Table 3.3.1-1 note (e) specifies an APRM is inoperable **IF** there are < 3 LPRM inputs per elevation level **OR** < 20 LPRM inputs to an APRM Channel. Core Monitoring System can have a total of 43 LPRMs that are **NOT** available for monitoring (including inoperable LPRMs that are in BYPASS, plus LPRMs that are REJECTED by the Core Monitoring System.)	Operator reads and initials NOTE.		
4.6.3	**VERIFY** operability IAW T/S Table 3.3.1-1 Note (e) OR **DECLARE** associated APRM INOP.	Operator requests that the CRS evaluate Technical Specifications for APRMs.		
CUE:	**Respond as CRS that the Technical Specifications have been evaluated and APRMs are OPERABLE.**			

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE	Perform the following Steps separately for each LPRM to be Bypassed. APRMs are INOPERABLE while in BYPASS.	Operator reads and initials NOTE.		
4.6.4	**PERFORM** the following to Bypass applicable APRM: 1. **IF** APRM **CANNOT** be placed in BYPASS, **THEN OBTAIN** Control Room Supervision approval to continue with APRM in OPERATE **AND PROCEED** to Step 4.6.5.	Operator determines that APRM B can be bypassed and N/As this Step.		
CUE:	**Respond as CRS if necessary, that APRM B can be bypassed.**			
	2. **DECLARE** APRM INOPERABLE.	Operator requests that APRM B be declared INOPERABLE.		
CUE:	**Respond as CRS that APRM B has been declare INOPERABLE.** **If necessary, respond that another operator is tracking APRM operability on Attachment 5 of HC.OP-DL.ZZ-0026.**			
	3. **PLACE** APRM BYPASS joystick to APRM Channel position to be Bypassed.	Operator places the APRM Bypass joystick to APRM B, and initials Step.		
	4. **VERIFY** BYPASSED LED is illuminated for selected APRM at ALL four VOTERs **AND** 'BYP' is displayed for APRM on associated NUMAC drawer/ODA.	Operator verifies that the BYPASSED LED is illuminated for APRM B at all four VOTERs and 'BYP' is displayed for APRM B on associated NUMAC drawer/ODA.		
4.6.5	**SELECT** ETC to obtain BYPASS SELECTIONS on applicable APRM/LPRM NUMAC. (10C608)	***#Operator selects ETC to obtain BYPASS SELECTIONS on APRM B NUMAC,** and initials Step.		
4.6.6	**SELECT** BYPASS SELECTIONS.	***#Operator selects BYPASS SELECTIONS on APRM B,** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.6.7	**ENTER** password (1234).	***#Operator enters 1234 as the password,** and initials Step.		
4.6.8	**SELECT** ENT.	***#Operator selects ENT,** and initials Step.		
4.6.9	**USING** RIGHT/LEFT arrow keys, **SELECT** applicable LPRM.	***#Operator uses the RIGHT/LEFT arrow keys, SELECT applicable LPRM 16-25C,** and initials Step.		
NOTE	BYPASS/HV OFF removes power to LPRM. BYPASS/HV ON allows monitoring of LPRM. RE should be contacted for guidance on which bypassing method should be used for the affected LPRM.	Operator reads and initials NOTE.		
CUE:	**Respond as RE, if asked, that BYPASS/HV OFF method should be used to bypass the LPRM.**			
4.6.10	**IF** LPRM is drifting, or as directed by CRS/RE **THEN SELECT** BYPASS/HV ON.	Operator determines that this Step is not applicable and marks as N/A.		
4.6.11	**IF** LPRM is failed, or as directed by CRS/RE **THEN SELECT** BYPASS/HV OFF.	***#Operator selects BYPASS/HV OFF,** and initials Step.		
4.6.12	**ENSURE** LPRM indicates Bypassed, as indicated by BYPASS/HV ON or BYPASS/HV OFF.	Operator ensures LPRM 16-25C indicates Bypassed, as indicated by BYPASS/HV OFF, and initials Step.		
4.6.13	**PERFORM** Steps 4.6.9 through Step 4.6.12 for each LPRM to be Bypassed on APRM Channel.	Operator determines that there is no other LPRM to bypass, and initials Step.		
4.6.14	**SELECT** EXIT.	Operator selects EXIT, and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.6.15	On CRIDS OD-8 display, **VERIFY** Bypassed LPRM reading has 'B' displayed in red text.	Operator verifies LPRM 16-25C indicates 'B' on CRIDS OD-8 display, and initials Step.		
4.6.16	**VERIFY** APRMs are within ± 2% of RTP or CMWT **AND IF** necessary, **ADJUST** APRMs IAW HC.RE-ST.SE-0002(Q).	Operator verifies APRMs are within ± 2% of RTP or CMWT, and initials Step.		
NOTE	The following Step prevents the LPRM from being used for Core Monitoring System (CMS) calculations. Under certain circumstances, it may be appropriate to allow a LPRM that is in BYPASS/HV ON mode to continue inputting to the CMS. Only LPRMs with valid readings should be placed in this configuration. This Step should be performed unless Reactor Engineering directs otherwise.	Operator observes that the NOTE is marked as N/A.	N/A	N/A
Examiner Note	If asked, repeat initial cue "Reactor Engineering has determined **NOT** to prevent the LPRM from being used for the Core Monitoring System (CMS) calculations in accordance with Step 4.6.17 at this time."			
4.6.17	**IF** directed by CRS/RE, **THEN PERFORM** the following to prevent LPRM input to the Core Monitoring System: …	Operator observes that this Step is marked as N/A.	N/A	N/A
4.6.18	**IF** APRM was bypassed in step 4.6.4 **THEN REMOVE** APRM from BYPASS position **AND DECLARE** APRM OPERABLE.	***Operator removes APRM Bypass joystick from the APRM B position (mid position), and initials Step.**		
4.6.19	**NOTIFY** Reactor Engineer of LPRM Bypassed.	Operator notifies the Reactor Engineer that LPRM 16-25C is bypassed.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

JPM NUMBER: SE003 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
Task Standard: Operator bypasses APRM B, then bypasses LPRM 16-25C in accordance with Attachment 2 of HC.OP-SO.SE-0001. Operator then unbypasses APRM B.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SE003 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SE003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	8/14/2018	New JPM.	Y
01	11/2/2018	Revised due to procedure revision. Added cues and modified setup to not perform the Step added in this revision. No changes to operator actions. Editorial change only. Corrected typographical errors identified during use.	N
NRC24	11-8-23	Validated for NRC exam usage. Task Standard revised.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SE003
TASK: Bypass And Restore An LPRM Detector

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
S. Todd	RO	On File	11-8-23
J. Koskey	RO	On File	11-8-23

JOB PERFORMANCE MEASURE

JPM NUMBER: SE003 **REV#:** NRC24

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** to any 100% power IC.

_____ **INSERT** ET-1.

_____ **ACKNOWLEDGE** Overhead and CRIDS alarms.

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

Initial	Description

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

_____ **MARKUP** copy of HC.OP-AB.IC-0004, up to Condition C.2.

_____ **MARKUP** copy of HC.OP-SO.SE-0001; **N/A** NOTE and Step 4.6.17.

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction NM201625C to 100.00000 on event 1.	LPRM Channel 16-25-C Reads High or Low

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. LPRM 16-25C has failed.
3. Condition C of HC.OP-AB.IC-0004(Q), Neutron Monitoring, is being implemented.

INITIATING CUE:

BYPASS LPRM 16-25C in accordance with Section 4.6 of HC.OP-SO.SE-0001.

Another operator will log Technical Specification operability.

Reactor Engineering has determined **NOT** to prevent the LPRM from being used for the Core Monitoring System (CMS) calculations in accordance with Step 4.6.17 at this time.

JOB PERFORMANCE MEASURE

NRC24 – JPM H

STATION: Hope Creek

COPY _____ OF _____

SYSTEM: Control Area Ventilation

TASK NUMBER: 4880030101

TASK: Place The Control Equipment Room Supply System In-Service

JPM NUMBER: 305H-JPM.GK003 **REVISION:** NRC24

SAP BET: NOH05JPGK03E

K/A NUMBER: 290003 A2.03 **IMPORTANCE FACTOR:** RO: 3.4 SRO: 3.6

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.GK-0001, Rev. 24

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 15 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Control Area Ventilation

TASK NUMBER: 4880030101

TASK: Place The Control Equipment Room Supply System In-Service

INITIAL CONDIITONS:

1. Maintenance is being performed on Chilled Water Pump AP400 and Chiller AK400.
2. Chilled Water Pump BP400 AND Chiller BK400 have just tripped.

INITIATING CUE:

PLACE Control Area Ventilation Train B in-service without cooling, including the BVH407 fan, in accordance with Steps 5.8.1 through 5.8.5 of HC.OP-SO.GK-0001. An Equipment Operator is standing by to assist.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue, a marked-up copy of HC.OP-SO.GK-0001, AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.8.1.		
5.8.1	**ENSURE** that all prerequisites have been satisfied IAW Section 2.8.	Operator ensures all prerequisites are met, and completes Attachment 1, Section 2.0, and initials Step.		
NOTE	Normal lineup is to have one supply unit in service and the other one in AUTO. Control Room Supply System Fans 1AVH403 and 1BVH403 are interlocked to operate in AUTO mode with Chilled Water Pump AP400 and BP400 respectively. T.S. 3.7.2.1 and 3.7.2.2 Amendment No. 191 allows CREF operability without chilled water cooling.	Operator reads and initials NOTE.		
5.8.2	IF available, **SWAP** to the Control Room Ventilation train with an operable Chilled Water system IAW Section 5.4 AND **EXIT** this section.	Operator determines and initials Step as N/A.		
5.8.3	**PLACE** Control Room Supply System in service as follows: A. **PRESS** the flashing STOP PB's for any tripped Fan in the loop to be restarted	***#Operator presses the STOP PB's for 1BVH403, 1BVH407, AND BV415 fans,** And initials Step.		
	B. **PRESS** following CONTROL AREA ISOLATION DAMPERS OP MODE PBs: 1. HD-9598A NORMAL	Operator presses the HD-9598A NORMAL PB, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	2. HD-9598B NORMAL	Operator presses the HD-9598B NORMAL PB, and initials Step.		
	C. **PRESS** the following CONTROL RM EMER FILTER UNIT RTN AIR FAN PBs AND INITIAL Attachment 1: 1. AUTO AV415.	Operator presses the AV415 AUTO PB, initials Attachment 1, and initials Step.		
	2. AUTO BV415.	Operator presses the BV415 AUTO PB, initials Attachment 1, and initials Step.		
	D. **ENSURE** the following Control Room Supply Fan LOCKOUT/AUTO PBs in AUTO AND INITIAL Attachment 1: 1. CONT RM SPLY FAN AVH403	Operator ensures that AUTO is illuminated for CONT RM SPLY FAN AVH403, initials Attachment 1, and initials Step.		
	2. CONT RM SPLY FAN BVH403	Operator ensures that AUTO is illuminated for CONT RM SPLY FAN BVH403, initials Attachment 1, and initials Step.		
	E. **PERFORM** the following: 1. **PRESS** CONT ROOM SUPPLY FAN A(B)VH403 START PB (A(B)VH403 START is illuminated) AND OBSERVE A(B)VH415, CONTROL RM EMER FILTER UNIT RTN AIR FAN, Auto Start.	***#Operator presses the BVH403 START PB,** observes that START is illuminated, and observes BVH415, CONTROL RM EMER FILTER UNIT RTN AIR FAN, Auto Start, and initials Step.		
	2. **VERIFY** FI-9589A (B) CONTROL ROOM SUPPLY SYSTEM A(B) SPLY FLOW indicates approximately 17,500 cfm.	Operator verifies that FI-9589B CONTROL ROOM SUPPLY SYSTEM B SPLY FLOW indicates approximately 17,500 cfm, and initials Step.		
NOTE	Normal lineup is to have one Control Area Exhaust Fan in RUN AND the other in AUTO.	Operator reads and initials NOTE.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.8.4	**PLACE** the Control Area Exhaust System in service as follows AND **INITIAL** Attachment 1 (Local Panel 1EC485): A. **TURN** HS-9599A(B), CONTROL AREA EXHAUST FAN A(B)V402 to STOP AND THEN to RUN. B. **TURN** HS-9599B(A), CONTROL AREA EXHAUST FAN B(A)V402 to STOP AND THEN to AUTO.	***Operator contacts the Equipment Operator to perform Step 5.8.4, and following the report**, initials the Step.		
CUE:	**Respond as Equipment Operator that Step 5.8.4 is complete.**			
NOTE	It may be desired to place A(B)VH407 fans in-service based on outside air temperatures. IF not, refer to HC.OP-AB.HVAC-0001. Normal lineup is to have one Supply Fan in service AND the other in AUTO. Control Equipment Room Supply Fans 1AVH407 AND 1BVH407 are interlocked to operate in AUTO mode with Chilled Water Pumps AP400 AND BP400 respectively.	Operator reads and initials NOTE.		
5.8.5	IF desired, **PLACE** the Control Equipment Room Supply System in service as follows: A. **ENSURE** CONT EQ RM SPLY FAN LOCKOUT/AUTO PBs in AUTO AND **INITIAL** Attachment 1: 1. CONT EQ RM SPLY FAN AVH407.	Operator ensures that AUTO is illuminated for CONT EQ RM SPLY FAN AVH407, initials Attachment 1, and initials Step.		
	2. CONT EQ RM SPLY FAN BVH407.	Operator ensures that AUTO is illuminated for CONT EQ RM SPLY FAN BVH407, initials Attachment 1, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	B. **PERFORM** the following: 1. **PRESS** CONT EQ RM SPLY FAN A(B)VH407 START PB AND **OBSERVE** START is illuminated.	***#Operator presses the CONT EQ RM SPLY FAN BVH407 START PB**, observes START is illuminated, and initials Step.		
	2. **VERIFY** FIC-9603A (B) CONTROL EQ RM FAN A(B)VH407 FAN AIR FLOW indicates approximately 59,500 cfm (Local Panel C(D)C483).	Operator contacts the Equipment Operator to verify FIC-9603B indicates approximately 59,500 cfm (Local Panel DC483), and following report, initials the Step.		
CUE:	**Respond as Equipment Operator that FIC-9603B indicates approximately 59,500 cfm.**			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator places Control Area Ventilation Train B in-service without cooling in accordance with Steps 5.8.1 through 5.8.5 of HC.OP-SO.GK-0001.

Operator presses the STOP PB's for 1BVH403, 1BVH407, AND BV415 fans then presses the HD-9598A & HD-9598B NORMAL PBs. Operator ensures CONTROL RM EMER FILTER UNIT RTN AIR FAN AV415 & BV415 AUTO PBs are in AUTO

Operator ensures that AUTO is illuminated for CONT RM SPLY FANs AVH403 and BVH403. Operator presses the BVH403 START PB, and verifies flo**w** indicates approximately 17,500 cfm.

Operator ensures that AUTO is illuminated for CONT EQ RM SPLY FANs AVH407 & BVH407Operator presses the CONT EQ RM SPLY FAN BVH407 START PB, and verifies flow is approximately 59,500 cfm.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: GK003 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: GK003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/3/2014	Initial issue. Validated with RO and SRO. Incorporated comments. Validation time 15 minutes.	Y
00	1/21/2015	Corrected typographical errors in Initial Conditions.	N
01	10/7/21	Reference procedure # revised. KA #s changes to reflect NUREG 1123 revision. Editorial only.	N
02	6/6/22	Reference procedure revised. No change to JPM steps.	N
NRC24	10-4-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: GK003
TASK: Place The Control Equipment Room Supply System In-Service

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
T. HENDRICKS	RO	ON FILE	11/7/2014
C. MINARICH	SRO	ON FILE	11/7/2014

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: GK003 **REV#:** 02

INITIAL CONDITIONS:

I.C.

Initial	

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

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

Initial	Description

_____ **MARKUP** HC.OP-SO.GK-0001 Prerequisites and Attachment 1, Section 1.0 and 2.0

_____ **PLACE** AP400 in MAN**,** AND **PRESS** AK403 STOP push button.

_____ **PLACE** BP400 in MAN**,** AND **TRIP** BP400. **ENSURE** BK403 trips.

_____ **ACKNOWLEDGE** Overhead Annunciators.

_____ **PLACE** tagging bezel covers over AP400 and AK400.

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

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

INITIAL CONDITIONS:

1. Maintenance is being performed on Chilled Water Pump AP400 and Chiller AK400.
2. Chilled Water Pump BP400 AND Chiller BK400 have just tripped.

INITIATING CUE:

PLACE Control Area Ventilation Train B in-service without cooling, including the BVH407 fan, in accordance with Steps 5.8.1 through 5.8.5 of HC.OP-SO.GK-0001. An Equipment Operator is standing by to assist.

COPY _____ OF _____

JOB PERFORMANCE MEASURE

NRC24 – JPM I

Copy _____ of ____

STATION: Hope Creek

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 400780401

TASK: Respond To A SACS Malfunction

JPM NUMBER: 305H-JPM.EG009 **REVISION:** NRC24

SAP BET: NOH05JPEG09E

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

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☒ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-SO.EG-0001, Rev. 58

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

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

ESTIMATED COMPLETION TIME: 20 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 400780401

TASK: Respond To A SACS Malfunction

INITIAL CONDIITONS:

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

INITIATING CUE:

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

WCM update and tagging will be performed by another operator.

JPM NUMBER: EG009 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a copy of pertinent sections of HC.OP-SO.EG-0001, AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews Prerequisites. 2.11.1. All personnel performing any steps in this procedure should complete Attachment 1, Section 2.0, prior to performing any part of this procedure.	Operator completes Attachment 1 Section 2.0.		
CUE:	**If asked, state that Technical Specifications and cooling water needs for equipment have been evaluated by the CRS. Continue with task.**			
	2.11.6. Applicable Precautions and Limitations have been reviewed by each procedure user.	Operator reviews Precautions and Limitations.		
CUE:	**If excessive time is taken reviewing Prerequisites and Precautions and Limitations, inform operator that all are satisfied.**			
	ATTACHMENT 2 **LOSS OF 'A' SACS LOOP COMPONENT REPOSITIONING** **Page 1 of 3** **PART B - CROSS-TIE "C" FRVS**			
	Examiner Note: The sequence critical portion of the following steps is to close the 1-EG-V688 AND 1-EG-V691 BEFORE opening the 1-EG-V690 OR 1 EG-V693.			
10	FRVS CLG COIL CVH-213 LP A SUP 1-EG-V688	Operator unlocks 1-EG-V688. Examiner Note: Support operator's requests for Verifier.		
CUE:	**The lock has been removed from the valve indicated.**			
		***#Operator closes 1-EG-V688.**		
CUE:	**The valve indicated has been rotated in the direction stated and has come to hard stop.**			
		Operator reinstalls a locking device on valve 1-EG-V688 and initials Attachment.		
CUE:	**The lock is installed on the valve indicated.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
11	FRVS CLG COIL CVH-213 LP B RTN 1-EG-V691 LOCKED CLOSED	Operator unlocks 1-EG-V691. Examiner Note: Support operator's requests for Verifier.		
CUE:	**The lock has been removed from the valve indicated.**			
		***#Operator closes 1-EG-V691.**		
CUE:	**The valve indicated has been rotated in the direction stated and has come to hard stop.**			
		Operator reinstalls a locking device on valve 1-EG-V691 and initials Attachment.		
CUE:	**The lock is installed on the valve indicated.**			
12	FRVS CLG COIL CVH-213 LP A SUP 1-EG-V690 LOCKED OPEN	Operator unlocks 1-EG-V690. Examiner Note: Support operator's requests for Verifier.		
CUE:	**The lock has been removed from the valve indicated.**			
		***#Operator opens 1-EG-V690.**		
CUE:	**The valve indicated has been rotated in the direction stated and has come to hard stop.**			
		Operator reinstalls a locking device on valve 1-EG-V690 and initials Attachment.		
CUE:	**The lock is installed on the valve indicated.**			
13	FRVS CLG COIL CVH-213 LP A RET 1-EG-V693 LOCKED OPEN	Operator unlocks 1-EG-693. Examiner Note: Support operator's requests for Verifier.		
CUE:	**The lock has been removed from the valve indicated.**			
		***#Operator opens 1-EG-V693.**		
CUE:	**The valve indicated has been rotated in the direction stated and has come to hard stop.**			

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator reinstalls a locking device on valve 1-EG-V693 and initials Attachment.		
CUE:	**The lock is installed on the valve indicated.**			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator Cross Ties the 'C' FRVS Recirculation Unit to the 'B' SACS Loop in the sequence presented in Attachment 2, Part B, of HC.OP-SO.EG-0001. Operator CLOSES valves 1-EG-V688 and 1-EG-V691, THEN OPENS valves 1-EG-V690 and 1-EG-V693.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: EG009 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EG009

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	12/4/2014	Initial issue. Validated with 2 ROs. Average Validation Time was 20 minutes.	Y
01	6/13/2016	Revised due to procedure revision. No changes to operator actions. Minor editorial changes made.	N
02	10/5/2018	Updated Referenced Procedures Revision Numbers. Editorial	N
03	9-20-21	Reference procedure revised. KA #s changed to reflect revision to NUREG 1021. Editorial	N
NRC24	10-19-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: EG009
TASK: Respond To A SACS Malfunction

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

VALIDATED BY:

Qualification Level Required: EO

Name	Qual	Signature	Date
J. KOSKEY	RO	ON FILE	12/4/2014
D. WHITE	RO	ON FILE	12/4/2014

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

WCM update and tagging will be performed by another operator.

JOB PERFORMANCE MEASURE

NRC24 – JPM J

Copy _____ of ____

STATION: Hope Creek

SYSTEM: Reactor Protection

TASK NUMBER: 2120050101

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

JPM NUMBER: 305H-JPM.SB015 **REVISION:** NRC24

SAP BET: NOH05JPSB15E

K/A NUMBER: 212000 A2.01 **IMPORTANCE FACTOR:** RO: 3.9 SRO: 3.9

ALTERNATE PATH: ☒

APPLICABILITY: **EO** ☒ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-SO.SB-0001, Rev 37

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 12 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Protection

TASK NUMBER: 2120050101

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

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. RPS A is being powered from the ALTERNATE A FEED.
3. Maintenance has been completed on 1A-G-401, RPS MG set.
4. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 4.5.2.4.

INITIATING CUE:

START the 1A-G-401, RPS MG SET A, in preparation to transfer RPS Bus A power from RPS Alternate Transformer A to RPS MG SET A in accordance with Section 4.5 of HC.OP-SO.SB-0001.
CONTACT Maintenance when ready for MG set output voltage check/adjust.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains procedure HC.OP-SO.SB-0001.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.5.1		
4.5.1	**ENSURE** all prerequisites of Section 3.5 are satisfied.	Operator ensures that all prerequisites have been satisfied.		
CUE:	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**			
CUE:	**IF asked about the current status/indications, state: The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated. The output breaker is open.**			
4.5.2	IF start of 1A(B)G401, RPS MG Set, is necessary, THEN **PERFORM** the following (A[B] MG Set Local Panel):	Operator determines that this Step applies and initials Step.		
NOTE	IF the MOTOR ON push-button is NOT held in for long enough, THEN the starting sequence will NOT be completed. This may result in an undervoltage condition in the generator, which may result in generator damage.	Operator reads and initials NOTE.		
	1. **PRESS** AND **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	***#Operator presses and holds the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
Give the CUE below as the operator simulates depressing the motor on PB	2. **VERIFY** A-C VOLTS Generator Output Voltage AND PERFORM the following: a. IF voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, THEN **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage and EXPECTS a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds. Following the next Cue, the Operator determines need to proceed to Step 4.5.2.b.		
CUE:	**The meter identified has risen from 0 volts, and has stabilized at approximately 100 volts.**			
	b. IF voltage does NOT increase to 115 - 125 volts, THEN **PERFORM** the following: (1) **RELEASE** the MOTOR ON push-button.	***#Operator releases the AG401 MOTOR ON push-button,** and initials Step.		
	(2) **PRESS** AND **HOLD** MOTOR OFF push-button.	***#Operator presses and holds the AG401 MOTOR OFF push-button,** and initials Step.		
	(3) WHEN the MOTOR ON light extinguishes, THEN **RELEASE** the MOTOR OFF push-button.	When the AG401 MOTOR ON light extinguishes, the operator releases the AG401 MOTOR OFF push-button. Following the next Cue, the ***Operator releases the MOTOR OFF push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is extinguished, and the Green MOTOR OFF lamp is illuminated.**			
	(4) **REPEAT** Step 4.5.2.1.	Operator returns to Step 4.5.2.1.		
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.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
4.5.2	1. **PRESS** AND **HOLD** the MOTOR ON push-button (Red MOTOR ON lamp illuminates).	***#Operator presses and holds the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**			
Give the CUE below as the operator simulates depressing the motor on PB	2. **VERIFY** A-C VOLTS Generator Output Voltage AND PERFORM the following: a. IF voltage increases to 115 - 125 volts AND has been stabilized for approximately 5 seconds, THEN **RELEASE** the MOTOR ON push-button.	Operator observes A-C VOLTS Generator Output Voltage and EXPECTS a voltage increase to 115-125 volts which stabilizes for approximately 5 seconds. Following the next Cue, the ***#Operator releases the AG401 MOTOR ON push-button,** and initials Step.		
CUE:	**The meter identified has risen from 0 volts, and has stabilized at approximately 120 volts for approximately 5 seconds.**			
	b. IF voltage does NOT increase to 115 - 125 volts, THEN **PERFORM** the following: …	Operator determines this step no longer applies.		
	3. WHEN 1 minute of MG Set operation has elapsed, THEN **PLACE** RPS MG Set 1A(B)G401 GENERATOR OUTPUT breaker to ON AND **INITIAL** Attachment 1.	Operator waits one minute, and ***#places the RPS MG Set 1AG401 GENERATOR OUTPUT breaker to ON**, initials Attachment 1, and initials the Step.		
CUE:	**The breaker identified is in the stated position.**			
NOTE	The RPS MG Set output voltage shall NOT be set using the local panel meter. Use of the local panel meter …			

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	4. **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), OTHERWISE, **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 A output voltage at the input to Electrical Protection Assembly (EPA) Circuit Breaker 1AN410 (unloaded) IAW HC.MD-PM.SB-0001(Q).		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator starts the 1A-G-401, RPS MG SET A, in accordance with Section 4.5 of HC.OP-SO.SB-0001. Recognizes that output AC voltage of 115-125 volts did not occur as required and repeats steps to again **PRESS** AND **HOLD** the **AG401**MOTOR ON push-button then recheck for proper voltage. Operator then places MG SET Generator output brkr to ON.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SB015 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SB015

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	8/28/08	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y
03	12/7/09	Updated Reference procedure revision number. No change to operator actions. Validation is not required.	N
04	5/19/11	Updated Reference procedure revision number. No change to operator actions. Validation is not required.	N
05	3/20/13	Added Task Standard to JPM. Updated Reference procedure revision only. Editorial change only. No validation required. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only.	N
06	11/6/2014	Revised to new JPM format. Revised CUEs. Operator actions did not change. Editorial changes only. Approved for and used during 2014 LOR Annual Examination with no comments noted.	N
07	9/4/2018	Updated Reference procedure revision number. Updated procedure Step numbers due to reformatting of procedure. No changes to operator actions. Validation is not required.	N
08	10/5/21	KA #s changes to reflect revision to NUREG 1123. Editorial.	N
NRC24	10/22/23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SB015
TASK: Transfer RPS Bus A/B Power From Alternate Source To RPS MG Set

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

VALIDATED BY:

Qualification Level Required: EO

Name	Qual	Signature	Date
T. HENDRICKS	RO	ON FILE	9-18-08
S. LOPER	RO	ON FILE	8-29-08

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. RPS A is being powered from the ALTERNATE A FEED.
3. Maintenance has been completed on 1A-G-401, RPS MG set.
4. Once the MG Set is running, Maintenance needs to check/adjust MG Set output voltage in accordance with Step 4.5.2.4.

INITIATING CUE:

START the 1A-G-401, RPS MG SET A, in preparation to transfer RPS Bus A power from RPS Alternate Transformer A to RPS MG SET A in accordance with Section 4.5 of HC.OP-SO.SB-0001.

CONTACT Maintenance when ready for MG set output voltage check/adjust.

Copy _____ of _____

JOB PERFORMANCE MEASURE

NRC24 – JPM K

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Reactor Manual Control

TASK NUMBER: 2140210401

TASK: Bypass A Control Rod In The Reactor Manual Control System

JPM NUMBER: 305H-JPM.SF012 **REVISION:** NRC24

SAP BET: NOH05JPSF04E

K/A NUMBER: 201002 A2.04 **IMPORTANCE FACTOR:** RO: 3.5 SRO: 3.5

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-SO.SF-0001, Rev. 36 HC.OP-AB.IC-0001, Rev. 17

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 10 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Manual Control

TASK NUMBER: 2140210401

TASK: Bypass A Control Rod In The Reactor Manual Control System

INITIAL CONDIITONS:

1. The plant is operating at 100% power
2. The transponder card for Control Rod 22-19 has failed producing a RDCS fault.
3. Action J.3 of HC.OP-AB.IC-0001, Control Rod, was not successful.
4. There are no rod sequencing constraints.

INITIATING CUE:

BYPASS Rod 22-19 transponder, AND **RESET** RMCS in accordance with HC.OP-SO.SF-0001, Reactor Manual Control System Operation, Step 4.7

JPM NUMBER: SF012 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; HC.OP-SO.SF-0001; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**IF excessive time is taken reviewing Precautions And Limitations, THEN INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.7.1.		
4.7.1.	**ENSURE** that all prerequisites have been satisfied IAW Section 3.7.	Operator ensures that all prerequisites have been satisfied IAW Section 3.7 (completes Attachment 1).		
4.7.2.	Have SM/CRS **DETERMINE** control rod to be bypassed, **ANNOTATE** AND **INITIAL** on Attachment 3.	Operator observes that Rod 22-19 is annotated and initialed on Attachment 3. Then initials Step.		
CUE:	**Complete Attachment 1. Enter 22-19 and initial Step 5.7.2 on Attachment 3.**			
4.7.3.	**DETERMINE** Binary Code for rod to be bypassed from XX-YY coordinates on the FAULT LOCATION MAP AND **INITIAL** Attachment 3. (performer and verifier) (10C616)	***#Operator determines the Binary Code for rod 22-19**, annotates on Attachment 3, and requests Verifier initials. X_4 X_3 X_2 X_1 X_0 Y_4 Y_3 Y_2 Y_1 Y_0 **0 0 1 1 1 0 0 1 1 0**		
CUE:	**Initial as Verifier.**			
		Operator initials Step.		
NOTE	The 'UP' position on the toggle represents (1), the 'DOWN' position represents (0).	Operator reads and initials NOTE.		

<table>
<tr><th>STEP NUMBER</th><th>ELEMENT</th><th>(*Critical Step)
(#Sequential Step)
STANDARD</th><th>SAT/ UNSAT</th><th>COMMENTS (Required for UNSAT)@</th></tr>
<tr><td>4.7.4.</td><td>SET Binary Code on BYPASSED ROD IDENTITY toggles for rod to be bypassed AND INITIAL Attachment 3. (performer and verifier) (10C616).</td><td>*#Operator inserts the correct binary code using the BYPASSED ROD IDENTITY toggles as follows: (10C616)
<table>
<tr><td>X_4</td><td>X_3</td><td>X_2</td><td>X_1</td><td>X_0</td><td>Y_4</td><td>Y_3</td><td>Y_2</td><td>Y_1</td><td>Y_0</td></tr>
<tr><td>DN</td><td>DN</td><td>UP</td><td>UP</td><td>UP</td><td>DN</td><td>DN</td><td>UP</td><td>UP</td><td>DN</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>CUE:</td><td colspan="4">The toggles indicated are in the positions stated.</td></tr>
<tr><td></td><td></td><td>Operator requests Verifier initials.</td><td></td><td></td></tr>
<tr><td>CUE:</td><td colspan="4">Initial as Verifier.</td></tr>
<tr><td></td><td></td><td>Operator initials Step.</td><td></td><td></td></tr>
<tr><td><u>NOTE</u></td><td>While a control rod is bypassed in RDCS Cabinet (10C616) the following indications associated with the rod are disabled:
Accumulator
Trouble Scram Valve Status
Rod Select Indication (Full Core Display)</td><td>Operator reads and initials NOTE.</td><td></td><td></td></tr>
<tr><td><u>CAUTION</u></td><td>Bypassing a control rod in the RDCS Cabinet (10C616) prevents control rod movement from signals generated by the Reactor Manual Control System. The Scram function of the bypassed control rod is still operable.</td><td>Operator reads and initials CAUTION.</td><td></td><td></td></tr>
<tr><td>4.7.5.</td><td>SET BYPASSED toggle up AND INITIAL Attachment 3. (performer and verifier) (10C616)</td><td>*#Operator sets BYPASSED toggle up,
and initials Attachment 3.</td><td></td><td></td></tr>
<tr><td>CUE:</td><td colspan="4">The indicated toggle is in the position stated.</td></tr>
<tr><td></td><td></td><td>Operator requests Verifier initials.</td><td></td><td></td></tr>
<tr><td>CUE:</td><td colspan="4">Initial as Verifier.</td></tr>
<tr><td></td><td></td><td>Operator initials Step.</td><td></td><td></td></tr>
</table>

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.7.6.	IF required, RESET RMCS by depressing the RESET Pushbutton (10C616). AND MAINTAIN the RDCS STATUS RESET Pushbutton depressed for a minimum of five seconds, AND PERFORM the following:	Operator determines resetting of RMCS is required.		
CUE:	**If asked, state "Resetting RMCS is required."**			
	A. WITH the pushbutton depressed, **OBSERVE** the status of the SCAN ERROR AND MASTER ERROR LEDs immediately to the right of the RDCS STATUS RESET Pushbutton.	***#Operator depresses the RESET pushbutton,**		
CUE:	**The indicated pushbutton is depressed.**			
	1. IF both LEDs are EXTINGUISHED following a minimum of five seconds, **RELEASE** RDCS STATUS RESET Pushbutton.	Operator continues to press the pushbutton for a minimum of 5 seconds, and observes the status of the SCAN ERROR AND MASTER ERROR LEDs immediately to the right of the RDCS STATUS RESET Pushbutton.		
CUE:	**The identified LEDs are extinguished.**			
	2. IF one OR both LEDs is NOT EXTINGUISHED after a minimum of five seconds, …	Operator determines and marks Step as N/A.		
	3. **RECORD** which LED did NOT extinguish on Attachment 3 WHEN applicable.	Operator determines and marks Step as N/A.		
	B. **INITIAL** Attachment 3. (performer and verifier)	Operator initials Attachment 3 and requests Verifier initials.		
CUE:	**Initial as Verifier.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.7.7.	**VERIFY** RDCS STATUS ROD BYPASSED is ON AND **INITIAL** Attachment 3. (performer and verifier) (10C651C)	Operator contacts the Main Control Room to verify RDCS STATUS ROD BYPASSED is ON.		
CUE:	**As NCO, acknowledge that RDCS ROD BYPASSED light is on.**			
		Operator initials Attachment 3, and requests Verifier initials.		
CUE:	**Initial as Verifier.**			
		Operator initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			

Task Standard: Operator DETERMINEs the Binary Code for rod 22-19 and bypasses Rod 22-19 by setting the Binary Code on BYPASSED ROD IDENTITY panel in accordance with HC.OP-SO.SF-0001, steps 4.7.1. thru 4.7.7.

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SF012 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SF012

REVISION HISTORY

Rev #	Date	Description	Validation Required?
16	9/27/2017	Revised procedure revision number. Editorial. Modified control rod location. Added location and panel drawings.	Y
00	9/27/2017	Modified from SF004. Originally numbered incorrectly.	N
01	9/27/19	Revised due to revision of reference procedure. Editorial	N
02	8-10-20	Revised due to revision of reference procedure. Edito. rial	N
03	8/9/21	Revised due to revision of reference procedure. KA # changed to reflect revision to NUREG 1123Editorial	N
NRC24	10-24-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SF012
TASK: Bypass A Control Rod In The Reactor Manual Control System

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

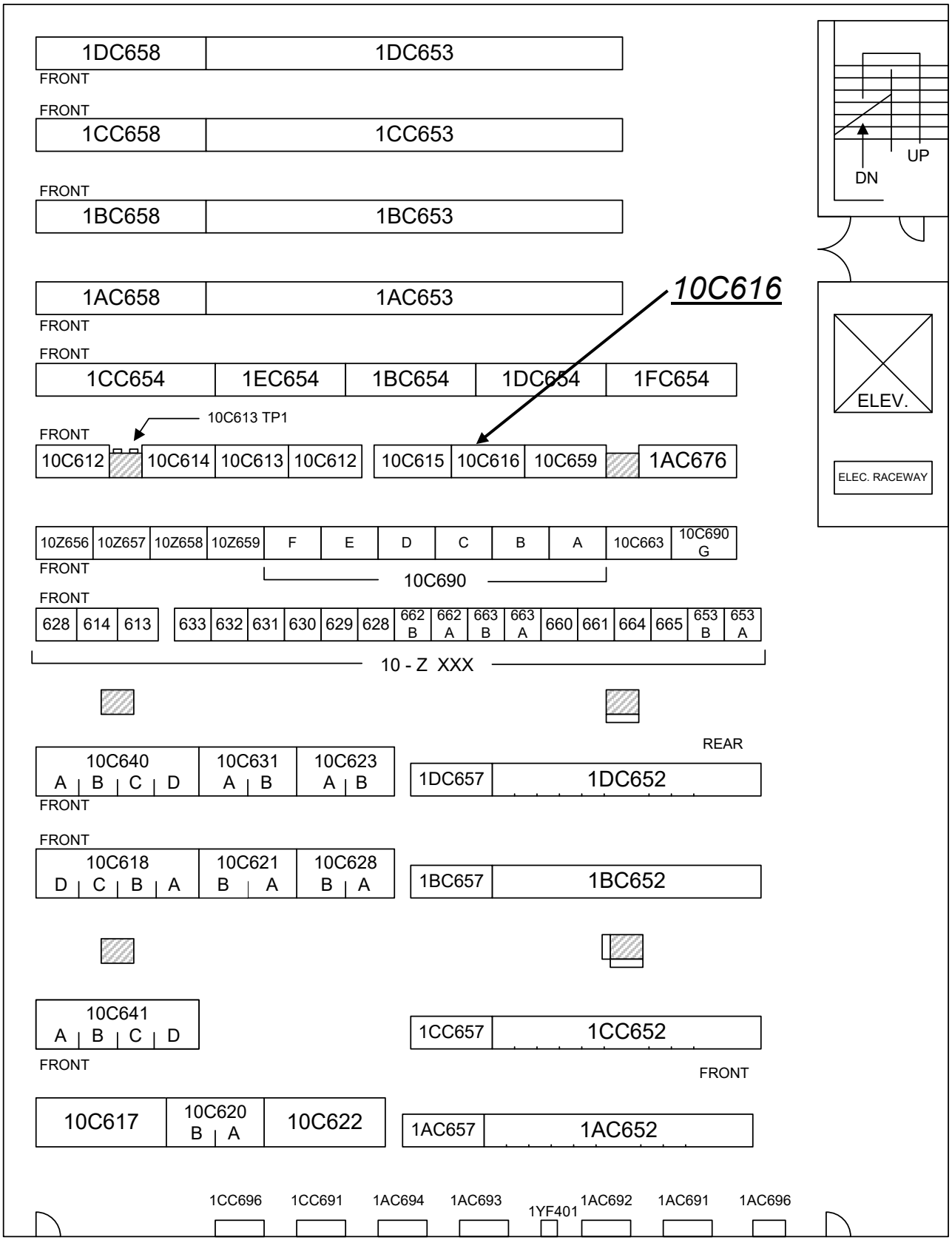
VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
E. SHAUB	RO	ON FILE	9/27/2017
M. JERMUSYK	SRO	ON FILE	9/27/2017

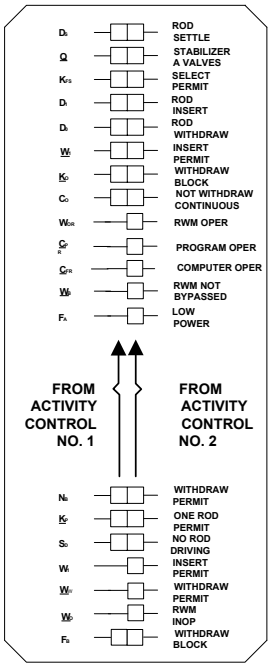
JOB PERFORMANCE MEASURE

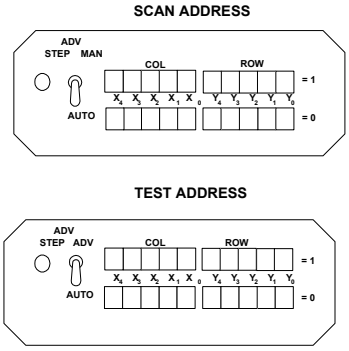
LOWER RELAY ROOM PANEL LOCATIONS

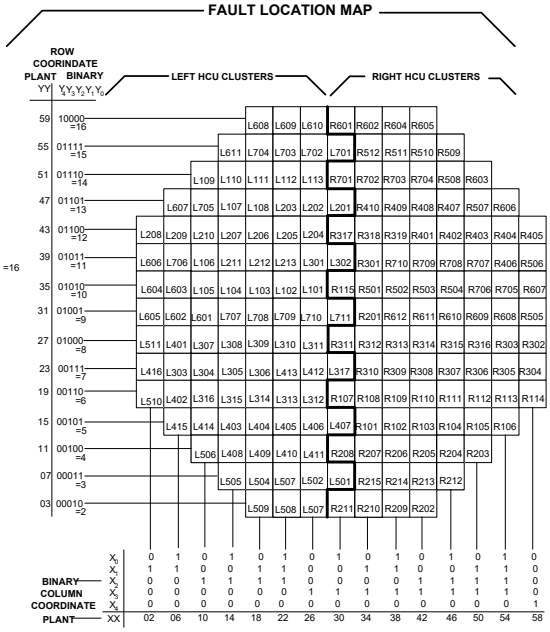


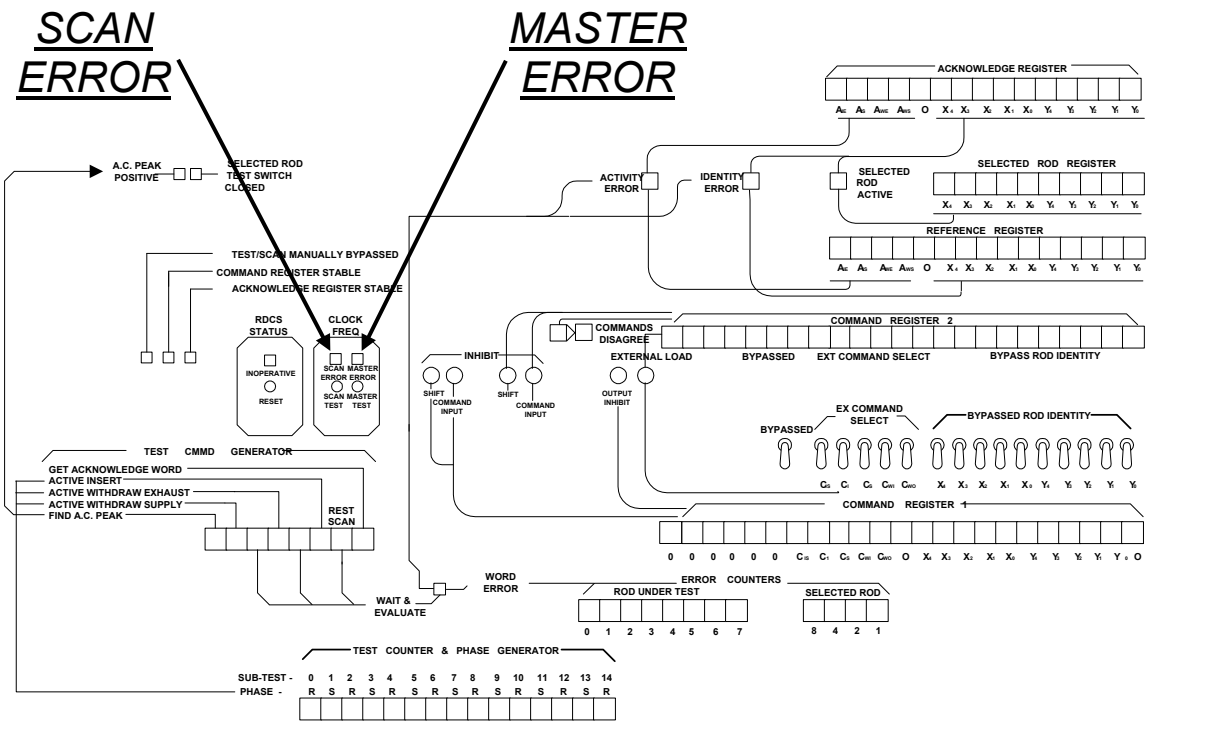
JOB PERFORMANCE MEASURE

ROD DRIVE CONTROL SYSTEM ANALYZER PAGE INDICATORS









JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power
2. The transponder card for Control Rod 22-19 has failed producing a RDCS fault.
3. Action J.3 of HC.OP-AB.IC-0001, Control Rod, was not successful.
4. There are no rod sequencing constraints.

INITIATING CUE:

BYPASS Rod 22-19 transponder, AND **RESET** RMCS in accordance with HC.OP-SO.SF-0001, Reactor Manual Control System Operation. Step 4.7.

Copy _____ of _____

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK NUMBER: 2990630301

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

2024 NRC ROA1

Copy _____ of _____

JPM NUMBER: 305H-JPM.NRC24 ZZ012 **REVISION:** NRC24

SAP BET: NOH05JPZZ12E

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

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

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒ **SRO** ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: OP-HC-112-101-F11 Rev.0

TOOLS, AND EQUIPMENT: Red pen, Black Pen

ESTIMATED COMPLETION TIME: 21 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Conduct of Operations

TASK NUMBER: 2990630301

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

INITIAL CONDIITONS:

1. The plant is at 100% power.
2. RACS Pump AP209 is C/T for scheduled maintenance.
3. Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
4. Preparations for shift relief are in progress.

INITIATING CUE:

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

Complete OP-HC-112-101-F11, Equipment Status Checklist.

Another operator has performed the Control Room key audit.

JOB PERFORMANCE MEASURE

JPM NUMBER: NRC24 ZZ012 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

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

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		*** Operator recognizes TIP TUBE PATH ISLN, ANY PATH OPEN indicator illuminated, and the ALL CLOSED indicator extinguished on 10C650D, and notes that it should be CLSD.** Examiner Note: It is not critical to determine which TIP indicates NCLSD.		
CUE:	**AFTER Operator recognizes TIP TUBE PATH ISLN, ANY PATH OPEN indicator illuminated and reports to CRS, THEN INFORM Operator the mis-positioning will be investigated and corrected by another Operator.**			
		*** Operator recognizes Core Spray "A" F031A is closed, and notes that it should be OPEN,** Examiner Note: Specific text of "Remarks" and "Notes" need not be exact, but convey the status of the components.		
CUE:	**AFTER Operator recognizes CS "A" F031A is closed and reports to CRS, THEN INFORM Operator the mis-positioning will be investigated and corrected by another Operator.**			
		Operator recognizes HPCI Flow Controller is set to 5300 gpm and should be set to 5700 gpm and reports to CRS.		
CUE:	**AFTER Operator recognizes RCIC Flow Controller is set to 500 gpm and reports to CRS, THEN INFORM Operator the mis-positioning will be investigated and corrected by another Operator.**			
		***Operator notes HPCI Flow Controller not properly set and notes that it should be set at 5700.** Examiner Note: Specific text of "Remarks" and "Notes" need not be exact, but convey the status of the components.		
		WHEN Checklist is complete, THEN Operator signs in Off-Going Operator block.		

JOB PERFORMANCE MEASURE

JPM NUMBER: NRC24 ZZ012 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP:** _____			
Task Standard: Operator completes the OP-HC-112-101-F11 Pages 1 thru 3, Equipment Status Checklist, and identifies discrepancies……				

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: NRC24 ZZ012 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JPM NUMBER: NRC24 ZZ012

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	2/14/2019	Revised due to procedure revision change. Revised initial conditions and equipment out-of-service.	Y
NRC24	10-18-23	Procedure revised. Discrepancies modified for NRC Exam	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: NRC24 ZZ012

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

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
NRC24	RO	On File	10-18-23
NRC24	SRO	On File	1-24-24

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: NRC24 ZZ012

INITIAL CONDITIONS:

	I.C.
Initial	

_____ **INITIALIZE** the simulator to 100% power.

_____ **ENSURE** equipment alignment matches attached checklist.

_____ **ADJUST** the HPCI Flow Controller SETPOINT to **5300** gpm.

_____ **ENSURE** TACS is supplied by SACS B.

_____ **ENSURE** EHC BP116 is in service.

_____ **OPEN** TIP DRIVE CHANNEL C Ball Valve on 10-C607.

_____ **CLOSE** – Core Spray Valve F031A

_____ **ENSURE** RACS BP209 and CP209 pumps are in service.

_____ **ENSURE** PCIG A in AUTO, and PCIG B in AULD.

C/T RACS Pump AP209 as follows:

_____ 1. **INSERT** Malfunction CW08A

_____ 2. **START** the RACS AP209 and allow to trip

_____ 3. **ACKNOWLEDGE** alarms

_____

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

_____ **PLACE** red bezel on RACS AP209 pump.

_____

	EVENT FILE:	
Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CW08A	RACS pump AP209 trip
	None	None	Insert malfunction AN-A2E2	CRYWOLF ANN A2E2 RACS TROUBLE

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None		

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 5A33_A2_LO to On	AP209 INOP-REACTOR AUXILARIES COOLING PUMP-PUMP A (LO)
	None	None	Insert override 5A33_F_LO to Off	AP209 STOP-REACTOR AUXILARIES COOLING PUMP-PUMP A (LO)
	None	None		
	None	None		
	None	None		
	None	None		
	None	None		

EQUIPMENT STATUS CHECKLIST

[CD-421Y]

Shift On-Duty A Days X Nights _____ Date TODAY

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

		Remarks
Cooling Water		
SSWS:	(A) C (B) (D)	
SACS:	(A) C (B) (D)	
TACS Loop:	A (B)	
RACS:	**X** (B) (C)	"A" RACS Pump C/T
Condenser/Condensate		
CW:	(A) (B) (C) (D)	
SJAE:	A (B)	
Offgas Train:	(Unit 1) Common	
PCP:	(A) (B) (C)	
SCP:	(A) (B) (C)	
HWCI:	(RUN) STOP	
Reactor Feedwater		
A RFP:	(AUTO)/MANUAL	
B RFP:	(AUTO)/MANUAL	
C RFP:	AUTO/(MANUAL)	
Startup Valve	AUTO/(MANUAL/CLOSED)	
Reactor		
RWCU Pump:	(A) (B)	
RWCU Filter-Demin:	(A) (B)	
Reactor Recirc Pumps:	(A) (B)	
CRD Pumps:	(A) B	
CRD Stabilizer:	(A) B	
CRD Flow Control:	(A) B	
Nuclear Instrumentation		
APRM:	(A) (C) (B) (D)	
IRM:	(A) (C) E G (B) (D) F H	
SRM:	(A) (C) (B) (D)	
RBM:	(A) (B)	
RWM:	(Operable) Inoperable	

EQUIPMENT STATUS CHECKLIST

											Remarks
Turbine:											
T/G Oil Pump OP111											
Motor Suction Pump OP108											
Emergency Bearing Oil Pump OP112											
EHC Pumps:	A				(B)						
Lift Pumps:	A	B	C	D	E	F	G	H	J		
Seals:	(SSE)				AUX						
Main Generator:											
Voltage Regulator:	(AUTO)				MANUAL						
Ready to Transfer:	(ON)				OFF						
Stabilizer:	(ON)				OFF						
Stator Cooling:	(A)				B						
SALEM Units On-line:	(1)	(2)			3						
Diesel Generator:	A	B	C	D							
Chilled Water:											
Turbine Bldg (K111):	(A)	(B)	C	D							
TB CW Pumps:	(A)	(B)	C								
TSC Chiller (K403):	A		(B)								
Control Area Chiller (K400):	A		(B)								
Ventilation:											
CREF:	A		B								
FRVS Recirc:	A	C	E	B	D	F					
FRVS Vent:	A		B								
Fans In Lockout:											
H2/O2 Analyzers:	A		B								
Fuel Pool Cooling Pumps:	(A)		B								
BOP System Bypass:	Yes		(No)								(Consistent With Plant Condition)

Containment Isolation Valves: Normal (Consistent With Plant Condition)
(Op Con 1, 2, 3 only)
10C650, Section D

All Expected Valve Positions open / TIPS closed

TIPS isolation indicates OPEN-CRS informed.

CRIDS Page 231 (See next page for expected positions)

Feedwater Heaters:	(Normal)										
Air Systems:											
Service Air:	(10K107)				00K107						
Emergency Instrument Air:	10K100										
PCIG:	A				B						
	(AUTO/AULD)				(AUTO/AULD)						
Aux Boiler:			B		C						

EQUIPMENT STATUS CHECKLIST

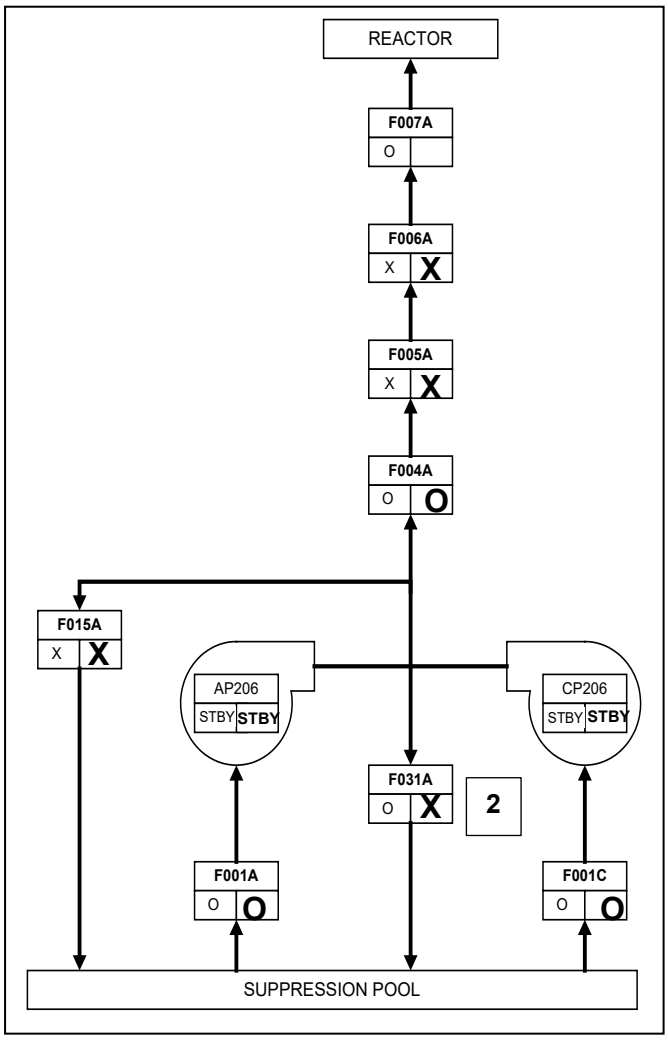
Refer to CRIDS Page 231 for Automatic Containment Isolation Valve Position Indication and compare to expected positions below.

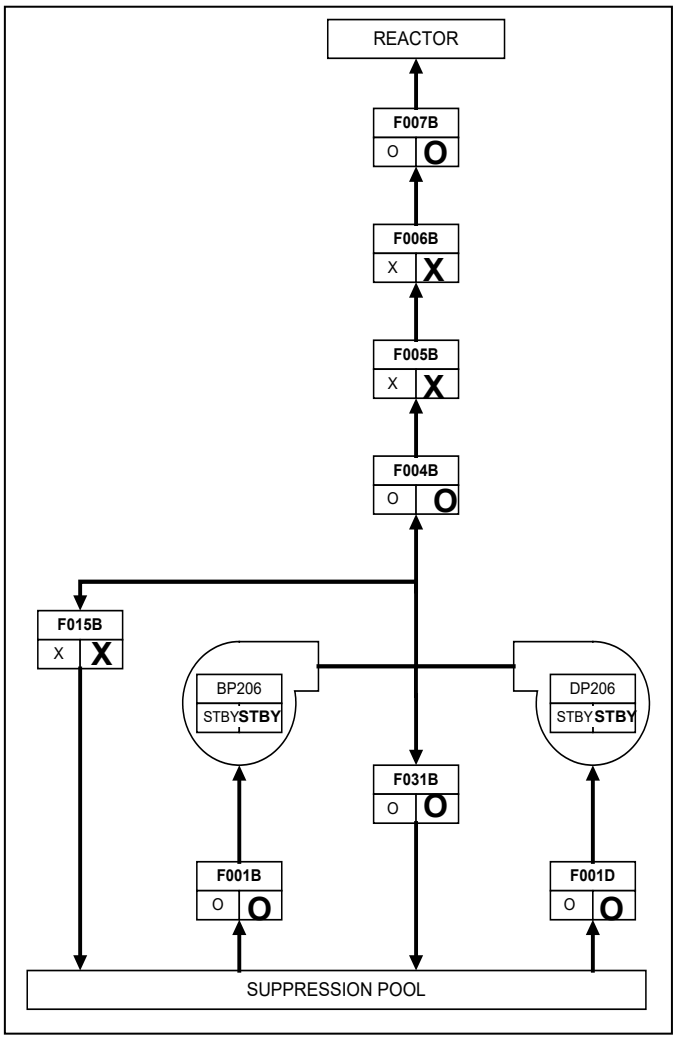
Valve Group	Inside Expected Position	Outside Expected Position
Main Steam 1A	NCLSD	NCLSD
Main Steam 1B	CLSD	CLSD
Main Steam 1C	N/A	N/A
Reactor Water Sample 2A	NCLSD	NCLSD
RHR 3A	N/A	CLSD
RHR 3B	N/A	CLSD
RHR 3C	CLSD	CLSD
RHR 3D	N/A	N/A
RHR 3E	N/A	CLSD
Core Spray 4A	N/A	CLSD
HPCI 5A	NCLSD	NCLSD
HPCI 5B	N/A	CLSD
HPCI 5C	N/A	NCLSD
HPCI 5D	NCLSD	N/A
RCIC 6A	NCLSD	NCLSD
RCIC 6B	N/A	NCLSD
RCIC 6C	NCLSD	N/A
RWCU 7A	NCLSD	NCLSD
Supp Pool Cleanup 8A	NCLSD	NCLSD
Supp Pool Cleanup 8B	NCLSD	NCLSD
Drywell Sumps 9A	NCLSD	NCLSD
Drywell Sumps 9	NCLSD	NCLSD

Valve Group	Inside Expected Position	Outside Expected Position
Drywell Clrs 10A	NCLSD	NCLSD
Drywell Clrs 10B	NCLSD	NCLSD
Recirc Seals 11A	N/A	NCLSD
CNTMT ATM Control 12A	CLSD	CLSD
CNTMT ATM Control 12B	CLSD	CLSD
CNTMT ATM Control 12C	CLSD	CLSD
CNTMT ATM Control 12D	CLSD	CLSD
CNTMT ATM Control 12E	N/A	CLSD
H2/O2 ANAL 13A	CLSD	CLSD
H2/O2 ANAL 13B	CLSD	CLSD
H2/O2 ANAL 13C	CLSD	CLSD
CNTMT H2 Recomb 14A	CLSD	CLSD
CNTMT H2 Recomb 14B	CLSD	CLSD
PCIGS 15A	NCLSD	NCLSD
PCIGS 15B	NCLSD	NCLSD
PCIGS 15C	NCLSD	NCLSD
RACS 16A	NCLSD	NCLSD
RACS 16B	NCLSD	NCLSD
TIP 17A	N/A	See 10C650D
TIP 17B	N/A	NCLSD (1)
RCPD LKG DET 18A	NCLSD	NCLSD
RCPD LKG DET 18B	NCLSD	NCLSD

Remarks: (1) **TIPS isolation 17B indicates OPEN - CRS informed.**

EQUIPMENT STATUS CHECKLIST
CORE SPRAY





REMARKS: 2 - Core Spray F031A indicates CLOSED – CRS Informed _____

_____

_____

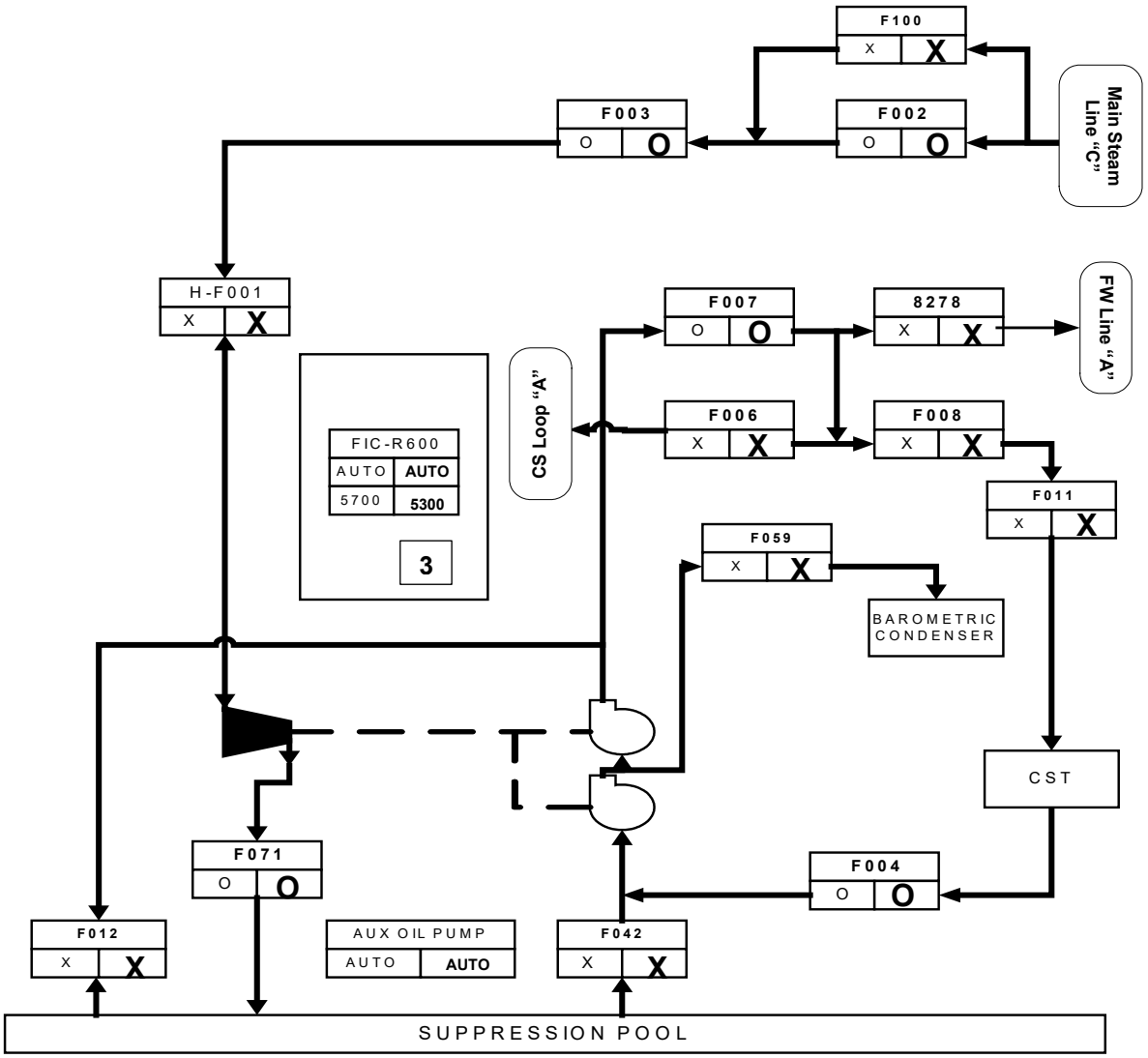
_____

_____

_____

EQUIPMENT STATUS CHECKLIST

HPCI SYSTEM



REMARKS: 3- HPCI Flow Controller set at 5300 – CRS Informed _____

_____

_____

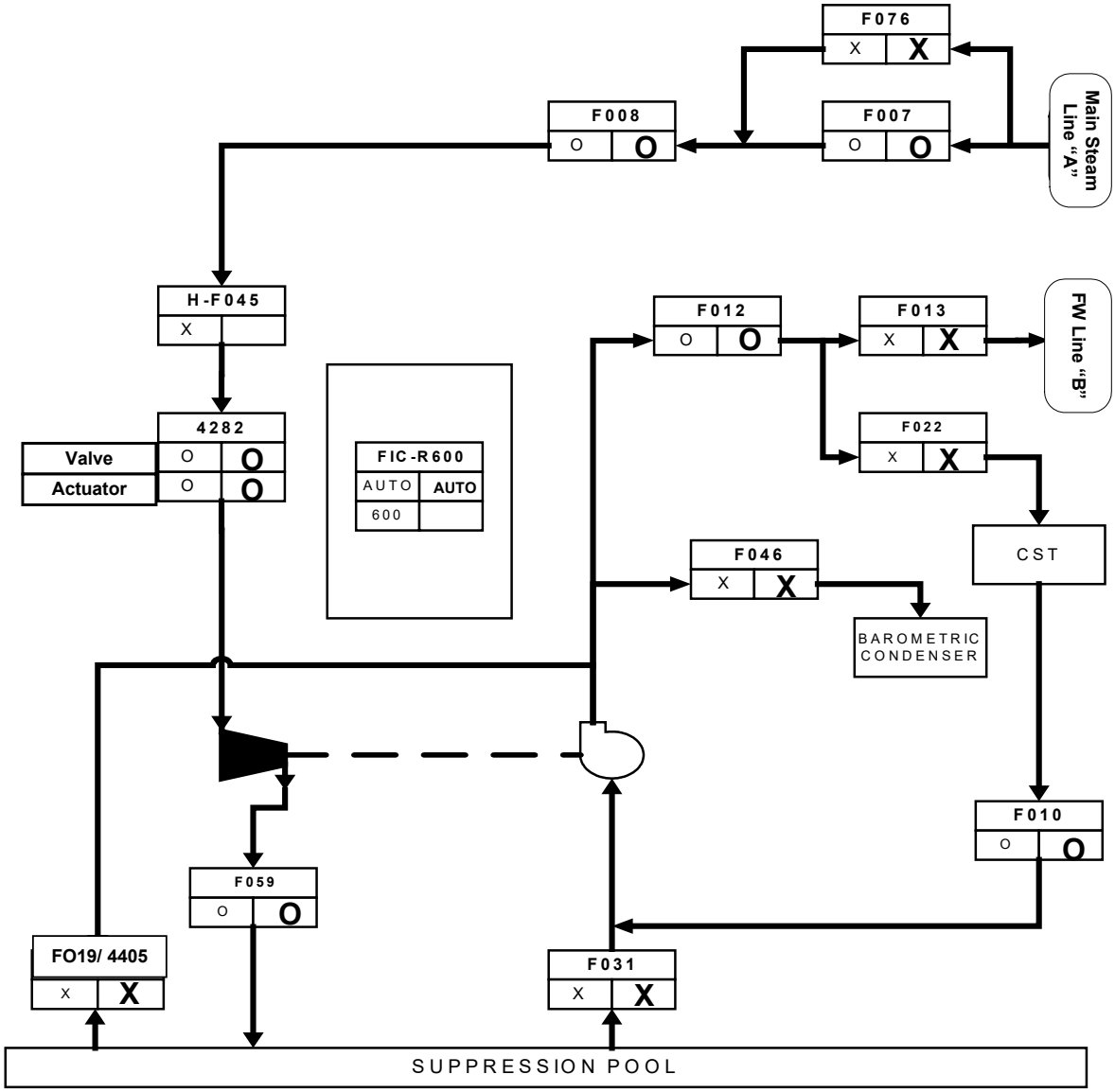
_____

_____

_____

EQUIPMENT STATUS CHECKLIST

RCIC SYSTEM



REMARKS: _____

_____

_____

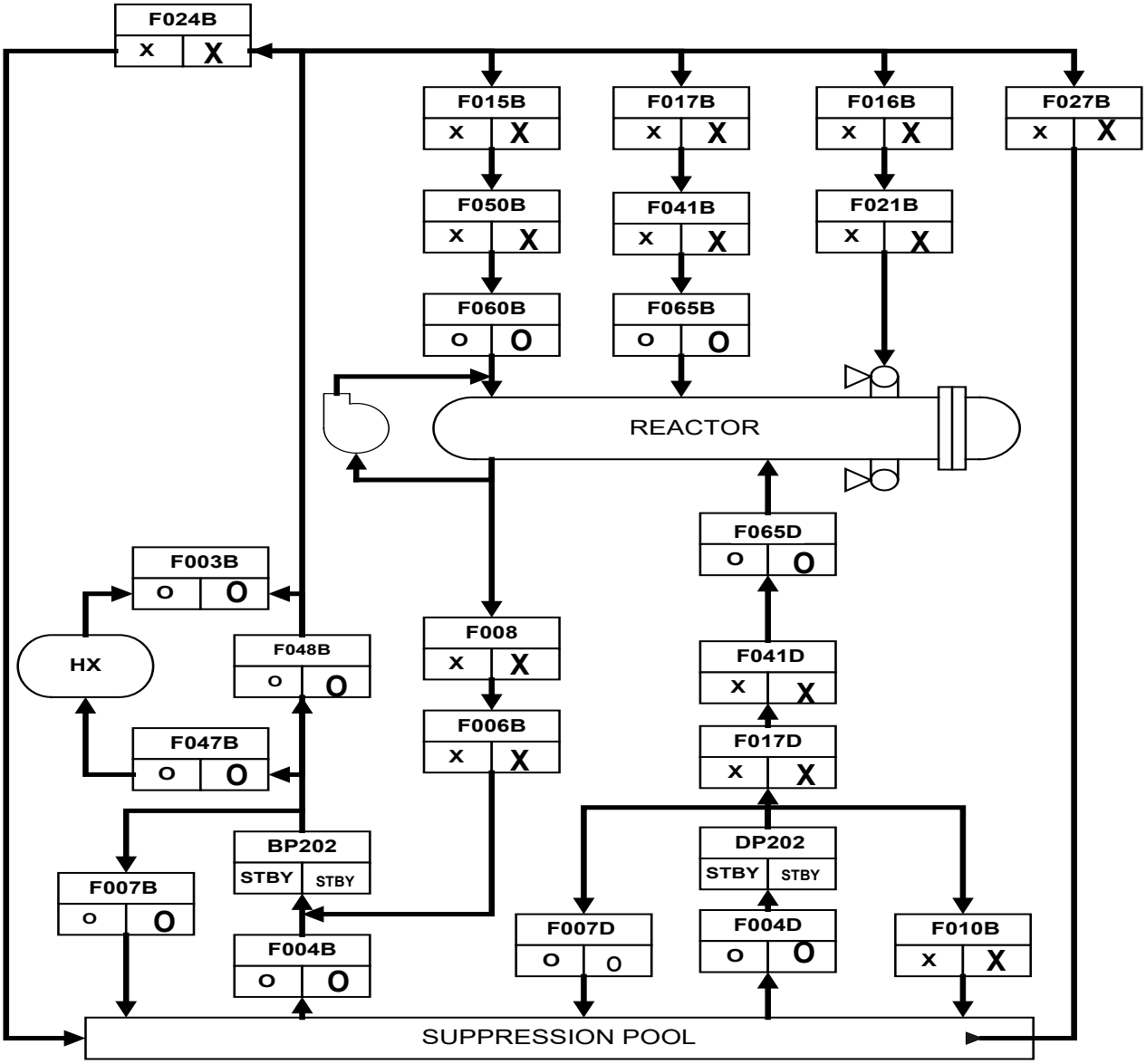
_____

_____

_____

EQUIPMENT STATUS CHECKLIST

RHR "B"



REMARKS: _____

_____

_____

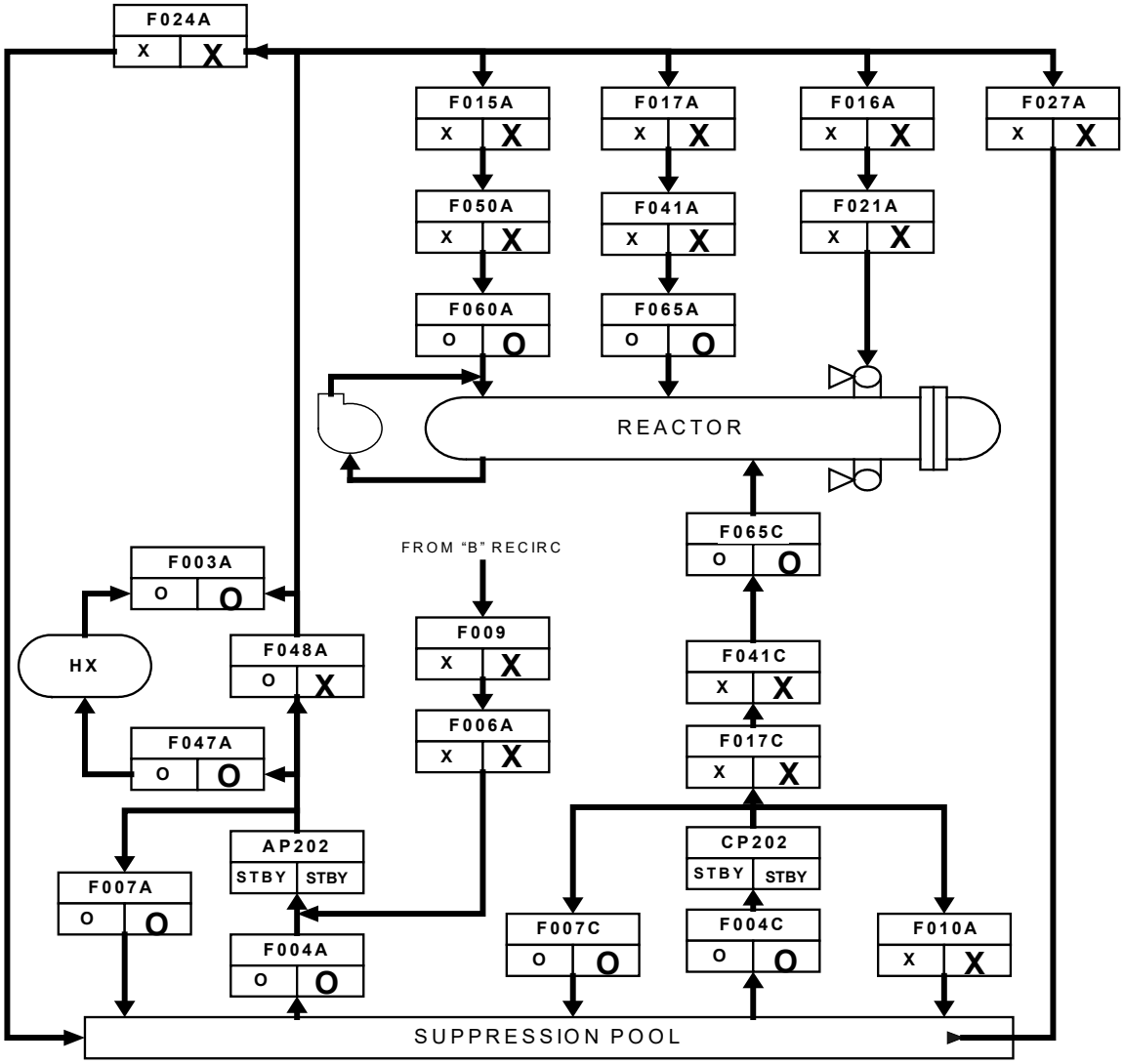
_____

_____

_____

EQUIPMENT STATUS CHECKLIST

RHR "A"



REMARKS: _____

Control Key Audit Performed By: _____ **Initials**

Checklist Performed By: **INITIALS** **Off-going Operator**

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. RACS Pump AP209 is C/T for scheduled maintenance.
3. Salem Units 1 and 2 are in service, Salem Unit 3 is available but NOT in service.
4. Preparations for shift relief are in progress.

INITIATING CUE:

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

COMPLETE OP-HC-112-101-F11, Equipment Status Checklist

Another operator has performed the Control Room key audit.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK NUMBER: 2160010201

TASK: Perform An Accident Monitoring Instrumentation Channel Check

2024 NRC
ROA2

Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ025 **REVISION:** NRC24A2

SAP BET: NOH05JP25E

K/A NUMBER: 2.1.45 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☐ **SRO** ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.SH-0001, Rev. 37

TOOLS, AND EQUIPMENT: Marked up HC.OP-ST.SH-0001.

ESTIMATED COMPLETION TIME: 16 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Equipment Control

TASK NUMBER: 2160010201

TASK: Perform An Accident Monitoring Instrumentation Channel Check

INITIAL CONDITIONS:

1. HC.OP-ST.SH-0001(Q), Accident Monitoring Instrumentation Channel Check – Monthly is required.
2. No other testing or maintenance is in progress that will adversely affect the performance of this test.
3. The NCO has been informed that this test is to be performed and the alarms, indications and functions listed in Exhibit 1 may be observed.

INITIATING CUE:

PERFORM Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q).
Another operator will complete the rest of the Surveillance (Steps 5.7 to end).

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; prepared copy of HC.OP-ST.SH-0001; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.		
NOTE	A Channel Check shall be the qualitative assessment of channel behavior …	Operator reads and initials NOTE.		
5.1	**LOG** test start time in the Control Room log(s).	Operator requests that the test start time be logged in the Control Room log(s).		
CUE:	**The test start time has been logged.**			
5.2	**ENSURE** that all prerequisites have been satisfied IAW Section 2.0.	Operator completes Attachment 1, Section 3.0 determines, and determines that all prerequisites have been satisfied and initials each, and initials Step.		
5.3	**ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed AND Regular Surveillance OR Retest is indicated.	Operator ensures that Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed AND Regular Surveillance OR Retest is indicated, and initials Step.		
NOTE:	**Refer to the attached completed HC.OP-ST.SH-0001.** **Note: Standard values provided may differ from the actual indications. Correct the Standard values as necessary.**			
5.4 5.4.1.	**RECORD** the following Reactor Vessel, pressure readings on Attachment 2 REACTOR PRESSURE Indicator PI-3684A (Red)	***Operator records the value indicated on Reactor Pressure Indicator PI-3684A,** **1004 ±1 psig** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.4.2.	REACTOR PRESSURE Recorder PI-3684A-1 (Red) (alternate indication for PI-3684A) (Panel 10C650 Section B Subsection B)	***Operator records the value indicated on Reactor Pressure Recorder PI-3684A-1 (Panel 10C650 Section B Subsection B),** **1004 ±1 psig** and initials Step.		
5.4.3.	REACTOR PRESSURE Recorder PR-3684B (Red)	***Operator records the value indicated on Reactor Pressure Recorder PR-3684B,** **1004 ±1 psig** and initials Step.		
5.4.4.	**PERFORM** a Channel Check of Reactor Vessel Pressure instruments, **ENTER** SAT or UNSAT, AND **INITIAL** the appropriate space on Attachment 2. **[T/S 4.3.7.5-1, item 1]**	***Operator performs a Channel Check of Reactor Vessel Pressure instruments, enters SAT, and initials the appropriate space on Attachment 2,** and initials Step.		
5.5 5.5.1.	**RECORD** the following Reactor Vessel Water Level readings on Attachment 2: REACTOR FUEL ZONE Water Level Recorder LR-R615 (10C650 A Subsection F)	***Operator records the value indicated on Reactor Fuel Zone Water Level Recorder LR-R615,** **-111.0 ±0.2 inch** and initials Step.		
5.5.2.	REACTOR FUEL ZONE Water Level Indicator LI-R610 (10C650 A Subsection G)	***Operator records the value indicated on Reactor Fuel Zone Water Level Recorder LR-R615,** **-111.1 ±0.2 inch** and initials Step.		
5.5.3.	REACTOR CHANNEL A Water Level Recorder LR-R623A (Red)	***Operator records the value indicated on Reactor Channel A Water Level Recorder LR-R623A,** **26.1 ±0.2 inch** and initials Step.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.5.4.	REACTOR CHANNEL B Water Level Recorder LR-R623B (Red)	***Operator records the value indicated on Reactor Channel B Water Level Recorder LR-R623B,** **32.0 ±0.2 inch** and initials Step.		
5.5.5.	REACTOR WATER Level Recorder LR-3622A (Blue)	***Operator records the value indicated on Reactor Water Level Recorder LR-3622A,** **32.3 +0.2 inch** and initials Step.		
5.5.6.	REACTOR WATER Level Recorder LR-3622B (Blue)	***Operator records the value indicated on Reactor Water Level Recorder LR-3622B,** **30.4 ±0.2 inch** and initials Step.		
5.5.7.	**PERFORM** a Channel Check of Reactor Water Level instrumentation **ENTER** SAT or UNSAT AND **INITIAL** the appropriate space on Attachment 2. **[T/S 4.3.7.5-1, item 2]**	***Operator performs a Channel Check of Reactor Water Level instruments, enters SAT, and initials the appropriate space on Attachment 2,** and initials Step.		
	ATTACHMENT 2 **NOTE 1** IF maximum channel variance exceeds half the required value **NOTIFY** System Engineer. **[CD-772F]**	***Operator refers to NOTE 1, determines the difference between LR-R623A and LR-R623B exceeds half the Max Variance, and notifying System Engineering is required.** Annotating in 2.3.1 REMARKS to notify System Engineering, OR informing CRS that notification of System Engineering, satisfies this Critical Step.		
CUE:	**ACKNOWLEDGE report from operator that variance between LR-R623A and LR-R623B exceeds half the Max Variance.**			

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6 5.6.1.	**RECORD** the following Suppression Pool Water Level readings on Attachment 2: SUPPRESSION POOL Water Level Recorder LR-4805-1 (RED) (10C650B Subsection B)	***Operator records the value indicated on Suppression Pool Water Level Recorder LR-4805-1,** **73.7 ±0.2 inch** and initials Step.		
5.6.2.	SUPPRESSION POOL Water Level Indicator LI-4801 (BLUE)	***Operator records the value indicated on Suppression Pool Water Level Recorder LR-4801,** **76.1 ±0.2 inch** and initials Step.		
5.6.3.	**PERFORM** a Channel Check of Suppression Pool Water Level instrumentation **ENTER** SAT or UNSAT AND **INITIAL** the appropriate space on Attachment 2. **[CD-488E] [T/S 4.3.7.5-1, item 3]**	***Operator performs a Channel Check of Suppression Pool Water Level instruments, enters SAT, and initials the appropriate space on Attachment 2,** and initials Step.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator performs Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q) and determines the difference between LR-R623A and LR-R623B for RX LVL Channel Check exceeds half the Max Variance, and notifying System Engineering is required.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ025 **NAME:** _____
REV NUMBER: NRC24A2 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ025

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	11/15/2017	Revised due to reference procedure change. Revised Overrides to ensure some additional variances in readings. Validated with 2 ROs.	Y
04	6/17/2019	Revised Revision Number of Referenced Procedure. Editorial	N
04	1/22/21	Revalidated with 2 ROs. No changes required	Y
NRCROA2	10-14-23	Steps reviewed to ensure accuracy to current reference procedure revision. Task Standard updated. No change to JPM steps. Editorial change	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ025
TASK: Perform An Accident Monitoring Instrumentation Channel Check

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
J. Williams	RO	Signature on File	1/22/21
E. Heil	RO	Signature on File	1/22/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ025 **REV#:** NRC24A2

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** the simulator to 100% power.

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

Initial	Description

_____ **COMPLETE** Section 1 of HC.OP-ST.SH-0001 to support the surveillance.

_____ **INSERT** Overrides.

_____ **ENSURE** other indications are SAT IAW the surveillance. Adjust as necessary.

_____ **REMOVE** any simulated plant Red Stripes associated with surveillance instruments.

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

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 8AR29_B_AO to 32.27480	REACTOR WATER LEVEL LR-3622A (AO)
	None	None	Insert override 8AR28_B_AO to 30.40000	REACTOR WATER LEVELLR-3622B (AO)
	None	None	Insert override 9AR1_R_AO to 73.77180	LR-4805-1 R (AO)
	None	None	Insert override 8AR22_R_AO to 26.10000	REAC LEVEL LR-R623A-B21 (AO)
	None	None	Insert override 8AR26_R_AO to 32.10000	REAC LEVEL LR-R623B-B21 (AO)

INITIAL CONDITIONS:

1. HC.OP-ST.SH-0001(Q), Accident Monitoring Instrumentation Channel Check – Monthly is required.
2. No other testing or maintenance is in progress that will adversely affect the performance of this test.
3. The NCO has been informed that this test is to be performed and the alarms, indications and functions listed in Exhibit 1 may be observed.

INITIATING CUE:

PERFORM Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q).

Another operator will complete the rest of the Surveillance (Steps 5.7 to end).

Copy _____ of _____

JOB PERFORMANCE MEASURE

2024 NRC RO A3

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Identify Fuel Pool Cooling Leak Isolations, Vent & Drain Paths

JPM NUMBER: 305H-JPM.NRC24A3 **REVISION:** NRC24

SAP BET: NOH05JPZZ22A3

K/A NUMBER: 2.2.41 Ability to obtain and interpret station electrical and mechanical drawings. (CFR: 41.10 / 45.12 / 45.13)

IMPORTANCE FACTOR: RO: 3.5 SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☒ **SRO** ☐

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: M-53-1, E-021-1 OP-AA-109-115

TOOLS, AND EQUIPMENT: Highlighters;

ESTIMATED COMPLETION TIME: 20 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Identify Fuel Pool Cooling Leak Isolations, Vent & Drain Paths

INITIAL CONDITIONS:

1. 100% Power
2. Fuel Pool Cooling is in its normal lineup
3. A pencil size leak has been reported by Maintenance to the Shift Manager on the suction piping between the “A” FPC PP Suction Valve and the A FPC PP Pump casing.
4. eSOMS is not available

INITIATING CUE:

JOB PERFORMANCE MEASURE

1. Develop a tagout that isolates the portion of piping identified above.

2. Use controlled station drawings M-53-1, E-021-1. (provided):

3. IDENTIFY the Mechanical components that are required to be tagged, and their required positions.

4. INCLUDE Vent Valve(s) and Drain Valve(s) in their required position. NO other vents or drains are required to be identified

5. IDENTIFY the Electrical component(s) (noun name(s)) that is/are required to be tagged, and required position(s).

6. USE provided OP-AA-109-115-F4 (TAG HANG/REMOVAL LIST) to document the above.

NOTES:

1. Double valve isolation is not required

2. The following are NOT required to be identified:
   - Control switches
   - Type of tag (Red blocking Tag, Worker Blocking Tag, etc)
   - Current position
   - Tag Sequence

3. Tagout # is 12345678

4. Flushing connections are NOT to be used as blocking points

JPM NUMBER: NRC24A3 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue; M-53-1 AND E-021-1 **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-109-115				
4.1.2	**Determine Blocking Points and Tag Types (Initiator)** Review: – Controlled Documents and Drawings from the TDR or DCRMS.	Operator reviews provided M-53-1 AND E-021-1		
	Perform the following: – Select blocking points	Operator determines the blocking points AND required positions by reviewing the controlled drawing.		

JPM NUMBER: NRC24A3 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	1. Applicant reviews P&IDs and identifies mechanical components required to ISOLATE the leak on the suction of the A Fuel Pool Cooling pump. Valves designated **CLOSED** (ITEMS **BOLDED** are CRITICAL)	***Applicant identifies the following mechanical isolation valves <u>AND</u> the required CLOSED position:** • **V008- Discharge Valve** • **V006 – Suction Valve**		
	2. Applicant reviews P&IDs and identifies electrical components required to ISOLATE the leak on the suction of the A FPC pump. **Evaluator NOTE:** 52-212-103 ('A' FPC Pump Motor Breaker) can be designated "O" or "Open", "Off" "Racked Out" or "Disconnect"	***Applicant identifies the following ELECTRICAL components <u>AND</u> the required positions:** • **MCC 52-212103 A FPC Pump Motor**		

JPM NUMBER: NRC24A3 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. Applicant notates on tagout form the VENT Valve information provided in the cue in appropriate position (Valve OPEN)	***Applicant identifies the following mechanical VENT valve in the OPEN position:** • **V035 – Vent**		
	4. Applicant notates on the tagout form the DRAIN valve information provided in the cue in the appropriate position. (Valve OPEN). A single drain valve is required by OP-AA-109-115, either or both drain valves selected is acceptable.	***Applicant identifies a mechanical DRAIN valve(s) in the OPEN position:** • **V036 – Pump Casing Drain** **AND/OR** • **V166 – Suction Line Drain**		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator **IDENTIFIES** the mechanical and electrical components noted above in critical steps, and their required positions, to **ISOLATE**, AND **DRAIN** the affected pump using controlled station Mechanical Drawings as noted.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: NRC24A3 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JPM NUMBER: NRC24A3

REVISION HISTORY

Rev #	Date	Description	Validation Required?
NRC24	11-8-23	Blocking Points Reviewed & Validated	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: NRC24A3 **REV#:** NRC24
TASK: Identify Fuel Pool Cooling Leak Isolations, Vent & Drain Paths

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

VALIDATED BY:

Qualification Level Required: RO

JOB PERFORMANCE MEASURE

J. Koskey	RO	On File	11-8-23
Name	Qual	Signature	Date

K. Mitchell	SRO	On file	11-8-23
Name	Qual	Signature	Date

INITIAL CONDITIONS:

1. 100% Power
2. Fuel Pool Cooling is in its normal lineup
3. A pencil size leak has been reported by Maintenance to the Shift Manager on the suction piping between the “A” FPC PP Suction Valve and the A FPC PP Pump casing.
4. eSOMS is not available

INITIATING CUE:

JOB PERFORMANCE MEASURE

1. Develop a tagout that isolates the portion of piping identified above.

2. Use controlled station drawings M-53-1, E-021-1.
(provided):

3. IDENTIFY the Mechanical components that are required to be tagged, and their required positions.

4. INCLUDE Vent Valve and Drain Valve in their required position.

5. IDENTIFY the Electrical component(s) (noun name(s)) that is/are required to be tagged, and required position(s).

6. USE provided OP-AA-109-115-F4 (TAG HANG/REMOVAL LIST) to document the above.

NOTES:

1. Double valve isolation is not required

2. The following are NOT required to be identified:
   - Control switches
   - Type of tag (Red blocking Tag, Worker Blocking Tag, etc)
   - Current position
   - Tag Sequence

3. Tagout # is 12345678

4. Flushing connections are NOT to be used as blocking points

JOB PERFORMANCE MEASURE
TAG HANG / REMOVAL LIST

■ REQUEST

☐ RELEASE TYPE (circle one) FULL TEMPORARY

DISCIPLINE REVIEWS: N / A

TAGOUT NUMBER: 12345678 This Worksheet: Page ____ of ____

Seq.	FLOC Identifier	Tagging Point Description	Tag Type	Current Position	Desired Position	Apply/Release Date/Time	Q Init
N/A			N/A	N/A		N/A	N
N/A			N/A	N/A		N/A	N

TAGGED BY: DATE/TIME: VERIFIED BY: DATE/TIME:

JOB PERFORMANCE MEASURE

Copy _____ of _____

2024 NRC
ROA4

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 4000270401

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

JPM NUMBER: 305H-JPM.NRC24A4 **REVISION:** NRC24

SAP BET: NOH05JPZZ19E

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

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☒ **STA** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0004, Rev. 8 HC.OP-DL.ZZ-0026, Rev. 174

TOOLS, AND EQUIPMENT: Calculator

ESTIMATED COMPLETION TIME: 10 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4000270401

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

INITIAL CONDITIONS:

1. North Plant Vent (NPV) Stack radiation monitoring activity was rising on RM-11 point 9RX590.
2. SPDS is unavailable.
3. HC.OP-AB.CONT-0004 is being executed to determine and stop the release of activity.
4. NPV Exh Flow instrumentation channel 9AX300 is inoperable. Flow is being estimated in accordance with HC.OP-DL.ZZ-0026(Q), Attachment 3u (Provided).
5. Monitor Item 136 display is 001.

INITIATING CUE:

DETERMINE the Release Rate of **NOBLE GAS** from the **NPV** in accordance with HC.OP-AB.CONT-0004, Action A.4.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue; HC.OP-DL.ZZ-0026(Q), Attachment 3u; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0004.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.4		
A.4	**DETERMINE** the Total Release Rates of Noble Gas and Iodine as follows: • USE the SPDS Noble Gas Total. OR • USE one of the Formulas in Table "A".	Operator determines that to calculate the Noble Gas release from the NPV the formula in Table "A" must be used.		

IF the effluent (µCi/sec) channel on the RM-11 is NOT operating for a specific plant vent, THEN **CALCULATE** the Noble Gas release rate for that vent using the following:

$$\frac{\text{µCi/cc (n.g.)}}{} \times \frac{\text{Plant Vent Exh Flow in cfm}}{} \times 472 = \frac{}{\text{µCi/sec (n.g.)}}$$

Where:

µCi/cc (n.g.)	The concentration of Noble Gas obtained from the RM-11 (the operable channel is indicated on monitor Item 136 at RM-23A**) OR from an actual sample of the plant vent
472	The conversion factor in units of cc/sec/cfm
µCi/sec (n.g.)	The calculated release rate from the specified plant vent (Noble Gas)

** Monitor Item 136 display: (This monitor item is not accessible from the RM-11)
001 = Channel 1, Low Range
002 = Channel 2, Mid Range
003 = Channel 3, High Range

		Operator manipulates the RM-11 terminal to obtain the value of NPV Noble Gas release from the 9RX602 Low Range detector and enters the value into the formula. ***4.00E-5 uCi/cc.**		

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		Operator transfers the Plant Vent Exh Flow value from Attachment 3u of HC.OP-DL.ZZ-0026 (provided). ***49613.9 CFM (49614 CFM acceptable)**		
		Operator calculates the NPV Noble Gas release rate. Calculated Value = 4.00E-5 µCi/cc * 49613.9 CFM * 472= ***936.7 µCi/sec (+ 0.5)**		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator calculates the Release Rate of NOBLE GAS from the NPV in accordance with HC.OP-AB.CONT-0004, Action A.4.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: NRC24A4 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JPM NUMBER: NRC24A4

REVISION HISTORY

JOB PERFORMANCE MEASURE

Rev #	Date	Description	Validation Required?
04	7/25/2016	Updated due to procedure revision. No changes to operator actions. Validated for NRC Exam.	N
05	11/15/2017	Added formatting removed for NRC Exam. Revised due to procedure revision. Editorial changes only. Validated with 2 SROs.	N
NRC24	11-9-23	Reference procedures revised. No change to JPM steps	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: NRC24A4
TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

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

VALIDATED BY:

Qualification Level Required: RO

Name	Qual	Signature	Date
J. Moss	SRO	On File	11/15/2017
B. Padworny	SRO	On File	11/15/2017

JPM NUMBER: NRC24A4 **REV#:** NRC24

INITIAL CONDITIONS:

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I.C.	
Initial	

_____ **INITIALIZE** the simulator to 100% power, MOL.

_____ **INSERT** Malfunctions.

_____ **ACKNOWLEDGE** alarms.

_____ **DISABLE** CRIDS monitors (Turn Off) to prevent use.

_____ **PLACE** the Simulator in FREEZE.

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

Initial	Description

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

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction RM9590 to 0.00000	9RX590, NPV EFF - North Plant Vent Noble Gas Effluent
	None	None	Insert malfunction RM9602 to 0.00004	9RX602, NPV LOW - North Plant Vent Range Noble Gas
	None	None	Insert malfunction CC01	CRIDS Computer Failure

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. North Plant Vent (NPV) Stack radiation monitoring activity was rising on RM-11 point 9RX590.
2. SPDS is unavailable.
3. HC.OP-AB.CONT-0004 is being executed to determine and stop the release of activity.
4. NPV Exh Flow instrumentation channel 9AX300 is inoperable. Flow is being estimated in accordance with HC.OP-DL.ZZ-0026(Q), Attachment 3u (Provided).
5. Monitor Item 136 display is 001.

INITIATING CUE:

DETERMINE the Release Rate of **NOBLE GAS** from the **NPV** in accordance with HC.OP-AB.CONT-0004, Action A.4.

Copy _____ of _____

JOB PERFORMANCE MEASURE

TRAINING ONLY

ATTACHMENT 3u
Radioactive Gaseous Effluent Monitoring (North Plant Vent)
T/S 6.8.4.g ODCM TABLE 3.3.7.11-1 ACTION 122

If the North Plant Vent Flow Rate Monitor is Inoperable, Effluent Releases via this pathway may continue for up to 30 days provided flow rate is estimated at least once per 4 hours.
Readings are taken every 3 hours to ensure that the 4 hour Tech Spec Action limit is not exceeded per administrative requirements and after a change in the ventilation line-up.
If flow indication(s) become unavailable, then the "NORM" flow value may be logged for the specific fan alignment.

Date _____ **TODAY**

Location Aux/Turb/Radwaste

PARAMETER		NORM	ENTER TIME OF EACH READING BELOW								COMMENTS
SOLID RADWASTE EXH FAN (pnl 00C380)	A318	17,000	**17358**								
SOLID RADWASTE EXH FAN (pnl 00C380)	B318	17,000	**17163**								
CHEM LAB EXH (pnl 00C392)	A307 FI-9737A	7,500	**7528**								
CHEM LAB EXH (pnl 00C392)	B307 FI-9737B	7,500	**7519**								
OFFGAS DISCHARGE	HA-XR-10022 (SCFM) OR 9AX343 (SCFM)	---	**45.9**								
TOTAL FLOW			**49613.9**								
ESTIMATED TOTAL FLOW **REPORTED** TO RAD PRO – (YES)			**YES**								

TRAINING ONLY

JOB PERFORMANCE MEASURE

2024 NRC
SRO A1

STATION: Hope Creek

COPY _____ OF _____

SYSTEM: Administrative

TASK NUMBER: 2992320302

TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

JPM NUMBER: 305H-JPM.NRC24SROA1 **REVISION:** NRC24

SAP BET: NOH05JPZZ49E

K/A NUMBER: 2.1..25 **IMPORTANCE FACTOR:** RO: 3.9 SRO: 4.2

Ability to interpret reference materials, such as graphs, curves, tables, etc..

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-116-1001, Rev. 8

TOOLS, AND EQUIPMENT: OP-HC-108-116-1001; Straight-edge

ESTIMATED COMPLETION TIME: 8 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2992320302

TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

INITIAL CONDITIONS:

1. Plant is operating at 100% power following the last refueling outage ending on October 17, 2022 **CURRENT DATE IS February 15, 2024.**
2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicates 86 Degrees F.
4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.
5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination. Note any discrepancies (if any).

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator: the initiating cue; completed copy of OP-HC-108-116-1001 Attachment 3; a modified copy of OP-HC-108-116-1001(Attachment 1 Date Modified and marked NOT FOR PLANT USE); AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-HC-108-116-1001				
OP-HC-108-116-1001 **4. MAIN BODY**				
4.1	IF Spent Fuel Pool heat load has increased AND Attachment 1 has not been updated, THEN **ASSUME** the time to reach 200°F is less than 72 hours AND **CONTINUE** at Step 4.5.	**Step is N/A**		
4.2	**DETERMINE** the approximate SFP Decay Heat Rate for the current date using Attachment 1, Spent Fuel Pool Decay Heat Load Determination.	***#Operator determines that the approximate SFP decay heat rate for the current date is approximately 4.5 [±0.1] MBtu/hr.**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
4.3	**SELECT** the series of curves from Attachment 2 as follows: 1. The series of curves with the Initial Pool Temperature matching the current SFP temperature, OR 2. The series of curves with Initial Pool Temperature **just above the current SFP temperature.**	***# Operator selects Page 5 of ATTACHMENT 2 (rounding up 86F to 90F).**		
4.4	**DETERMINE** the time, in hours, for the SFP to reach 200°F using the SFP Decay Heat Rate determined in Step 4.2 and the corresponding curve from the series of curves selected in Step 4.3; interpolate between the lines.	***# Operator determines the time in hours for the SFP to reach 200°F in the event normal cooling is lost is approximately 93 [±2] hours. Therefore, Attachment 3 is NOT properly completed in accordance with OP-HC-108-116-1001.**		
4.4	Submit the completed time to CRS for review.	N/A	N/A	N/A
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator correctly (in accordance with the grading criteria as described in NUREG 1021 ES-303) performs the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: NRC24SROA1 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ049

REVISION HISTORY

Rev #	Date	Description	Validation Required?
NRC24	11-16-23	Reviewed and revalidated	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: NRC24SROA1
TASK: Review All Operations Logs In Use During A Shift Including Computer Logs

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

VALIDATED BY:

Qualification Level Required: SRO

AJ Taylor	SRO	On file	11-16-23
M. Biggs	SRO	On file	11-16-23
Name	Qual	Signature	Date

ATTACHMENT 3

Spent Fuel Pool

Time to 200°F

89 Hrs

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is operating at 100% power following the last refueling outage ending on October 17, 2022

CURRENT DATE IS February 15, 2024.

2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicates 86°F.
4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.
5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination. Note any discrepancies (if any).

COPY _____ OF _____

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

2024 NRC SROA2

Copy _____ of _____

TASK NUMBER: 2990010101

TASK: Perform The Watchstanding Duties of Control Room Operator

JPM NUMBER: 305H-JPM.NRC24SROA2 **REVISION:** NRC24

SAP BET: NOH05JPZZ

K/A NUMBER: 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement or overtime limitations (reference potential).
(CFR: 41.10 / 43.5 / 45.12)

IMPORTANCE FACTOR: RO: 2.9 SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: **RO** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 15 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990010101

TASK: Perform The Watchstanding Duties Of Control Room Operator

INITIAL CONDIITONS:

1. You are a CRS and are Shift Manager Qualified
2. The computer system is down and the status of your active license must be verified.
3. All shifts stood have been confirmed to be part of the Narrative Log.
4. All shifts included turnovers.

INITIATING CUE:

1. Fill out OP-AA-105-102 Attachment 1 for the 4th quarter of 2023.

2. Assume no other watchstanding will occur for the remainder of the 4th quarter of 2023.

3. REVIEW AND DETERMINE whether each watch stood meet the criteria required for maintaining proficiency for standing watch in the 1st quarter of 2024, IAW OP-AA-105-102.

4. DOCUMENT how you did, or did not, meet the requirements on the following page AND why those requirements were met or NOT met.

Examiner's Note: Provide past work schedule and a copy of OP-AA-105-102.

JPM NUMBER: NRC24SROA2 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-105-102				
4.	MAIN BODY			
NOTE:	The quarterly shift watch requirement may be completed with a combination of complete 8 and 12-hour shifts (in a position appropriately credited for watch-standing proficiency as discussed below) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. (NUREG 1021)	Operator reads NOTE.		
4.1	Active License Maintenance			

JPM NUMBER: NRC24SROA2 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE:	As specified in 10 CFR 55.4, "Definitions," "Actively performing the functions of an operator or senior operator," means that "the individual carries out and is responsible for the duties covered by that position". For RO and SRO watches being credited for license maintenance, administrative tasks not related to the licensed position should be minimized. Non-position related administrative tasks performed outside the control room, e.g., NRC physicals, all hands meetings, etc., shall not be scheduled during a credited shift. Non-position related administrative tasks performed inside the control room are allowed during a credited shift provided the activities do not impact the individual's ability to perform assigned licensed responsibilities; i.e., the individual is in a position to provide prompt assistance to or oversight of the RO at the controls.	Operator reads NOTE.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.1.1.	**MAINTAIN** an active license by actively performing the functions of RO, SRO or LSRO. 2. SRO licenses by performing the duties of Shift Manager or Unit Supervisor for a minimum of seven 8-hour or five 12-hour shifts per calendar quarter, including turnover to the next shift.RO licenses by performing the duties of the Unit RO and/or Unit PO for **a minimum of seven 8-hour or five 12-hour shifts** per calendar quarter, including turnover to the next shift.	Operator reads Step.		
4.1.2	**DOCUMENT** the required number of shifts on Attachment 1, Active License Tracking Log or similar computer-based tracking method.	***Operator documents the shifts on 10/9, 10/19, 10/26, and 11/28 as the required shifts on Attachment 1.** Examiner Note: Refer to Examiner's Copy of Attachment 1. The order of shifts is not critical.		
		***Operator documents that the requirements to maintain an active license into the first quarter of 2024 have NOT been met.** **(only 4 of 5 required watches)** Examiner Note: Operator is considered current for the third quarter.		
		Operator documents that additional watches need to be completed by September 30, 2022 to maintain proficiency.		

JPM NUMBER:	NRC24SROA2	**NAME:**	
REV NUMBER:	NRC24	**DATE:**	

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard:	Operator determines license maintenance requirements have not been met. Specifically only 4 of the required 12 hour shifts were worked in the third quarter.			

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: NRC24SROA2 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: NRC24SROA2

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	7/25/2016	New JPM. Incorporated comments from NRC validation.	Y
NRC24	11-16-23	Reviewed and Validated	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: NRC24SROA2
TASK: Perform The Watchstanding Duties Of The Nuclear Control Room Operator

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

VALIDATED BY:

Qualification Level Required: SRO

Name	Qual	Signature	Date
AJ Taylor	SRO	On File	11-16-23
M. Biggs	SRO	On File	11-16-23

ATTACHMENT 1
Active License Tracking Log
Page 1 of 1

SHIFT COVERAGE FOR THE ___*4th*___(1ST, 2ND, 3RD, 4TH) CALENDAR QUARTER OF ___*2023*___(YEAR)

Examinee's Name
_____
Name of License Holder (Print)

ACTIVE / INACTIVE
License Status At Start Quarter (circle one)

RECORD OF EIGHT/TWELVE HOUR SHIFTS SERVED DURING QUARTER

ENTER the date the shift ended, the shift, the shift length, the Unit, position covered, circle Y or N for logged in the SM log and signature. If working an 8-hour or 8/12-hour schedule, enter a "1" for the midnight shift, "2" for the day shift, or a "3" for the afternoon shift (only enter shifts at least 8 hours length for which turnovers were conducted). Seven shifts at least 8-hours in length are required per quarter. If working a straight 12-hour schedule, enter a "N" for night shift or a "D" for dayshift (only enter shifts at least 12 hours in length for which turnovers were conducted). Five 12-hour shifts are required per quarter. The quarterly shift watch requirement may be completed with a combination of complete 8- and 12-hour shifts (in a position required by the plant's Technical Specifications) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. (NUREG 1021, Revision 12)

	DATE	SHIFT	LENGTH	UNIT	POSITION (circle one)				SM log	SIGNATURE
ONE	***10/9/23***	***D***	***12***	***HC***	LSRO	(SM)	US	RO	Logged (Y)/N	***Examinee's Signature***
TWO	***10/19/23***	***N***	***12***	***HC***	LSRO	SM	(US)	RO	Logged (Y)/N	***Examinee's Signature***
THREE	***10/26/23***	***N***	***12***	***HC***	LSRO	(SM)	US	RO	Logged (Y)/N	***Examinee's Signature***
FOUR	***11/28/23***	***N***	***12***	***HC***	LSRO	SM	(US)	RO	Logged (Y)/N	***Examinee's Signature***
FIVE					LSRO	SM	US	RO	Logged Y/N	
SIX*					LSRO	SM	US	RO	Logged Y/N	
SEVEN*					LSRO	SM	US	RO	Logged Y/N	

*The 6th and 7th shifts are not required if a straight 12-hour schedule is being worked.

SM = Shift Manager
US = Unit Supervisor
RO = Unit RO or PO

EXAMINER COPY

LSRO = Limited SRO-Refueling
Logged- Verified in SM log for correct position (If no, provide additional documentation to verify)

_____/_____
Operations Support Manager Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. You are a CRS and are Shift Manager Qualified
2. The computer system is down and the status of your active license must be verified.
3. All shifts stood have been confirmed to be part of the Narrative Log.
4. All shifts included turnovers.

INITIATING CUE:

1. **Fill out OP-AA-105-102 Attachment 1 for the 4th quarter of 2023.**
2. **Assume** no other watchstanding will occur for the remainder of the 4th quarter of 2023.
3. **REVIEW AND DETERMINE** whether each watch stood meet the criteria required for maintaining proficiency for standing watch in the 1st quarter of 2024 IAW OP-AA-105-102.
4. **DOCUMENT** how you did, or did not, meet the requirements on the following page AND why those requirements were met or NOT met.

JOB PERFORMANCE MEASURE

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
10/1-10/7	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF	OFF
10/8-10/14	OFF	0600-1800 SM	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF
10/15-10/21	OFF	OFF	1800-0600 WCS	1800-0600 CRS	1800-0600 WCS	1800-0600 WCS	1800-0600 WCS
10/22-10/28	OFF	OFF	1800-0600 WCS	1800-0600 SM	1800-0600 WCS	OFF	OFF
10/29-11/4	OFF	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF
11/5-11/11	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF	1800-0600 WCS	1800-0600 WCS
11/12-11/18	1800-0600 WCS	1800-0600 WCS	OFF	OFF	0600-1800 WCS	0600-1800 WCS	VACATION
11/19-11/25	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION
11/26-12/2	1800-0600 WCS	1800-0600 CRS	1800-0600 WCS	1800-0600 WCS	1800-0600 WCS	OFF	OFF
12/3-12/9	OFF	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF	OFF
12/10-12/16	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	0600-1800 WCS	OFF	OFF
12/17-12/23	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION
12/24-12/30	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION	VACATION
12/31-1/6	VACATION	VACATION	0600-1800 WCS	0600-1800 WCS	0600-1800 SM	0600-1800 WCS	OFF

1. Have the requirements to maintain an active license into the 1st quarter of 2024 been met? Why or Why Not?

Copy _____ of ____

JOB PERFORMANCE MEASURE

2024 NRC SRO A3

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990060302

TASK: Review Operations Department Tests for Completeness and Compliance with Acceptance Criteria

JPM NUMBER: 305H-JPM.ZZ027NRC24 **REVISION:** NRC24

SAP BET: NOH05JPZZ27E

K/A NUMBER: 2.2.12 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☐ **STA** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-IS.BC-0003, Rev. 53

TOOLS, AND EQUIPMENT: Marked up HC.OP-IS.BC-0003; Calculator; Technical Specifications.

ESTIMATED COMPLETION TIME: 26 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990060302

TASK: Review Operations Department Tests for Completeness and Compliance with Acceptance Criteria

INITIAL CONDIITONS:

1. The Plant is at 100 percent power with all equipment operable.
2. HC.OP-IS.BC-0003, BP202, B Residual Heat Removal Pump In-Service Test, has just been completed.

INITIATING CUE:

1. **PERFORM** the SM/CRS review of the completed HC.OP-IS.BC-0003.
2. **CORRECT** discrepancies, IF any.
3. **DOCUMENT** applicable Technical Specifications for any UNSAT acceptance criteria

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue; the marked up copy of HC.OP-IS.BC-0003; a clean copy of HC.OP-IS.BC-0003; Technical Specifications; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
5.42	**SUBMIT** the procedure to the SM/CRS for review AND completion of Attachment 1.			
		Operator commences the review. Operator determines that the Suppression Pool Cooling Flow recorded on Attachment 2, Step 4.1.23.3, for the pump is less than required (10,450 < 10,520).		
CUE:	**If the operator reports the error, STATE "Make the necessary corrections and continue with the review."**			
		***Operator changes the SAT to UNSAT.**		
		Operator determines that the Gage Differential Pressure recorded on Attachment 3, Steps 4.1.20.3, for the pump is incorrect: The PUMP SUCTION PRESSURE should have been subtracted from the PUMP DISCHARGE PRESSURE. GAGE DIFFERENTIAL PRESSURE should be 142.2 psid.		
CUE:	**If the operator reports the error, STATE "Make the necessary corrections and continue with the review."**			
		***Operator corrects error.**		
		Operator determines that the TEST DIFFERENTIAL PRESS recorded on Attachment 3, Steps 4.1.20.4, for the pump is incorrect: A math error was made. It should be 140.0 psid.		
CUE:	**If the operator reports the error, STATE "Make the necessary corrections and continue with the review."**			
		***Operator corrects error.**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		Operator determines that the differential pressure is within the **REQUIRED ACTION** range. (Table 4.1.20)		
CUE:	**If the operator reports the error, STATE "Make the necessary corrections and continue with the review."**			
		***Operator changes the SAT to UNSAT. (Step 4.1.20.4)**		
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 6.8.4.i, 4.5.1.b.2, 4.6.2.3.b, 4.6.2.2.b, and 4.3.7.4 and the test is considered	Operator reviews the data entered for completeness and compliance with Technical Specifications.		
	2.1.1. SATISFACTORY (All acceptance criteria is marked SAT and/or ALERT. IF in ALERT, **GENERATE** a Notification for evaluation.)	Operator determines test does not meet these criteria.		
	2.1.2. UNSATISFACTORY (Any test evaluations are marked UNSAT). **TAKE** action IAW Technical Specifications and **GENERATE** a Notification.	Operator notes that data flagged as ACCEPTANCE CRITERIA was marked UNSAT. ***Operator determines B RHR Pump is INOPERABLE for Technical Specifications, Tech Spec is 3.6.2.3 Action a & Tech Spec 3.5.1 (Step 4.1.20.4 & 4.1.23.3)** (Suppression Pool Cooling 72 hours) Examiner Note: Technical Specifications 3.5.1 and 3.6.2.2 may also be identified.		
		Operator notes/requests that a Notification is required to be generated.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**Notification 12345678 has been written by another operator.**			
		***Operator signs Unsatisfactory in Step 2.1.2 of Att.1.**		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator performs the SM/CRS review of a submitted HC.OP-IS.BC-0003.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ027NRC24 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ027NRC24

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	9/27/2017	Revised due to procedure revision. Updated handouts based on submitted copy in DCRMS.	Y
05	1/10/2018	Incorporated comments from NRC validation. Editorial.	N
NRC24	11-2-23	Reference procedure revised. No change to JPM stpes	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ027NRC24
TASK: Review Operations Department Tests for Completeness and Compliance with Acceptance Criteria

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

VALIDATED BY:

Qualification Level Required: SRO

Name	Qual	Signature	Date
R. HANNA	SRO	ON FILE	9/27/2017
M. JERMUSYK	SRO	ON FILE	9/27/2017

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is at 100 percent power with all equipment operable.
2. HC.OP-IS.BC-0003, BP202, B Residual Heat Removal Pump In-Service Test, has just been completed.

INITIATING CUE:

1. **PERFORM** the SM/CRS review of the completed HC.OP-IS.BC-0003.
2. **CORRECT** discrepancies, IF any.
3. **DOCUMENT** applicable Technical Specifications for any UNSAT acceptance criteria

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990740302

2024 NRC
SRO A4

Copy _____ of _____

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

JPM NUMBER: 305H-JPM.ZZ032NRC24 **REVISION:** NRC24

SAP BET: NOH05JPZZ32E

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

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☐ **STA** ☐ **SRO** ☒

EVALUATION SETTING/METHOD: Simulator(Classroom)/Perform

REFERENCES: HC.OP-GP.ZZ-0004, Rev. 7

Technical Specifications, Amendment 215

TOOLS, AND EQUIPMENT: Calculator

ESTIMATED COMPLETION TIME: 13 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

_____ _____

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990740302

TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the submitted HC.OP-GP.ZZ-0004; **DETERMINE** any required Technical Specification Actions IF required; AND complete Attachment 1.

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; the attached prepared copy of HC.OP GP.ZZ 0004; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
CUE:	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**			
5.1.17.	IF this is the final subsection of the procedure to be performed, SUBMIT this procedure to the SM/CRS for review AND completion of Attachment 1.	Previous operator has submitted for review and completion of Attachment 1. Examiner Note: Operator should complete Attachment 1, Section 3.0, prior to performing any part of this procedure	N/A	N/A
ATTACHMENT 1 **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 3.4.3.2, Reactor Coolant System Operational Leakage and the test is considered:	Operator reviews completed HC.OP GP.ZZ 0004.		
		Operator recognizes a math error was made when calculating Leak Rate in step 5.1.11. Actual leak rate is 6.3 gpm, NOT 0.63 gpm (6.25 gpm rounded up).		
		*** Operator ensures 5.1.11 ACTUAL block is correct to 6.25(+/- 0.2) gpm.** Examiner Note: Operator may correct data or call Performer to correct data.		
CUE:	**IF directed as Performer to correct data entered, THEN ROLE PLAY as Performer AND CORRECT ACTUAL block as directed by Operator.**			
		Operator recognizes 5.1.11 ACTUAL Leak Rate exceeds REQUIRED Leak Rate of < 5 GPM.		

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		*** Operator ensures 5.1.11 SAT/UNSAT block is corrected to UNSAT.** Examiner Note: Operator may correct data or call Performer to correct data.		
CUE:	**IF directed as Performer to correct data entered, THEN ROLE PLAY as Performer AND CORRECT ACTUAL block as directed by Operator.**			
TECHNICAL SPECIFICATIONS				
3.4.3.2.	Reactor coolant system leakage shall be limited to: a. No PRESSURE BOUNDARY LEAKAGE. b. 5 gpm UNIDENTIFIED LEAKAGE. c. 25 gpm IDENTIFIED LEAKAGE averaged over any 24-hour period. d. 0.5 gpm leakage per nominal inch of valve size up to a maximum of 5 gpm from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2·1. at rated pressure. e. 2 gpm increase in UNIDENTIFIED LEAKAGE within any period of 24 hours or less. APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.	*** Operator determines T/S 3.4.3.2 Action c applies:** With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one other closed manual or deactivated automatic or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Examiner Note: Determining the SPECIFIC compensatory action is beyond the scope of the JPM. It is only necessary for the Operator to IDENTIFY the applicable Tech Spec Action.		
CUE:	**AFTER the Operator determines the applicable Tech Spec Action statement, THEN INFORM the Operator compensatory actions have been implemented.**			
2.1.1 2.1.2	2.1.1. SATISFACTORY _____ SM/CRS _____ Date-Time 2.1.2. UNSATISFACTORY AND IF necessary the T.S. ACTION statement has been implemented. _____ SM/CRS _____ Date-Time	***# Operator signs UNSATISFACTORY block** 2.1.2 of Attachment 1.		
CUE:	**IF the Operator goes beyond the Leak Rate Determination Tech Specs, CUE the Operator to stay with the Leak Rate Determination.**			

JPM NUMBER: ZZ032NRC24 **NAME:** _____

REV NUMBER: NRC24 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator completes the CRS/SM review of a completed HC.OP-GP.ZZ-0004 and notes **determines T/S 3.4.3.2 Action c applies and Operator signs UNSATISFACTORY block**				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ032NRC24 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ032NRC24

REVISION HISTORY

Rev #	Date	Description	Validation Required?
08	1/21/21	Reviewed by 2 SROs . No changes required.	Y
NRC24	1/8/24	JPM steps reviewed for accuracy. No changes. Task Standard revised. NRC comments incorporated	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ032NRC24
TASK: Perform Leak Rate Measurement Data Sheet for Water Or Steam Filled Piping

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

VALIDATED BY:

Qualification Level Required: SRO

Name	Qual	Signature	Date
M. Rooney	SRO	SIGNATURE ON FILE	1/21/21
B. Padworny	SRO	SIGNATURE ON FILE	1/8/24

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header has resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure as observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the submitted HC.OP-GP.ZZ-0004; **DETERMINE** any required Technical Specification Actions IF required; AND **COMPLETE** Attachment 1.

JOB PERFORMANCE MEASURE

2024 NRC
SROA5

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

JPM NUMBER: 305H-JPM.ECG011NRC24 **REVISION:** NRC24

SAP BET: NOH05JPCL11E

K/A NUMBER: 2.4.38 **IMPORTANCE FACTOR:** RO: 2.4 SRO: 4.4

ALTERNATE PATH: ☐

APPLICABILITY: **EO** ☐ **RO** ☐ **STA** ☒ **SRO** ☒

EVALUATION SETTING/METHOD: Classroom(Simulator)/Perform

REFERENCES: EP-HC-325-100 Rev. 24 EP-HC-325-101 Rev. 0 EP-HC-325-102 Rev. 2

EAL Flowcharts and EAL Wallcharts HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-325-F*[1-4]; EP-HC-325-101; EAL Flowcharts and EAL Wallcharts: HCGS ECG – EAL Technical Basis; Phone and EP Aid-031, Simulator Only

ESTIMATED COMPLETION TIME: 10/6 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15/13 Minutes

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

ACTUAL COMPLETION TIME: _____ **Minutes**

ACTUAL TIME CRITICAL COMPLETION TIME: ____/____ **Minutes**

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

INITIAL CONDITIONS:

1. The plant was operating at 100% power with Plant Effluent activity of:
   - 1.17E+01 µCi/sec Noble Gas
   - 1.17E-02 µCi/sec I-131
2. A shutdown was performed in accordance with HC.OP-IO.ZZ-0004 due to an inoperable Emergency Diesel Generator BG400.
3. Containment de-inerting is in progress.
4. RHR Loop B is in Shutdown Cooling and reactor coolant temperature is 140°F.
5. A report has been received that the AX502 Transformer is on fire.
6. A loss of offsite power occurs.
7. All Emergency Diesel Generators fail to start and load onto their respective buses.
8. The current conditions fifteen (15) minutes after the report of the fire are:
   - Reactor coolant temperature is 150°F
   - AX502 transformer is still on fire
   - Attempts to start the EDGs have been unsuccessful.
   - Reactor Water Level is 82 inches compensated and rising slowly.
   - Plant Effluent activity is:
     - 1.17E+01 µCi/sec Noble Gas
     - 1.17E-02 µCi/sec I-131
   - The current 33 ft. elevation wind direction is from 163 degrees at 11 mph.

INITIATING CUE:

Based on this information, **CLASSIFY** this event AND **MAKE** the initial notifications.

This is a time critical task, and has two time critical elements.

Time zero for the event is **NOW**.

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	EP-HC-325-102			
4.	**Classification Process**	N/A	N/A	N/A
NOTE	Comparison of redundant instrumentation, indications, and/or alarms should be used to confirm actual plant conditions.	Operator reads Note.		
4.1	The primary tools for determining the emergency classification level are the EAL wallcharts. The user of the EAL wallcharts may (but is not required to) consult the EAL Technical Bases in order to obtain additional information concerning the EALs under classification consideration. To use the EAL wallcharts, follow this sequence:	Operator reads text.		
4.2	Assess the event and/or plant conditions and determine which EAL Group is most appropriate.	Operator assesses the initial conditions, and determines that EALs that are applicable under all plant Operational Conditions (OPCONs), AND EALs applicable only under hot OPCONs apply to this classification.		
4.3	Review EAL categories and subcategories on the appropriate wallcharts.	Operator assesses the initial conditions, and determines that S is appropriate ECG categories; and S1, is appropriate subcategories.		
4.4	For each applicable subcategory, review EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).	Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in C. Operator determines that and CA2.1 apply to the event.		

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.5	If the HOT conditions wallchart is employed, also review the Fission Product Barrier (FPB) Table as follows: a. Examine the FPB categories in the left column of the table. b. Select the category that most likely coincides with event conditions. c. Review all thresholds in this category for each fission product barrier. d. For each threshold that is exceeded, identify its point value and determine the classification level in accordance with the instructions on the Fission Product Barrier Table (or in EAL Technical Basis, Attachment 1).	Operator refers to FPB Table and identifies that the Initial Conditions do not meet any FPB Table thresholds**. (NOT in Hot Conditions – should be N/A)**		
4.6	REVIEW the associated EALs as compared to the event and select the highest appropriate emergency classification. If identification of an EAL is questionable refer to paragraph 1 above.	Operator reviews the EALs identified in Step 4.3 and 4.4, and selects EAL CA2.1 as the highest emergency action level met or exceeded (ALERT).		
4.7	If there is any doubt with regard to assessment of a particular EAL, the ECG EAL Technical Basis Document should be reviewed. Words contained in an EAL that appear in uppercase and bold print (e.g., **VALID**) are defined at the end of the basis for the EAL.	Operator reads step, and refers to the ECG EAL Technical Basis Document if deemed necessary.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.8	When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.	Operator requests STA/IA verification of classification. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.**			
4.9	Identify and implement the referenced ECG form based on the Emergency Classification Level. • Unusual Event — Implement EP-HC-325-F1 • Alert — Implement EP-HC-325-F2 • Site Area Emergency — Implement EP-HC-325-F3 • General Emergency — Implement EP-HC-325-F4 • Unusual Event (Common Site) — Implement EP-HC-325-F24 Refer to TABLE 1, Hope Creek Emergency Classification Description Table, as a guide for correct description wording for entry on the Initial Contact Message Form (ICMF) for all EALs.	Operator identifies and implements EP-HC-325-F3, and refers to EP-HC-325-101 as a guide for correct description wording for entry on the ICMF for all EALs.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
EP-HC-325-F2 ATTACHMENT 2 ALERT				
A.	**CLASSIFICATION**			
	1. **CALL** communicators to the Control Room.	Operator calls communicators to the Control Room and initials Step.		
CUE:	**After 2 minutes, report as the CM1 and CM2 communicators.**			
	2. **IF** a **Security Event** is in progress, **THEN IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.	Operator determines Step is N/A and marks N/A.		
	3. If time allows, **DIRECT** Classification **Independent Verification** to be performed	Operator requests STA/IA verification of classification and initials Step. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, THEN INFORM the Operator the STA/IA is not available.**			
	4. After Classification **Independent Verification** is obtained: • **DECLARE** the ALERT (enter time and date on ICMF)	Operator commences filling out ICMF and initials Step. *** Operator declares an ALERT, places time and date in the appropriate spots in Attachment 2** and initials the step as the EC. Examiners Note: ENTER the declaration time that the operator entered on Att. 2. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time (15 min). **TIME:** _____		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **COMPLETE / APPROVE** the ICMF	***Operator places the EAL #CA2.1, a description of the event, checks there is NO Release in progress, enters the wind direction and speed, and initials as EC** in the appropriate spots in the ICMF, and initials the step as the EC. Examiners Note: See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EAL CA2.1. The operator may place the Examiner's name as the Communicator, or tell the Examiner to place his/her name as the Communicator.		
	5. If time allows, **OBTAIN** an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF and initials Step.		
CUE:	**IF the Operator requests a peer check to verify the EAL Classification, THEN INFORM the Operator that no one is available.**			
	6. Continue with **NOTIFICATION AND ACTIVATION** as follows: • If not previously performed, **ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout **(EP 96-003)**	Operator activates/directs activation of the ERO per posted instructions titled Training Use Emergency Callout Activation and initials Step. Examiner Note: ENSURE the operator is using the Simulator Training Activation instructions.		
CUE:	**If asked/requested to activate the ERO Emergency Callout, STATE "The ERO Callout is complete."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• **DIRECT** the Primary Communicator to implement ECG Attachment 6	***Operator provides the ICMF to CM1 and directs implementation of Att.6,** and Prints/signs name on ICMF. Examiner Note: The difference between the "DECLARED AT" TIME and this LOG TIME is the second critical time (13 min.). **TIME:** _____		
	• **DIRECT** the Secondary Communicator to implement ECG Attachment 8 for a ALERT	***Operator directs CM2 to implement Att. 8 for an ALERT** and initials Step.		
CUE:	**Role-play as Secondary Communicator and repeat back the directions given. Provide Terminating Cue.**			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **REPEAT BACK** any message from the operator on the status of the JPM, and then state **"This JPM is complete"**. **STOP TIME:** _____			
Task Standard: Operator correctly declares an ALERT ECG Section CA2.1, and makes notifications within identified Critical Times in accordance with EP-HC-325-102.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ECG011NRC24 **NAME:** _____
REV NUMBER: NRC24 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ECG011NRC24

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	6/8/2016	Complete rewrite. Validated with 2 SROs.	Y
02	9/18/2016	Updated due to procedure revisions. Editorial changes only.	N
03	7/25/19	Updated due to procedure revisions including EAL revisions	N
04	8/6/20	Updated due to reference procedure & EAL revisions.	Y
05	9/14/23	Updated due to reference procedure revisions. No change to EAL determination. Revalidated for accuracy. No changes made.	N
NRC24	11-2-23	Steps reviewed for accuracy. No changes required.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ECG011NRC24

TASK: Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition

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

VALIDATED BY:

Qualification Level Required: SRO

Name	Qual	Signature	Date
M. Moore	SRO	SIGNATURE ON FILE	10/23/20
J. Nordin	SRO	SIGNATURE ON FILE	10/30/20

I

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

INITIAL CONTACT MESSAGE FORM

I. THIS IS **Not Required** (NAME), COMMUNICATOR IN THE ☒ CONTROL ROOM ☐ TSC

AT THE **HOPE CREEK** NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF AN **ALERT** WHICH WAS

DECLARED AT TODAYS TIME (Time - 24 HR CLOCK) ON TODAYS DATE (DATE)

EAL # **CA2.1** DESCRIPTION OF EVENT **LOSS OF POWER TO ALL VITAL BUSES**

III. ☐ THERE **IS** A RELEASE IN PROGRESS DUE TO THE EVENT

☒ THERE IS **NO** RELEASE IN PROGRESS DUE TO THE EVENT

} Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (**From**): (From MET Computer /SPDS) 163 (DEGREES) WIND SPEED: 11 (MPH)

V. **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

EXAMINER'S COPY

INITIALS
EC Print/Sign
(Approval to Transmit ICMF)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was operating at 100% power with Plant Effluent activity of:
   - 1.17E+01 µCi/sec Noble Gas
   - 1.17E-02 µCi/sec I-131
2. A shutdown was performed in accordance with HC.OP-IO.ZZ-0004 due to an inoperable Emergency Diesel Generator BG400.
3. Containment de-inerting is in progress.
4. RHR Loop B is in Shutdown Cooling and reactor coolant temperature has just reached 140°F.
5. A report has been received that the AX502 Transformer is on fire.
6. A loss of offsite power occurs.
7. All Emergency Diesel Generators fail to start and load onto their respective buses.
8. The current conditions fifteen (15) minutes after the report of the fire are:
   - Reactor coolant temperature is 150°F
   - AX502 transformer is still on fire
   - Attempts to start the EDGs have been unsuccessful.
   - Reactor Water Level is 82 inches compensated and rising slowly.
   - Plant Effluent activity is:
     - 1.17E+01 µCi/sec Noble Gas
     - 1.17E-02 µCi/sec I-131
   - The current 33 ft. elevation wind direction is from 163 degrees at 11 mph.

INITIATING CUE:

Based on this information, **CLASSIFY** this event AND **MAKE** the initial notifications.

This is a time critical task, and has two time critical elements.

Time zero for the event is **NOW**.

Copy _____ of _____

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**DFCS XMTR Fails, Loss of Drywell Clg, Loss of 10B430, HPCI Steam Leak, ED**
SCENARIO NUMBER:	**NRC 2024 - #1**
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	60 minutes
REVISION NUMBER:	**01**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

1. Swap SSW Pumps
2. Lower Power with Recirc
3. DFCS XMTR Fails - TS
4. Loss of TB Chilled Water
5. Loss of 10B430 (TS)
6. HPCI Steam Leak w/Failure to Isolate
7. Mode Switch Fails
8. Trip of EHC Pumps w/Turbine Bypass Valves Failing Shut
9. RCIC Pump Room High Temperature

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power and TACS on the 'A' SACS loop. The DK111 Turbine Chiller is C/T for a Freon leak and CP161 is C/T for a bearing oil leak. The crew must swap SSW pumps from "D" to "B" and then lower power to 95%. Then, a DFCS XMTR fails. Once TS are addressed, the AP161 (TB CHL WTR Circ Pump) will trip due to a bearing problem. The BP161 goes into runout and trips shortly thereafter. This results in a loss of TB Chilled water, which will require the Crew to align RACS to cool the drywell and may require venting the drywell to restore pressure back below 0.75 psig (may also require TACS swap). After the Loss of Drywell Cooling has been addressed, the 10B430 1E 480 VAC Unit Substation will be lost due to a transformer failure. This will result in a loss of the operating CRD pump and the CP228 ECCS jockey pump (may also require TACS swap). After these failures are addressed, a steam leak develops in the HPCI room. The inboard steam isolation valve is not available due to the loss of the 10B430 Substation, and the outboard steam isolation valve binds and will not close. The unisolable leak will require the Crew to scram. However, the Mode Switch will fail requiring a manual scram using RPS to insert control rods. After the scram, both EHC pumps will trip, and the Turbine Bypass Valves will fail shut. The leak will also impact the RCIC room, due to the door between HPCI and RCIC not being properly dogged shut. When HPCI room temperature reaches 250 degrees, the door will pop open, admitting steam to the RCIC room. The rising temperatures in the HPCI and RCIC rooms will ultimately require Emergency Depressurization. The scenario ends when the reactor has been depressurized.

IV. INITIAL CONDITIONS:

	I.C.
Initial	

_____ **INITIALIZE** the simulator to 100% power, MOL.

_____ **ENSURE** BOTH Steam Tunnel unit Coolers are in service.

_____ **ENSURE** the 'A' CRD pump is in service.

_____ **ENSURE** the 'A' EHC pump is in service.

_____ **ENSURE** TACS is being supplied by the 'A' SACS loop.

C/T CP161 TB Chilled water circ pump as follows:

_____ • **ENSURE** CP161 is not in service.

_____ • **PLACE** CP161 in MAN.

C/T DK111 as follows:

_____ • **ENSURE** DK111 is not in service

_____ • **PRESS** DK111 STOP pushbutton

_____ • **ENSURE** HV-9503D is CLOSED

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

_____ **ENSURE** associated Events file open.

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

_____ **PLACE** red bezel cover on DK111.

_____ **PLACE** red bezel cover on HV-9503D.

_____ **PLACE** red bezel cover on CP161.

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

TREND plant parameters needed for Critical Task determination:

_____ o HPCI Room Temperature

_____ o RCIC Room Temperature

_____ o Reactor Pressure

_____ o Wide Range RPV Level

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

EVENT FILE:

Initial	ET #		
	6	Event code: Description:	**hpvv(1) <= 0.90** HPCI HV-F003 Position
	7	Event code: Description:	**A3058 >= 150** HPCI Room Temp >= 150
	8	Event code: Description:	**crqnmi <= 15** Reactor Power <= 15%
	9	Event code: Description:	**A3058 >= 250** HPCI Room Temp >=250
	10	Event code: Description:	**A3059 >= 150** RCIC Room Temp >=150
		Event code: Description:	

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction HP10	HPCI steam isolation valves F002 & F003 failure to auto close
	None	None	Insert malfunction ANE5-F1	CRYWOLF ANN E5F1 CHILLED WTR SYSTEM TROUBLE
	None	None	Insert malfunction CW18A on event 1	Chilled water circ pump AP161 trip
	None	None	Insert malfunction CW18B after 5 on event 1	Chilled water circ pump BP161 trip
	None	None	Insert malfunction ED13C1 on event 2	Loss of 480 VAC essential bus C 10B430
	None	None	Insert malfunction HP09 to 5 in 600 on event 4	HPCI steam line break inside HPCI Room 4111
	None	None	Insert malfunction HP09 from 3 to 100 in 900 on event 7	HPCI steam line break inside HPCI Room 4111
	None	None	Insert malfunction HV17 to 0 in 240 on event 7	Blowout panel failure 4111 (1DS284)
	None	None	Insert malfunction HV18 to 0 in 120 on event 7	Blowout panel failure 4110 (1CS284)
	None	None	Insert malfunction TC07A on event 8	EHC pump A trip
	None	None	Insert malfunction TC07B after 60 on event 8	EHC pump B trip
	None	None	Insert malfunction TC01-10 after 120 on event 8	All turbine bypass valves fail closed
	None	None	Insert Malfunction FW29A to 100.00000 on event 12	Feedwater level sensor NOO4A Failure

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote HP04 to FAIL_OPEN	HP04 GROUP 5A HV-F002 HPCI Steam Supply Isol
	None	None	Insert remote HP06 to RACK_OUT on event 6	HP06 GROUP 5A HV-F003 HPCI Steam Supply Isol
	None	None	Insert remote CX15 to 100.00000 in 15 on event 3	CX15 CX valve AP-V044 to RHR header A
	None	None	Insert remote CX17 after 60 to 100.00000 in 15 on event 3	CX17 CX valve AP-V047 to RHR header C
	None	None	Insert remote CX11 after 120 to 100.00000 in 15 on event 3	CX11 CX valve AP-V041 to Core Spray header A
	None	None	Insert remote HV06 to STOP on event 5	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 5	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 5	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 5	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 3 to STOP on event 5	HV02 RBVS Exhaust fan B
	None	None	Insert remote HV01 after 3 to STOP on event 5	HV01 RBVS Exhaust fan A
	None	None	Insert remote HV135 to OPEN after 30 on event 9	Door-Reactor bldg. HPCI pump & turbine room 4111 to RCIC pump & turbine rm 4110 EL 54’-0”
	None	None	Insert remote RM05A to 12.00000	RM05 WS - 33
	None	None	Insert remote RM05B to 16.00000	RM05 WS - 150
	None	None	Insert remote RM05C to 18.00000	RM05 WS - 300
	None	None	Insert remote RM05D to 295.00000	RM05 WS - 33
	None	None	Insert remote RM05E to 297.00000	RM05 WS - 150
	None	None	Insert remote RM05F to 298.00000	RM05 WS - 300
	None	None	Insert remote RM05G to 12.00000	RM05 BACKUP WIND SPEED
	None	None	Insert remote RM05H to 295.0000	RM05 BACKUP WIND DIRECTION

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 1A181_A2_LO to On	INOP-CHILLED WATER CPRSR DC111-CPRSR MOT (LO)
	None	None	Insert override 1A181_D_DI to Off	DK111 START-CHILLED WATER CPRSR DC111-CPRSR MOT (DI)
	None	None	Insert override 1A181_E1_DI to Off	SAFETY CKT COMPLETE/ON-CHILLED WATER CPRSR DK111 (DI)
	None	None	Insert override 1A181_F_LO to Off	STOP-CHILLED WATER CPRSR DC111-CPRSR MOT (LO)
	None	None	Insert override 1A182_E_DI to Off	HV-9503D OPEN-CH W DISCH SHUTOFF V (DI)
	None	None	Insert override 1A182_F_LO to Off	HV-9503D CLOSE-CH W DISCH SHUTOFF V (LO)
	None	None	Insert override 1A136_A2_LO to On	INOP-CH W CIRC PUMP CP161 (LO)
	None	None	Insert override 1A136_D_DI to Off	AUTO-CH W CIRC PUMP CP161 (DI)
	None	None	Insert override 1A136_E_DI to Off	START-CH W CIRC PUMP CP161 (DI)
	None	None	Insert override 1A136_F_LO to Off	STOP-CH W CIRC PUMP CP161 (LO)
	None	None	Insert override 3S22_D_DI TO On	RPS MODE SWITCH – RUN (DI)
	None	None	Insert override 3S22_C_DI TO Off	RPS MODE SWITCH – STARTUP AND HOT STBY (DI)
	None	None	Insert override 3S22_B_DI TO Off	RPS MODE SWITCH – REFUEL - (DI)
	None	None	Insert override 3S22_A_DI TO Off	RPS MODE SWITCH – SHUTDOWN (DI)

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments

Swap SSW Pumps	CRS directs swapping SSW PPs from “D” to “B” IAW HC.OP-SO.EA-0001.
	• A. PRESS LOOP B PUMPS - PUMP B(D) MAN PB
	• B. PRESS LOOP B PUMPS - PUMP BP502 (DP502) START PB
	• VERIFY the following:
	  • HV-2371B, SACS HX B1 OUT, OR HV-2355B, SACS HX. B2 OUT, opens. ___
	  • HV-2197B, BACKWASH VALVE, OR HV-2197D, BACKWASH VALVE, opens. ___
	  • HV-2198B (D), PUMP DISCHARGE, opens. ___
	  • AI-6359B(D), PUMP MOTOR AMPS PUMP B(D), reads 85 to 110 amps.
	• PRESS PUMP B(D) AUTO PB (for running pump).
	• DIRECT Chemistry to align Service Water Chlorination for the SSW placed in service IAW HC.CH-SO.EQ-0001(Q).	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Lower RX Power with Recirc	• CRS directs power reduction IAW SPRI and IO-6 to 95% • RO commences power reduction IAW SPRI and HC.OP-SO.BB-0002: -Lower Reactor Recirc Pump speed by intermittently pressing: *LOWER LOW (MED, HIGH) push button on SIC-R621A (B) PUMP A (B) SPD CONT*	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>DFCS Level Transmitter Failure</u>: After the Crew assumes the watch **TRIGGER ET-12** (DFCS Level Transmitter PDT-N004A Fails Upscale) at the discretion of the Lead Examiner.	• Crew recognizes N004A failure by: ⇒ OHA B1-F5 “FEEDWATER 2/3 LOGIC SENSOR FAIL” ⇒ OHA B3-F1 “DFCS ALARM/TRBL” ⇒ DFCS “HIGH LVL TRIP A” status light ⇒ CRIDS D2098 “RFPT A HIGH REACTOR LEVEL 8” ⇒ CRIDS D5272 “A/B/C REACTOR LVL 8 SENSOR FAILURE” ⇒ DFCS “REACTOR LEVEL A HIABS” ⇒ DFCS “REACTOR LEVEL A IOBAD” ⇒ DFCS “REACTOR LEVEL A HIDEV” ⇒ LI-R608A indication on 10C650C. • RO/PO validates current RPV level with redundant instruments • PO monitors DFCS and ensures it continues to control RPV water level. • Crew dispatches RBEO to inspect the ‘A’ Instrument rack. • Crew contacts Maintenance to troubleshoot. • CRS recognizes the following Tech Specs apply: ⇒ Feedwater/Main Turbine Trip System Actuation Instrumentation 3.3.9 action b	Must restore the N004A to OPERABLE within 7 days or be in at least STARTUP within the next 6 hours.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Loss of Drywell Cooling</u>: After the Crew assumes the watch and at the discretion of the Lead Examiner, **TRIGGER ET-1** (Loss of TB Chilled Water/Drywell Cooling). <u>IF</u> the Crew manually scrams during the Loss of Drywell Cooling, <u>THEN</u> **TRIGGER ET-4.**	• Loss of Drywell Cooling by: ⇒ OHA E5-E1 “CHILLED WTR PANEL 10C152” ⇒ Flashing “OVLD/PWR FAIL”, “HI/LOW FLOW”, and “STOP” lights on AP161 and BP161 TB Chilled Water Circ pumps ⇒ Loss of “START” lights on AK111/BK111 TB Chillers ⇒ CRIDS D5608 “CHW PUMP AP161 MALFUNCTION” ⇒ CRIDS D5609 “CHW PUMP BP161 MALFUNCTION” ⇒ CRIDS D4053 “WTR CHILLER AK111 REMOTE PANEL TRBL” ⇒ CRIDS D4054 “WTR CHILLER BK111 REMOTE PANEL TRBL” ⇒ Rising drywell temperature ⇒ Rising drywell pressure • CRS implements AB.CONT-001: ⇒ Condition A ⇒ Condition B • Crew announces loss of Turbine Building Chilled Water on the plant page. • RO/PO ensures drywell cooling is maximized. • <u>WHEN</u> Drywell temperature reaches 135 degrees, <u>THEN</u> CRS implements EOP-102.	Drywell pressure will peak at less than 1.2 psig .

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to investigate loss of TB Chilled Water, THEN **REPORT**: • AK111 and BK111 have Evaporator Low Water Flow alarms in • AP161 and BP161 have Discharge Flow Hi/Low alarms in • Both AP161 and BP161 motors are hot to the touch • AP161 inboard pump bearing is hot to the touch	• Crew dispatches TBEO and Maintenance to investigate.	
Note: TACS **may** initiate a transfer to the standby SACS Loop due to loss of Chillers reducing TACS flow to just below the low flow condition.	• Crew recognizes TACS swap in progress by: ⇒ OHA A1-B4 "SACS/TACS LOOP PRESS LO" ⇒ OHA A1-D4 "SACS PANEL A/B C201" ⇒ OHA A1-E4 "SACS LOOP A TROUBLE" ⇒ Auto start of Standby SACS pump ⇒ Auto Opening of Standby Loop TACS 2522/2496 Supply/Return valves ⇒ Closed indication for affected channel 2522/2496 • CRS directs ensuring TACS swaps to Standby Loop by either: ⇒ HC.OP-AB.ZZ-0001 Att. 10 ⇒ HC.OP-AB.COOL-0002 Condition B • PO ensures TACS swaps to Standby Loop as directed by CRS. • CRS enters AB.COOL-0002 Condition B	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO align RACS to supply drywell cooling IAW AB.CONT-0001 Condition B.	Drywell pressure will begin to drop as soon as the RACS and Chilled Water valves start to swap. The 9532-1/2 are not in the RACS flowpath.
	• CRS may reference AB.-BOP-0005 Condition A. for Steam Tunnel Temperature rise • CRS recognizes the following Tech Spec applies: ⇒ Drywell Average Air Temperature 3.6.1.7	NOTE: Not entered if temp remains <135F. Must reduce the average air temperature to within the limit within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Technical Specification is exited when temperature is below 135F.
IF directed to prepare a release permit, THEN **REPORT** it will take about 30 minutes and **REQUEST** the Crew to record start and stop times for the release.	• IF Drywell Pressure is not restored below 0.75 psig, THEN CRS implements AB.CONT-0001: ⇒ Condition C	
	• IF directed, THEN PO Vents the drywell IAW AB.CONT-001 Condition C. • WHEN Drywell temperature is restored to <135F, THEN the CRS exits EOP-102.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• SM contacts Operations Management to initiate a Prompt Investigation and ERT callout.	
<u>Loss of 10B430 Unit Sub</u>: After the Crew aligns RACS to cool the drywelland Drywell Pressure begins to lower <u>OR</u>, at the discretion of the Lead Examiner, **TRIGGER ET-2**.	• Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable.	
	• Crew recognizes loss of AP207 CRD pump by: ⇒ OHA C6-F2 “CRD SYSTEM TROUBLE” ⇒ AP207 “OVLD/PWR FAIL” light ⇒ AP207 flashing “STOP” light ⇒ CRIDS D2244 “CRD WATER PUMP A MOTOR TRBL”	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes loss of CP228 ECCS Jockey pump by: ⇒ OHA A6-C3 “ECCS JOCKEY PUMP 1CP228 TROUBLE” ⇒ Jockey pump indications on 10C650A ⇒ OHA A6-B1 “RHR LOOP A TROUBLE” ⇒ OHA A6-B2 “RHR LOOP C TROUBLE” ⇒ OHA B3-C1 “CORE SPRAY LOOP A TROUBLE” ⇒ CRIDS D4434 “ECCS JOCKEY PMP CP228 OPF” ⇒ CRIDS D4373 “RHR PUMP A DISCHARGE PRESSURE HILO” ⇒ CRIDS D4397 “RHR PUMP C DISCHARGE PRESSURE HILO” ⇒ CRIDS D3157 “CS LOOP A INJECTION LINE PRESSURE HILO”	RHR and Core Spray Low Pressure alarms will not be received if Condensate Transfer is lined up before discharge header pressures decay to alarm setpoints.
	• Crew recognizes loss of AK202 PCIG compressor by: ⇒ OHA A1-A1 “INST GAS SYSTEM A TROUBLE” ⇒ OHA A1-A3 “INST GAS RECEIVER A PRESSURE LO” ⇒ OHA A1-A5 “INST GAS PANEL A/B C213” ⇒ Loss of “START” and “STOP” indication for AK202	Instrument gas pressure is not actually low. The alarm is the result of a loss of power to the AC213 panel.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes loss of 10B430 Unit Substation by: ⇒ OHA E3-E3 “USS FEEDER BRKR TRBL” ⇒ OHA E3-F2 “4.16KV FDR TO USS XFMR BRKR MALF” ⇒ CRIDS D4565 “4.16KV BUS A403 FDR CKT BRKR TRBL” ⇒ CRIDS D4611 “UNIT SUBSTA 10B430 FDR CKT BRK TRBL” ⇒ Flashing TRIP light on 40310 breaker ⇒ Various OVLD/PWR FAIL lights on ‘C’ Channel equipment	
	• Crew announces loss of the 10B430 bus on the plant page.	
IF dispatched to 10B430, THEN **REPORT**: • 52-40310 has 51B and 51C Time overcurrent trip flags dropped • CX400 xfmr is very warm with acrid odor and telltale in the red zone	• Crew dispatches ABEO and Maintenance to investigate the loss of the 10B430 bus.	
	• CRS implements AB.ZZ-0172.	
Note: TACS will require a transfer to the SACS Loop B (unless previously performed) due to loss of power to HV-2522C.	• CRS directs swapping TACS to the Standby Loop by either: ⇒ HC.OP-AB.ZZ-0001 Att. 10 ⇒ HC.OP-AB.COOL-0002 Condition B	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO swaps TACS swaps to Standby Loop as directed by CRS. • CRS enters AB.COOL-0002 Condition B	
SUPPORT any requests for BP207 discharge valve manipulations with Remote Function **CD02**.	• Crew places BP207 CRD pump in service IAW either: ⇒ SO.BF-0001 Sect 5.2 OR ⇒ ARP for CRIDS D2244	Accumulator trouble alarms will begin to come in after about 14 minutes with no CRD pump in service.
AVERAGE HCU accumulator pressure can be read with InSight Item **lcpac**. INDIVIDUAL HCU accumulator pressures can be read with InSight Item **lcpaccx(n)**. See Sim Op Manual under Reactor Building Operator for "n" value.	• CRS directs aligning Condensate Transfer keepfill to 'A' Core Spray loop and A/C RHR loops.	
	• IF any HCU accumulators become inoperable with no CRD pump I/S, THEN CRS implements AB.IC-0001: ⇒ Condition A	
IF dispatched to align AP to 'A' Core Spray and A & C RHR THEN: • **REFER** to SO.BC-0001 Section 5.9 • **TRIGGER ET-3** to open AP-V044/V047/V041	• RO/PO coordinates with RBEO to align Condensate Transfer IAW SO.BC-0001 for removal of CP228 from service.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS Refers to AB.COMP-0002 Condition F for PCIG loss • Crew places BK202 PCIG compressor in AULD. .	
	• CRS recognizes the following Tech Spec applies: ⇒ Distribution – Operating 3.8.3.1 action a	Must re-energize 10B430 within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
NOTE: Accumulator Alarms not expected to remain in alarm but TS may be referenced.	• IF any HCU accumulators become inoperable with no CRD pump I/S, THEN CRS recognizes the following Tech Spec applies: ⇒ Control Rod Scram Accumulators 3.1.3.5 action a.2.a	Within 20 minutes of discovery, restore charging water pressure >= 940 psig or place Mode switch in SHUTDOWN.
IF directed to perform fill and vent. THEN **REPORT** no air found.	• CRS refers to OP-HC-108-115-1001 for loss of CP228 ECCS jockey pump AND for SSW to RACS isolation valves.	Actions required for jockey pump are dependent on whether discharge header low pressure alarms were received for Core Spray and RHR loops.
IF OHA E4-A3 alarms, and dispatched to the EDG, THEN acknowledge and **INFORM** the MCR that the cause of the alarm is Jacket Water low temperature.		

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Steam Leak in HPCI Room: 20 minutes after the Loss of 10B430, OR at the discretion of the Lead Examiner, **TRIGGER ET-4**.	• Crew recognizes a steam line break in the HPCI room by: ⇒ OHA A2-A5 "FIRE PROT PANEL 10C671" ⇒ Fire Comp Pt FA015 "RM 4111 HPCI PUMP AND TURBINE ROOM" ⇒ HPCI room temperature trending up (Rm 4111) ⇒ Lowering Main Gen MWe ⇒ Offsite release rate trending up ⇒ HPCI Turbine Inlet Pressure on PI-R602. ⇒ ISLN INIT status lights	
InSight Items: • HPCI Room Temp **hvtr4111** • RCIC Room Temp **hvtr4110**	• Crew announces steam leak in HPCI room on plant page.	
IF dispatched to HPCI Room, THEN **REPORT** the room is filling with steam and you've left the area.	• Crew recognizes failure of HPCI to isolate by: ⇒ HV-F002 power failure ⇒ F003 valve position ⇒ HPCI room temperature trending up (Rm 4111)	The HV-F002 is powered from the 10A430 bus.
	• PO attempts to close HV-F003 using Control Room keylock switch.	Immediate Operator Action IAW AB.CONT-0002

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to reclose breaker 52-212053, THEN **REPORT** the breaker will not close. IF dispatched to the HV-F003 valve, THEN **REPORT** the valve is bound and will not close.	• Crew recognizes failure of HV-F003 to close by: ⇒ OHA B1-F3 “HPCI COMPONENT O/PF” ⇒ OVLD/PWR FAIL light ⇒ CRIDS D3513 “HPCI ST LINE ISLN HV-F003 OPF” ⇒ HPCI room temperature continuing to trending up (Rm 4111) ⇒ Main Gen MWe continuing to trend down ⇒ Offsite release rate continuing to trend up	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP-103 Secondary Containment Control.** 1. It is impossible to predict all possible break points in a system and proceduralize all possible points of isolation. Therefore, for reasons of system isolation as directed by EOP-103, the operator does not need written guidance beyond EOP-103 direction to isolate faulted systems. 2. It is important to remember ***it takes 2 or more areas (as defined in the EOP)*** with max safe Rads or Temps or Levels AND a Primary system discharging into the Reactor Building to enter EOP-202 RPV Blowdown. 3. Verification of "discharging" can be by either of the following: a. Visual verification of a leak or break in an area. b. Rising temperatures and/or rising radiation levels in an area. 4. Post scram, if the main condenser and sufficient RPV feed sources are available, the Control Room Supervisor should consider depressurizing the reactor within the cooldown limits (to approximately 500-600 psig) to reduce the driving head of the leak. If EOP-202 implementation is anticipated, then the depressurization is allowed to exceed the cooldown rate.	• WHEN HPCI Room temperature reaches 115 degrees, THEN CRS implements EOP-103. • CRS implements AB.CONT-004: ⇒ Condition A ⇒ Condition C	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to secure Rx Bldg Ventilation, THEN: • **REFER** to SO.GU-0001 Section 5.3 • **TRIGGER ET-5** to secure fans	• PO places FRVS in service IAW SO.GU-0001 Section 5.3. (or Hard Card)	
NOTE: **ENSURE** the following reports are provided (if actions were directed) before HPCI room temperature reaches 230F.	• Crew dispatches RBEO and Maintenance to breaker for HV-F003 (52-212053)	ARP for D3513 gives breaker number.
	• BEFORE HPCI Room temperature reaches 250 degrees, THEN CRS directs reducing recirc pumps to minimum speed and locking the Mode Switch in SHUTDOWN.	
	* **Before HPCI Room temperature exceeds 250 °F by Control Room indication, the Crew initiates actions to reduce Recirculation Pump speed to minimum and place the Mode Switch in SHUTDOWN**.	**HPCI Room Temperature when Recirculation Pump speed is being reduced to minimum** **Temp: _____**

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **Reactor Scram Reports** Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.	• RO reduces recirc pumps to minimum speed and locks the Mode Switch in SHUTDOWN. • RO recognizes that the Mode Switch failed and no control rods moved. *** When the reactor fails to shutdown after placing the Mode Switch in SHUTDOWN, the Crew manually initiates RPS and/or ARI to shutdown the reactor.** • Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators • CRS implements EOP-101.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO stabilizes and restores level IAW AB.ZZ-0001 Att. 14 as directed by CRS.	
Trip of EHC Pumps / TBV Closure: The AP116 EHC pump will trip during the scram. The BP116 EHC pump will trip one minute later. The Turbine Bypass Valves will fail shut one minutes after the BP116 trips.	• Crew recognizes Trip of AP116 EHC pump by: ⇒ OHA D3-F5 "TURBINE HYDRAULIC PUMP TROUBLE" ⇒ OHA D3-E5 "TURBINE HYDR RESERVOIR TROUBLE" ⇒ CRIDS D5542 "HYDRAULIC FLUID PUMP A TRBL" ⇒ Flashing STOP light for AP116 ⇒ Flashing LOW DISCH PRESS for AP116 ⇒ CRIDS D5575 "TURBINE HYDRAULIC FLUID PRESS LO"	May not immediately recognize due to scram actions being in progress.
IF asked, report that EHC pump motors are hot to the touch **IF** asked to Bypass Low Pressure MSIV isolation report a troubleshooting plan will be developed	• RO/PO starts BP116. • CRS implements AB.BOP-003:	May auto start if failure of AP116 is not immediately recognized.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes Trip of BP116 EHC pump by: ⇒ OHA D3-F5 “TURBINE HYDRAULIC PUMP TROUBLE” ⇒ OHA D3-E5 “TURBINE HYDR RESERVOIR TROUBLE” ⇒ CRIDS D5543 “HYDRAULIC FLUID PUMP B TRBL” ⇒ Flashing STOP light for BP116 ⇒ Flashing LOW DISCH PRESS for BP116 ⇒ CRIDS D5575 “TURBINE HYDRAULIC FLUID PRESS LO”	
	• Crew recognizes Turbine Bypass Valves failed shut by: ⇒ OHA E1-F4 “COMPUTER POINT RETURN TO NORMAL” ⇒ Valve position indication on HMI’s	
	• Crew recognizes lowering reactor pressure by: ⇒ OHA C8-B3 “NSSSS ISLN SIG – MN STM PRESSURE LO” ⇒ Various reactor pressure indications	
	• IF reactor pressure lowers to 550 psig, THEN CRS enters AB.RPV-0005: ⇒ Retainment Override	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs closing: ⇒ MSIVs ⇒ HV-F016 ⇒ HV-F019 • RO/PO closes: ⇒ MSIVs ⇒ HV-F016 ⇒ HV-F019	
RCIC Pump Room High Temperature: **ENSURE** Remote Function HV135 to OPEN is inserted (ET-9) when HPCI Room temperature is ≥250F.	• Crew recognizes rising temperature in the RCIC pump room by: ⇒ OHA B1-A1 "RCIC TURBINE TRIP" ⇒ OHA B1-B2 "RCIC OUT OF SERVICE" ⇒ OHA D3-A2 "RCIC/RHR B AREA LEAK TEMP HI" ⇒ RCIC Logic B/D "ISLN INIT" lights ⇒ RCIC HV-F007/8 closing ⇒ SPDS Room temp indication	
May need to reduce the time to 100% of HP09 to ensure RCIC room temp exceeds 250F. Ensure match of initial severity to current severity before modifying malfunction.	• WHEN HPCI AND RCIC room temperatures exceed 250 degrees (Max Safe Op), THEN CRS implements EOP-202 to Emergency Depressurize. • RO/PO opens five SRVs IAW AB.ZZ-0001 Att. 13.	**RECORD** time RCIC room reaches 250 degrees. TIME: _____

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***When RCIC room temperature exceeds 250F by Control Room indication (SPDS/CRIDS); Crew places five SRVS to OPEN before RPV pressure drops below 50 psig.***	**RECORD** time from RCIC reaching 250 degrees to SRV actuation. TIME: _____ **RECORD** RPV pressure at which fifth SRV is opened. PRESSURE: _____
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 “SUPPR POOL TEMP HIGH” ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	
	• CRS enters EOP-102.	
	• CRS directs placing all available RHR pumps in Suppression Pool Cooling.	
	• RO/PO places RHR in Supp Pool Cooling IAW AB.ZZ-0001 Att. 3.	
	• RO/PO aligns SACS to support second RHR Hx IAW SO.EG-0001 Section 5.9.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments

Termination Requirement:

The scenario may be terminated at the discretion of the Lead Examiner when the reactor has been depressurized.

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. **Emergency Plan (ECG)**
G. **Alarm Response Procedures (Various)**
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. HU-AA-1081 Fundamentals Toolkit
K. HU-AA-1211 Briefing
L. OP-AA-101-111-1004 Operations Standards
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-106-101-1001 Event Response Guidelines
O. OP-AA-108-114 Post Transient Review
P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
Q. OP-HC-108-106-1001 Equipment Operational Control
R. **HC.OP-SO.AE-0001 Feedwater System Operation**
S. **HC.OP-SO.SF-0001 Reactor Manual Control**
T. **HC.OP-SO.SF-0003 Rod Worth Minimizer Operation**
U. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
V. **HC.OP-AB.RPV-0005 Reactor Pressure**
W. **HC.OP-AB.IC-0001 Control Rod**
X. **HC.OP-AB.CONT-0001 Drywell Pressure**
Y. **HC.OP-AB.CONT-0002 Primary Containment**
Z. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
AA. **HC.OP-AB.ZZ-0172 Loss of 4.16 KV Bus 10A403 C Channel**
BB. **HC.OP-AB.ZZ-000 Reactor Scram**
CC. **HC.OP-EO.ZZ-0101 RPV Control**
DD. **HC.OP-EO.ZZ-0102 Primary Containment Control**
EE. **HC.OP-EO.ZZ-0103 Reactor Building Control**
FF. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
GG. **HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS**
HH. **HC.OP-IO.ZZ-0006 Power Changes During Operation**
II. Strategies For Successful Transient Mitigation

VII. ESG CRITICAL TASK RATIONAL

NRC 2024 - #1 / 01

#1 - Before HPCI Room temperature exceeds 250°F by Control Room indication (SPDS/CRIDS), the Crew initiates actions to reduce Recirculation Pump speed to minimum and places the Mode Switch in SHUTDOWN.

The steam leak from HPCI cannot be isolated. Since isolation cannot be accomplished, the only remaining course of action is to remove the energy input to the RCS by reducing reactor output. 250°F is the Max Safe Op temperature for the HPCI Room (4111), and EOP-103 directs reducing recirc to minimum and initiating a manual scram. In this scenario, the rate of rise in room temperature provides ample time to implement the guidance in EOP-103. Reducing Recirculating Pump speed to minimum is initiating actions to reducing(shutting down) the reactor.

#2 – When the reactor fails to shutdown a*fter placing the Mode Switch in SHUTDOWN, the Crew manually initiates RPS and/or ARI to shutdown the reactor.*

This action is prescribed by the Abnormal Procedures. Under scenario conditions, the Reactor Protection system has failed to respond to a manual scram condition. The operator must take action to mitigate the failure associated with the mode switch malfunction by initiating backup scram actions to shutdown the reactor If the reactor is not shutdown prior to tripping both reactor recirculation pumps, the core will be in a high-power low-flow condition that is conducive to Core Instabilities.

#3 – When RCIC room temperature exceeds 250°F by Control Room indication (SPDS/CRIDS), the Crew places five SRVS to OPEN, before RPV pressure drops below 50 psig.

The steam leak in the HPCI room is now affecting a second area. The reactor must be depressurized to place it in it's lowest energy state due to the potential for multiple inoperable safety systems, to reduce the driving head for the leak, and to reject decay heat to the suppression pool rather than the Reactor Building. SRV's are designed to open with a minimum differential pressure of 50 psid between the reactor vessel and the suppression chamber. Below this d/p, they may not open.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

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

TRANSIENTS:

____	Turbine Trip
____	Loss of Condenser Vacuum
____	Loss of Feedwater
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

____	Loss of SSW
____	Loss of SACS

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

Y/N	KEY SYSTEMS
____	SRVs
____	Condensate/Feedwater
____	SSW
____	RPS

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG.

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

Note: The following criteria list scenario traits that are numerical in nature for a single scenario.

NRC 2024 - #1

SELF-CHECK
(number indicates minimum IAW NRC IP 711111.11)

x 1. Total malfunctions inserted: 5

x 2. Malfunctions that occur after EOP entry: 1

x 3. Abnormal Events: 2

x 4. Major Transients: 1-2

x 5. EOPs used beyond primary scram response EOP: 1

x 6. EOP Contingency Procedures used: 0

x 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)

x 8. EOP run time: 40-70% of scenario run time

x 9. Crew Critical Tasks: 2

x 10. Technical Specifications are exercised during the scenario: 1

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST (continued)

Crew Validation **Rev:** 00 **Date Validated:** 11-8-23
Validated with crew. Runtime 58 minutes

Validation Comments	Disposition

Crew Validation **Rev:** 01 **Date Validated:** 1-9-24
Validated with crew. Runtime 58 minutes

Validation Comments	Disposition
NRC validation – minor comments & changes for evaluator notes and booth reports	Incorporated

IX. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

100% Power

1. Swap SSW Pumps from “D” to “B” for Maintenance checks. The “B” SSW Screens are already in RUN and in AUTO
2. Reduce power to 95% at 1%/minute using SPRI guidance for a calibration of ACUMEN.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

DK111 for freon leak
CP161 for bearing oil leak

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**Swap NON IE In-Feeds, Inadvertent SLC Initiation, RR Flow Xmtr Fail, RCIC Valve Fail, Recirc Pump Seal Fail, Power Oscillations, GP 1 Isolation, LOCA, PSP**
SCENARIO NUMBER:	**NRC 2024 #2**
EFFECTIVE DATE:	
EXPECTED DURATION:	63 minutes
REVISION NUMBER:	**01**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

X. OBJECTIVE(S):

Enabling Objectives

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

XI. MAJOR EVENTS:

1. Swap In-Feeds to Non-1E Bus
2. Inadvertent SLC Initiation
3. Reactor Recirculation Flow Transmitter Failure
4. RCIC Suppression Pool Suction Valve Failure
5. Reactor Recirculation Pump Seal Failures
6. Core Instabilities
7. Spurious Group 1 MSIV Isolation
8. LOCA
9. RHR Pump Failure
10. Drywell Spray Valve Failure / Downcomer Failure

XII. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. The crew will swap the in-feed supply to a Non-1E Bus. Then, an inadvertent SLC initiation will occur. Once SLC is addressed, a Reactor Recirculation Flow Transmitter will fail, requiring actions to bypass the failed flow unit. The breaker for the RCIC Suppression Pool Suction Valve (F031) will fail causing the valve to be failed close and Technical Specifications will need to be applied. Following the determination of Technical Specification applicability Reactor Recirculation Pump AP201 will develop a dual seal failure, causing a trip and isolation of that reactor recirculation pump. This will result in operation inside the OPRM Enable region of the Power to Flow Map. This will require inserting control rods to terminate power oscillations. A spurious Group 1 MSIV isolation will occur when the plant is scrammed, or inserted by the evaluation team, caused by an electrical transient on the RPS buses and degraded isolation relays. The pressure transient caused by the MSIV closure will cause a LOCA. During the LOCA a Downcomer will fail. The 'B' RHR pump will trip shortly after start, AND the 'A' Drywell Spray valves will fail to open. The Crew will not be able to maintain Suppression Chamber Pressure below the PSP curve, and Emergency Depressurization will be required. The scenario ends when the reactor has been depressurized and RPV water level is being maintained above -129".

XIII. INITIAL CONDITIONS:

	I.C.
Initial	

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

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

_____ **ENSURE** associated Events file open.

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

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

ENSURE Data Collection is trending the following data:

_____ • APRM A Power

_____ • W/R Reactor Water Level

_____ • Fuel Zone Reactor Water Level

_____ • Suppression Chamber Pressure

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

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

EVENT FILE:

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

MALFUNCTION SCHEDULE:

Initial	**@Time**	**Event**	**Action**	**Description**
	None	None	Insert malfunction RR19B2 to 8110.00000 on event 1	Recirc flow transmitter N024B failure
	None	None	Insert malfunction RR05A to 100.00000 in 120 on event 2	Recirc pump A inboard seal failure
	None	None	Insert malfunction RR06A after 15 to 100.00000 in 120 on event 2	Recirc pump A outboard seal failure
	None	None	Insert malfunction CR02B after 300 to 15.00000 in 600 on event 3	Reactor Core Instabilities (APRMs)
	None	None	Insert malfunction CR02B after 5 to 20.00000 on event 4	Reactor Core Instabilities (APRMs)
	None	None	Insert malfunction MS15 on event 11	Spurious group I isolation
	None	None	Insert malfunction PC04 after 300 to 100.00000 on event 11	Downcomer break
	None	None	Insert malfunction RR31A1 after 300 to 100.00000 in 120 on event 11	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RR31A2 after 420 to 6.00000 in 1200 on event 11	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction QQ21 after 120 to SEIZE on event 13	RHR pump BP202 trip
	None	None	Insert malfunction SL03A on event 16 delete in 3	Inadvertent SBLC system A initiation

REMOTE SCHEDULE:

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

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Swap Non-1E Bus In-feed Breakers</u>:	• CRS directs swapping in-feeds to 10A502 IAW HC.OP-SO.PB-0001.	
	• PO swaps in-feeds to 10A502 IAW HC.OP-SO.PB-0001: ⇒ PRESS the 50201 AUTO CLOSE BLOCK pb AND VERIFY that the PB backlight is OFF ⇒ CLOSE Alternate FEED BRKR 50205. ⇒ PRESS the AUTO CLOSE BLOCK PB for the Alternate Feed Breaker 50205AND VERIFY that the AUTO CLOSE BLOCK PB is illuminated	

Inadvertent SLC Initiation
 	
After the actions for in-feed swap are completed, or at the discretion of the Lead Examiner,
TRIGGER ET-16
 	
If requested to open breaker, **INSERT Remote ET72** to TAGGED and report that the breaker is open.
 	
SLC Tank level can be observed on CRIDS Page A097 point A7052.
(Per Note 3 of AB-RPV-001), For the case of A SLC Pump (ONLY) inadvertent initiation, SLC solution did NOT enter the Reactor if SLC Storage Tank Level dropped by ≤ 15 gallons [Tech Eval 60118460- 0001-0030].
(≤15 gallon change indicates no injection reached the vessel.)
	• Crew recognizes inadvertent SLC intiation by:
	  • OHA C1-C1 SLC SQUIB VLV LOSS OF CONTINUITY
	  • OHA B3-B5 CORE SPRAY LINE BREAK
	  • OHA C1-C2 RWCU SYSTEM TROUBLE
	  • OHA C1-D2 RWCU TRIP
	  • CRIDS D3020 SLC SQUIB XV-F004A CONTINUITY in alarm
	  • SBLC Pump AP208 indicates running
	
	• CRS references AB.CONT-0002: Condition B – Steps B.1 & B.2
	• CRS implements AB.RPV-0001:
	  ⇒ Condition G
	• Crew verifies Reactor Level >-38” and Reactor Pressure remained <1071 psig
	
	• RO stops the running A SLC Pump by depressing Standby Liquid Control, Injection Pump A, STOP push button.
	
	• Crew verifies RWCU isolated.
	
	• Crew directs opening SLC Pump A breaker 52-212063
	
	• CRS determines SLC operability based on SLC Pump AP208 breaker open and Storage Tank level using HC.OP-DL.ZZ-0026, and declares inoperable SLC Pump AP208.
	
	• Crew determines if SLC solution entered the Reactor.
	
	  • IF SLC solution entered the Reactor, THEN initiate action within 15 minutes to
		SLC Tk Lvl Initial
		
		_____ Galllons
		
		SLC Tk Lvl Post
		
		_____ Galllons
		
		Initial-Post = _____
		
		(Per Note 3 of AB-RPV-001), For the case of A SLC Pump (ONLY) inadvertent initiation, SLC solution did NOT enter the Reactor if SLC Storage Tank Level dropped by ≤ 15 gallons [Tech Eval 60118460- 0001-0030].

Event / Instructor Activity	Expected Plant/Student Response	Comments
	REDUCE Reactor Power to less than 24% of RTP within six hours, and continue on with a controlled Reactor Shutdown to achieve subcritical conditions IAW HC.OP-IO.ZZ-0004 • CRS recognize the following Tech Specs actions apply: SBLC – Operating 3.1.5, Action A.1	Need to restore the subsystem in 7 days, or be in Hot S/D in next 12 hours
<u>Reactor Recirculation Flow Transmitter Failure</u>: After the Crew has addressed SLC and at the discretion of the Lead Examiner, **TRIGGER ET-1** (Recirculation flow transmitter failure).	• Crew recognizes failure of the flow transmitter by: ⇒ OHA C6-D1 “FLOW REF OFF NORMAL” ⇒ OHA C6-D3 “ROD OUT MOTION BLOCK” ⇒ CRIDS PRNM_AS_009, “APRM B RECIRC FLOW UPSCALE ALARM” alarm and indicating full scale	
	• Crew refers to HC.OP-AR.ZZ-0011 ⇒ CHECKS Recirculation Pump loop flows.	
	• Crew enters HC.OP-AB.IC-0004 ⇒ CONDITION B ⇒ BYPASS the Malfunctioning APRM	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew bypasses the APRM B IAW HC.OP-AB.IC-0004 and HC.OP-SO.SE-0001.	Declares APRM inoperable.
	• CRS refers to Tech Specs 3.3.1; 3.3.6.	Tracking LCOs. – NOT CREDITED for Tech Specs – INFO ONLY
<u>RCIC Suppression Pool Suction Valve Failure</u>: After the Crew bypassed the failed flow unit, and at the discretion of the Lead Examiner, **TRIGGER ET-15** (HV-F031 PMP SUCT FROM SUPP CHAMB ISLN MOV failure). (BKR 72-261102)	• Crew recognizes failure of the HV-F031 by: ⇒ OHA B1-F1 “RCIC COMPONENT O/PF” ⇒ OHA D1-B3 “CONTAINMENT ISOLATION VALVE O/PF” ⇒ CRIDS D3574, “RCIC PMP SUCTION V HV-F031 OPF” alarm ⇒ CRIDS D4675, “CONTAINMENT ISOLATION MOV OPF” alarm	
	• Crew refers to HC.OP-AR.ZZ-0006 and to HC.OP-AR.ZZ-0013 ⇒ REFER TO Technical Specification 3.7.4. ⇒ REFER TO Technical Specification 3.6.3.	
Respond as EO that breaker 72-261102 is tripped. Cause of the breaker trip is not apparent. IF requested to attempt a reclosure, Report Breker tripped free and won’t stay closed	• Crew sends an Equipment Operator to investigate valve failure.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS refers to Tech Spec 3/4.6.3. and TRM Group 23 (3.6.3)	With one or more of the primary containment isolation valves inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either: 1. Restore the inoperable valve(s) to OPERABLE status, or 2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position, * or 3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
	• CRS refers to Tech Spec 3/4.7.4.	With the RCIC system inoperable, operation may continue provided the HPCI system is OPERABLE; restore the RCIC system to OPERABLE status within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 150 psig within the following 24 hours.

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Recirc Pump Seal Failure: After Tech Specs have been addressed for the failure of the HV-F031, OR at the discretion of the Lead Examiner, **TRIGGER ET-2** ('A' Recirc Pump Dual Seal Failure).	• Crew recognizes second stage seal failure on 'A' Recirc pump by: ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS D2924 "RECIRC PUMP A SEAL LKG FLOW HI" ⇒ Lowering second stage seal pressure ⇒ CRIDS D2926 "RECIRC PUMP A SEAL STAGE FLOW HILO"	First stage seal failure will occur five(5) minutes after the second stage.
	• CRS implements AB.RPV-0003: ⇒ Condition D	
IF dispatched to report local seal pressures on 77' Rx Bldg, THEN **REPORT** readings consistent with CRIDS (Page 85), OR the following Monitor Items: (Monitor Items are psia) • 'A' Recirc Inbd (#1) Seal **rrpsl1(1)** – 15 = psig • 'A' Recirc Outbd (#2) Seal **rrpsl2(1)** – 15 = psig	• Crew recognizes 'A' Recirc pump dual seal failure by: ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" reflash ⇒ Changing seal pressures ⇒ Rising seal temperatures ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX317/318/320 DLD CCM alarms ⇒ RM11 9AX314 DLD Floor Drain Flow alarm ⇒ Rising drywell pressure	
	• CRS implements AB.RPV-0003: ⇒ Conditions A, B,D, E, F, and K.	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO trips and isolates 'A' Reactor Recirc pump IAW AB.RPV-0003 Condition E. ⇒ PRESS STOP PUMP A ⇒ PRESS the CLOSE PB on HV-F023A ⇒ CLOSE BF-HV3800A and BG-HV-F100 ⇒ CLOSE HV-F031A	
	• CRS implements AB.CONT-0001: ⇒ Condition A	
	• PO ensures drywell cooling is maximized by ensuring all fans operating in fast speed and all coolers are in service.	
	• CRS implements AB.CONT-0006: ⇒ Condition C ⇒ Condition A ⇒ Condition B	
	• Crew determines Drywell Floor Drain leakage is >5.0 gpm.	
	• RO/PO may lower RR A Pump speed IF any Recirc Pump Seal Cavity temperature >180F, THEN LOWER Recirc pump speed to maintain seal temperature <180F IAW Condition K of AB-RPV-0003.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Monitor Items: • HV-F023A **rrvf23(1)** • HV-F100 **cuvf100** • HV-F031A **rrvf31(1)**	* ***CREW trips and isolates the 'A' RR pump before DRWL pressure reaches 1.68 psig by closing the:*** ***HV-F023A*** ***HV-F100*** ***HV-F031A***	**RECORD** drywell pressure when 'A' Reactor Recirc pump is isolated: Drywell Pressure: ____ DW pressure may continue to rise following isolation.
IF the Crew scrams during the seal failure, THEN proceed to the Spurious MSIV Isolation. Power Oscillations will NOT be observed.	• Crew validates successful recirc isolation by: ⇒ Seal pressures and temperatures ⇒ Trending DLD flows ⇒ Trending drywell pressure and temperature	
	• Crew monitors plant response to the transient.	
	• CRS implements AB.RPV-0003: ⇒ Condition B ⇒ Condition A	
	• IF in Region 1 of the Pwr/Flow map, THEN RO inserts CRAM rods IAW RE.AB.ZZ-0001 as necessary to exit Region 1. • IF OPRM PRE-TRIP (C3-F2) will NOT remain Clear, CONTINUE Rod insertion IAW Enhanced Stability Guidance UNTIL the alarm is clear.	OPRM PRE-TRIP (C3-F2) intermittent alarm will require continuing rod insertion to keep clear.
	• PO implements DL.ZZ-0026 Att. 3v.	The pace of the scenario will not allow the Crew to fully address single loop requirements.

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
When asked, or if not asked, Call in as RE, THEN REPORT,that inserting the first 12 steps of the CRAM rods can be used to achieve an 80% rodline. **ACKNOWLEDGE** any direction to evaluate single loop operation IAW SE-PR.ZZ-0003.	• CRS implements IO.ZZ-0006 for single loop.	
	• CRS recognizes the following Tech Specs apply: ⇒ Recirculation Loops 3.4.1.1 action a 4.4.1.1.1 ⇒ Jet Pumps 3.4.1.2 surveillance requirement 4.4.1.2.b.	Within 4 hours take actions to place plant in single loop operations. During single loop operations jet pumps in the operating loop shall be demonstrated OPERABLE.
	• Crew references Power Maneuvering Surveillance Requirements in OP-HC-108-115-1001.	
	• IF reactor power was reduced by more than 15%, THEN CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
Power Oscillations: After the Recirculation Pump Trip, Power Oscillations will **automatically** be inserted at a slow ramp. IF rod 46-23 is inserted to notch 00, OR at the discretion of the Lead Examiner, **TRIGGER ET-4** to ramp the oscillations at a faster rate to ensure operators continue to address oscillations. **NOTE: Adjust ET-4 Slowly and allow a minute for plant response before increasing ramp sequentially by 2% only,** **OPRM Pre-Trip in at approx.. 22% on Malfunction CR02B (ET-4)** **OPRM Trip in @approx. 30%** AT the discretion of the Lead Evaluator, **IF** actions taken for oscillations have prevented insertion of a manual scram OR an automatic scram, THEN **Insert TRIGGER ET-11**. (Spurious MSIV Closure)	• Crew recognizes power oscillations by any of the following: ⇒ OHA C3-F5 “OPRM ALARM” ⇒ APRM power oscillations on APRM Recorders/indicators ⇒ Positive/Negative swings on the Period Meters	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs inserting control rods IAW Enhanced Stability Guidelines, OR directs RO to scram the reactor.	Inserting Control Rods could cause the power oscillations to subside.
	• IF directed, RO locks the Mode Switch in SHUTDOWN.	Crew may conservatively scram before the Reactor scrams.
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **Reactor Scram Reports** Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	
	• Crew recognizes RPV Level Below 12.5” EOP entry condition by: ⇒ OHA C5-A4 “RPV WATER LEVEL LO” ⇒ OHA A7-D5 “RPV LEVEL 3” ⇒ Various water level indicators	
	• RO inserts rods IAW Enhanced Stability Guidance as necessary to: ⇒ Exit REGION 1, or ⇒ OPRM PRE-TRIP (C3-F2) Alarm is clear	

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP 101 RPV Control**. Level Leg Direct an initial band of +12.5” to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30” to +30” to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level can not be maintained above -129”, the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185”. Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.	• CRS implements EOP-101.	
<u>Spurious MSIV Isolation</u>: The MSIVs will isolate when the reactor is scrammed; OR <u>IF</u> actions taken for oscillations have prevented an automatic scram, <u>THEN</u> with the concurrence of the Lead Examiner **TRIGGER ET-11**.	• Crew recognizes MSIV isolation by: ⇒ OHA C8-A1 “NSSSS MSIV LOGIC A INITIATED” ⇒ OHA C8-A3 “NSSSS MSIV LOGIC B INITIATED” ⇒ OHA C5-B3 “MSIV CLOSURE” ⇒ MSIV Trip Logic A “MSIV TRIP LOGIC TRIPPED” status light ⇒ MSIV Trip Logic B “MSIV TRIP LOGIC TRIPPED” status light ⇒ CLOSED indication on all MSIVs	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs level RPV water level control with HPCI/RCIC.	
	• PO maintains reactor water level as directed by CRS IAW AB.ZZ-0001 Att. 6.	
	• CRS directs RPV pressure control with SRVs/HPCI.	
	• RO/PO controls pressure as directed by CRS with: ⇒ SRVs IAW AB.ZZ-0001 Attachment 13 ⇒ HPCI IAW AB.ZZ-0001 Attachment 6	
LOCA: The LOCA will automatically be inserted five minutes after the reactor is scrammed.	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 “DLD SYSTEM ALARM/TRBL” ⇒ Rising Drywell Pressure ⇒ OHA A4-F5 “COMPUTER PT IN ALARM”	
	• CRS implements AB.CONT-001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV tailpipe temperatures	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Note: RCS leakage rate may not be determinate due to Drywell Sump Pump operations' on RM-11 indications.	• Crew determines leakage to be greater than 50 gpm: ⇒ RM11 9AX317/319/320 DLD CCM alarms ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm	
	• Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations.	
	• CRS enters EOP-102, re-enters EOP-101.	
	• RO/PO verifies automatic actions.	
	• CRS directs maintaining RPV level -30" to +30" with any combination of: ⇒ HPCI ⇒ RCIC	
	• RO/PO maintain RPV level as directed by CRS with: ⇒ HPCI IAW AB.ZZ-0001 Att. 6 ⇒ RCIC IAW AB.ZZ-0001 Att. 6	
	• Crew verifies isolations and monitors containment performance.	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
RHR Pump Failure: RHR Pump B will trip after start.	• Crew recognizes BP202 RHR pump trip by: ⇒ OHA A7-A1 "RHR LOGIC B OUT OF SERVICE" ⇒ OUT OF SERVICE status light ⇒ PUMP MOTOR OVERCURRENT status light ⇒ Pump STOP, amp and flow indications	
IF dispatched to investigate the trip of the B RHR pump, THEN **REPORT**: • The breaker has target flags dropped on the 51A and 51B Time Overcurrent relays (52-40206) • The pump motor is hot to the touch and bearing oil levels are normal	• Crew dispatches NEO and Maintenance to affected pump and breaker.	
Downcomer Break: The Downcomer Failure will automatically be inserted five minutes after the reactor is scrammed.	• Crew recognizes containment not performing properly by: ⇒ Suppression Chamber pressure approaching Action Required area of PSP curve ⇒ Suppression Chamber airspace temperature significantly above water temperature ⇒ Drywell Pressure response	
	• WHEN Suppression Chamber pressure exceeds 9.5 psig, THEN CRS directs initiating drywell spray.	Recirc pumps should be tripped prior to initiating drywell spray.
	• RO/PO place AP202 RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2.	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Drywell Spray Valve Failure: HV-F021A failure will occur on open command.	• Crew recognizes failure of HV-F021A by: ⇒ OHA A6-B1 "RHR LOOP A TROUBLE" ⇒ CRIDS D4465 "RHR CONT SPY OUTBD HV-F021A OPF" ⇒ Flashing OVLD/PWR FAIL	
IF dispatched to investigate trip of HV-F021A breaker, THEN **REPORT** the breaker (52-451062) is tripped and will not reset. S.E. is investigating.	• Crew dispatches NEO and Maintenance to breaker for HV-F021A.	
IF necessary, THEN **RAISE** the severity of Malfunction **rr31b2** to drive Suppression Pool Pressure into the Action Required region of the PSP curve.		
	• CRS implements EOP-202 to Emergency Depressurize.	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.	• Crew prevents injection from Core Spray and LPCI pumps not required for adequate core cooling.	
	• RO/PO opens five SRVs IAW AB.ZZ-0001 Att. 13.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***Crew opens five SRVs after determining Suppression Chamber pressure cannot be maintained below the "Action Required" region of the PSP curve, AND before Suppression Chamber pressure exceeds 40 psig.***	**RECORD** Suppression Chamber Pressure when five ADS valves are opened: Pressure: _____
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control For non-ATWS emergency depressurizations, the Control Room Supervisor should establish and maintain an RPV level band between -38" to +54" on Wide Range indication. This transient level band will prevent adverse hydraulic effects caused by high outside shroud reactor level while maintaining adequate core submergence based on Fuel Zone indication. Following the emergency depressurization, level will be restored and maintained to the preferred EOP reactor level band by using a suggested Wide Range compensated level band of +12.5" to +54" if possible using Condensate and Startup Level Control or the Control Room Supervisor can maintain an RPV level band of -38" to +54" if still batch feeding with low pressure ECCS to maintain RPV level.	• CRS re-enters EOP-102.	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs placing AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.	
	• RO/PO place AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	
IF directed to reset the breaker for the HV-F021A, THEN, AFTER the Crew Emergency Depressurizes, **TOGGLE** Remote Function **RH20A** to **NORMAL** AND **REPORT** the breaker is shut.	• IF the HV-F021A is restored, OR the 'B' RHR pump are restored, THEN CRS directs placing an RHR pump in drywell spray.	
IF directed to reset the Overcurrent Relays on the 'B' RHR breaker, THEN, AFTER the Crew Emergency Depressurizes, **DELETE** Malfunction **QQ21** from the Instructor Station Summary, AND from Event Trigger #13, THEN **REPORT** the relays are reset.	• IF the two RHR pumps are available, THEN the CRS directs placing the second RHR pump in Suppression Pool Cooling.	Due to maintained LOCA start signal, must press STOP on 'B' RHR pump to reset lockout coil and allow restart.
	• CRS directs restoring PCIG to SRVs.	
	• RO/PO restores PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	

XIV. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Termination Requirement:</u> The scenario may be terminated at the discretion of the Lead Examiner when: • RPV level is being maintained above –129” • The reactor has been Emergency Depressurized		

XV.SCENARIO REFERENCES:

JJ. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
KK. NUREG 1021 Examiner Standards
LL. JTA Listing
MM Probabilistic Risk Assessment
NN. Technical Specifications
OO. **Emergency Plan (ECG)**
PP. **Alarm Response Procedures (Various)**
QQ. HU-AA-101 Performance Tools and Verification Practices
RR. OP-AA-101-111-1004 Operations Standards
SS. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
TT. OP-AA-106-101-1001 Event Response Guidelines
UU. OP-AA-108-114 Post Transient Review
VV. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
WW OP-HC-108-106-1001 Equipment Operational Control
XX. **HC.OP-SO.AE-0001 Feedwater System Operation**
YY. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
ZZ. **HC.OP-AB.RPV-0001 Reactor Power**
AAA **HC.OP-AB.RPV-0003 Recirculation System/ Reactor Power Oscillations**
BBB **HC.OP-AB.RPV-0004 Reactor Level Control**
CCC **HC.OP-AB.RPV-0006 Safety Relief Valve**
DDD **HC.OP-AB.CONT-0001 Drywell Pressure**
EEE **HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling**
FFF **HC.OP-AB.COMP-0001 Instrument and/or Service Air**
GGG **HC.OP-AB.ZZ-000 Reactor Scram**
HHH **HC.OP-EO.ZZ-0101 RPV Control**
III. **HC.OP-EO.ZZ-0102 Primary Containment Control**
JJJ. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**

XVI. ESG CRITICAL TASK RATIONAL

NRC 2024 #2

1.

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

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

The dual seal failure is causing drywell pressure to rise. If drywell pressure reaches 1.68#, system isolations will occur that will ultimately result in a loss of feedwater and the main condenser. In the Hope Creek PRA, Loss of Feedwater and MSIV Closure are both events that can lead to core damage. High drywell pressure will also result in a loss of the remaining reactor recirculation pump and the RWCU system. This impacts our ability to prevent stratification in the reactor vessel. In this scenario, the Crew has over eight minutes to trip and isolate the 'A' Reactor Recirculation pump IAW AB.RPV-0003 before drywell pressure reaches 1.68#. This is ample time to diagnose the seal failures and isolate the pump IAW existing procedure guidance. Drywell pressure may continue to rise following isolation. Satisfactory completion is isolating before 1.68 psig Drywell pressure. LOCA 1 signal.

2.

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

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

If suppression chamber pressure cannot be maintained below the pressure suppression pressure (PSP), EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure curve could cause design containment limits to be exceeded. Preventing entry into the Action Required Region of the PSP curve satisfies this critical task. The scenario allows approx.10 minutes to take the required action to depressurize the RPV after the action required region of the Pressure Suppression Pressure curve is reached and prior to 40 Psig. (40 psig is at the top of the readable portion of the PSP graph, is also approaching the design containment pressure limit (65 psig) and the SRV pilot solenoid design temperature limit).

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

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

TRANSIENTS:

____	Turbine Trip
____	Loss of Condenser Vacuum
____	Loss of Feedwater
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

____	Loss of SSW
____	Loss of SACS

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

Y/N	KEY SYSTEMS
____	SRVs
____	Condensate/Feedwater
____	SSW
____	RPS

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG.

XVII. SIMULATOR ESG REVIEW/VALIDATION:

NRC 2024 #2

Crew Validation 1 SRO & 2 ROs) Rev.: 00 Date Validated: 11-8-23 Run Time: 63 minutes		
Validation Comments		Disposition
1. None		1. None

Crew Validation Rev.: 01 Date Validated: 1-8-24 Run Time: 63 minutes		
Validation Comments		Disposition
1. Provided additional NRC requested booth and evaluator notes		1. Revised.

XVIII. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

100% Power

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

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

ADVERSE CONDITION MONITORING

None

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**Earthquake, Trip of CRD Pump, Inst Line Break in Drywell, ATWS, HPCI Failure**
SCENARIO NUMBER:	**NRC 2024 #3**
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	56 minutes
REVISION NUMBER:	**01**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

XIX. OBJECTIVE(S):

Enabling Objectives

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

XX.MAJOR EVENTS:

1. Swap RFPT L.O. Pumps
2. Raise power with Control Rods
3. Earthquake
4. CRD Pump Trip
5. MSLRMS Channel A Fails upscale
6. Instrument Line Break in Drywell
7. ATWS
8. HPCI Auto Initiation Failure
9. RWCU Auto Isolation Failure

XXI. SCENARIO SUMMARY:

The scenario begins with the plant at 78%. The 'B' RFPT has been removed from feeding due a control signal failure. Power will then be raised to 83% IAW the REMA. Then, an earthquake that exceeds the OBE will occur. 'A' MSLRMS channel fails upscale resulting in a TS LCO. After TS are addressed a trip of the operating CRD pump occurs. Two HCU accumulators will drop to less than 940#, requiring restoration of a CRD pump within 20 minutes to avert a Tech Spec required scram. An instrument line break in the drywell will develop that will require scramming the plant. The scram will not be successful and will result in a half core ATWS with an initial power level of about 15%. The break is on the 'B' Channel variable leg and when drywell pressure exceeds 1.68# and RPV level drops below LVL 3, the conditions for automatic ADS initiation will be met if ADS is not inhibited. Crew must inhibit ADS. The RFPTS will be lost when drywell pressure reaches 1.68# and the RFPT oil pumps are load shed, and HPCI will not automatically initiate due to an Auto Start failure of the HPCI aux oil pump. Operator action will be required to restore HPCI to service and maintain level above –185". Crew inserts all control rods either manually, or with EOP-320. The scenario ends when the reactor is shutdown and RPV water level is being maintained above -185".

XXII. INITIAL CONDITIONS:

	I.C.
Initial	

_____ **INITIALIZE** the simulator to 100% power

_____ **ENSURE** the 'A' Fuel Pool Cooling pump is in service.

_____ **ENSURE** the 'B' CRD pump is in service.

_____ **ENSURE** TACS is being supplied by the 'A' SACS loop.

_____ **ENSURE** 'D' SACS pump is in service.

_____ **ENSURE** 'B' Control Room Ventilation Train is in service.

_____ **REDUCE** Reactor Power to 78% with SPRI. Groups 10B and 10A at 00. **ENSURE** Reactor Recirculation Pumps are NOT operating in a vibration or oscillation region.

_____ **INSERT** Control Signal Failure on 'B' RFPT and **REMOVE** pump from feeding. Leave idling on recirculation at <1000 rpm with the discharge valve open.

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

_____ **ENSURE** associated Events file open.

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

_____ **INITIAL HC.OP-SO.AE-0001 Steps 4.15.1 & 4.15.2**

_____ **INITIAL** IO-6 for power reduction.

_____ **INITIAL** AB.RPV-0004 Condition C Step C.1 for controlling 'B' RFPT with INC/DEC pushbuttons.

_____ **ENSURE** REMA available for power change.

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

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

EVENT FILE:

Initial	ET #		
	9	Event code: Description:	**lc_parun** CRD Pump A in service
	11	Event code: Description:	**lcpda >= 900** CRD Pump A discharge pressure
	13	Event code: Description:	zcrpsudn >= 1.0 Reactor mode switch to Shutdown

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction FW10B	Feedwater pump BP101 signal failure
	None	None	Insert malfunction RP06	Half-core ATWS - left side
	None	None	Insert malfunction CU11A	RWCU isolation valve F001 failure to auto close
	None	None	Insert malfunction CU11B	RWCU isolation valve F004 failure to auto close
	None	None	Insert malfunction HP06E	HPCI aux oil pump failure to auto start
	None	None	Insert malfunction PC07A on event 1	Seismic Event I
	None	None	Insert malfunction CD10B after 120 on event 1	CRD hydraulic pump B trip
	None	None	Insert malfunction CD053435 after 165 on event 1	Control Rod 34-35 accumulator trouble
	None	None	Insert malfunction CD054615 after 190 on event 1	Control Rod 46-15 accumulator trouble
	None	None	Insert malfunction RR20B to -150 on event 2	ECCS level transmitter N091B failure
	None	None	Insert malfunction RR20F to -150 on event 2	ECCS level transmitter N091F failure
	None	None	Insert malfunction RR23B to 0 on event 2	NSSS level transmitter N081B failure
	None	None	Insert malfunction RR39B to 0 on event 2	LT-3622B PAMS Shutdown Range Failure
	None	None	Insert malfunction RR31A1 to 4.00000 in 600 on event 2	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction DG03B on event 8	LOCA sequencer chan B failure
	None	None	Insert malfunction DG04B on event 8	LOP sequencer chan B failure
	None	None	Insert malfunction RM01A to 100 on event 12	Main steam line A rad monitor failure
	None	9	Remove malfunction CD053435	Control Rod 34-35 accumulator trouble
	None	9	Remove malfunction CD054615 in 15	Control Rod 46-15 accumulator trouble
	None	11	set lcpaccx(109) =900	
	None	11	set lcpaccx(38) =900	
	None	13	Insert malfunction RR31A1 to 20 in 300	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote EP01 after 360 to BYPASS on event 3	EP01 EOP-301, bypass MSIV (-129") isolation interlock
	None	None	Insert remote EP02 after 480 to BYPASS on event 4	EP02 EOP-311, bypass PCIG (-129") isolation interlock
	None	None	Insert remote EP09 after 240 to REMOVED on event 6	EP09 EOP-320 (step 5.1.2), ARI valve fuses F6A/F5A
	None	None	Insert remote EP10 after 240 to REMOVED on event 6	EP10 EOP-320 (step 5.1.4), ARI valve fuses F6B/F5B
	None	None	Insert remote EP11 after 360 to INSTALLED on event 6	EP11 EOP-320 (step 5.2.2), RPS division 1 jumper
	None	None	Insert remote EP13 after 360 to INSTALLED on event 6	EP13 EOP-320 (step 5.2.3), RPS division 3 jumper
	None	None	Insert remote EP12 after 720 to INSTALLED on event 6	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper
	None	None	Insert remote EP14 after 720 to INSTALLED on event 6	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper
	None	None	Insert remote EP38A to EMERGENCY on event 14	EP38A EOP-319 (step 5.1.5) CLOSE breaker 52-45024 EIAC 10K100
	None	None	Insert remote EP38B to EMERGENCY on event 15	EP38B EOP-319 (step 5.1.10) OPEN breakers 52-212232 (HV-2203) and 52-222191 (HV-2204)
	None	None	Insert remote EP38C to EMERGENCY on event 16	EP38C EOP-319 (step 5.1.12) manually OPEN valve EA-HV-2203
	None	None	Insert remote EP38D to EMERGENCY on event 17	EP38D EOP-319 (step 5.1.13) manually OPEN valve EA-HV-2204
	None	None	Insert remote HV06 to STOP on event 19	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 19	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 19	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 19	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 3 to STOP on event 19	HV02 RBVS Exhaust fan B
	None	None	Insert remote HV01 after 3 to STOP on event 19	HV01 RBVS Exhaust fan A

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 1A162_A_DI to Off	ISLN OVRD-SPLY-CONTAINMENT CLG ISLN - OUTBD (DI)

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Swap "B" RFPT Lube oil Pumps Respond as TB EO to support swap of LO Pumps.	• CRS directs swap of RFP Lube Oil Pumps IAW HC.OP-SO.AE-0001. • PO swaps RFP LO Pumps: ⇒ PRESS MAN pushbutton for B2P124 ⇒ START B2P124 ⇒ OBSERVE AUX OIL PUMP START is illuminated ⇒ PRESS AUTO pushbutton for B2P124 ⇒ PRESS MAN pushbutton for B1P124 ⇒ STOP B1P124 ⇒ PRESS AUTO pushbutton for B1P124	
Raise Power to 86%	• CRS directs power rise IAW IO-6 and REMA. • CRS directs withdrawing control rods IAW REMA guidance. • RO withdraws control rods IAW REMA guidance and HC.OP-SO.SF-0001. ⇒ Presses the desired Control Rod Select PB ⇒ Momentarily presses the WITHDRAW PB ⇒ After the withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position. ⇒ Initials Rod Pull Sheet.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Earthquake</u>: After the Power Ascension and at the discretion of the Lead Examiner, • **PLAY** the Earthquake Sound Effect (if available) at medium volume for about 15 seconds <u>OR</u> **ANNOUNCE** "You feel motion then it stops" <u>AND</u> **TRIGGER ET-1**	• Crew recognizes Seismic Event by: ⇒ OHA C6-C4 "SEISMIC MON PNL C673" ⇒ CRIDS D3977 "SEISMIC TROUBLE ALARM TRBL" ⇒ Response Spectrum Analyzer indications on 10C650C ⇒ Loud rumbling noise (if available)	
	• Crew monitors critical parameters to determine if plant is stable.	
<u>IF</u> Crew calls National Earthquake Center, <u>THEN</u> **REPORT** a seismic event of >0.1g centered 12 miles east of Wilmington, DE.	• CRS implements AB.MISC-0001: ⇒ Condition E ⇒ Condition F	
<u>IF</u> Crew calls Security, <u>THEN</u> **REPORT** the Security system is intact.		
	• RO/PO implements AR.ZZ-0011 Attachment C4.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to 10C673, THEN **REPORT**: • The Event Indicator is WHITE • The tape machines have advanced but are not running • The Amber Alarm light on the Seismic Switch Power Supply drawer is lit.	• Crew dispatches ABEO to 10C673. • Crew recognizes a seismic event >0.1g has occurred	
IF directed to reset 10C673, THEN **DELETE** Malfunction **PC07A**.	• RO/PO directs ABEO to reset 10C673 IAW SO.SG-0001.	
	• RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1.	
	• RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001.	
IF directed to investigate EDG alarms, THEN REPORT alarms were Fuel Oil Day Tank Hi/Lo alarms.	• RO/PO investigates A EDG LO and HI Priority Alarms.	
Clear OV'HD as required • AN21 – EDG • AN30 - CRD		

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Trip of 'B' CRD Pump</u>: Trip of the CRD pump occurs two minutes after 10C673 alarm is received.	• Crew recognizes trip of BP207 CRD pump by: ⇒ OHA C6-F2 "CRD SYSTEM TROUBLE" ⇒ CRIDS D2246 CRD WATER PUMP B MOTOR TRBL" ⇒ Flashing STOP light for BP207 ⇒ Flashing OVLD/PWR FAIL for BP207	
<u>IF</u> dispatched to BP207, <u>THEN</u> **REPORT** both pump oil bubblers are broken and the motor is hot to the touch.	• Crew dispatches NEO to inspect BP207 CRD pump.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to BP207 breaker, THEN **REPORT** the breaker tripped on overcurrent.	• Crew dispatches NEO to inspect breaker for BP207 CRD pump.	
ENSURE ET-9 Triggers when crew starts “A” CRD Pump **ENSURE ET-11** TRIGGERS wjhen “A” CRD pump discharge pressure is >900#	• Crew recognizes potentially inoperable accumulators on withdrawn control rods by: ⇒ OHA C6-D4 “CRD ACCUM TROUBLE” ⇒ CRIDS D5268 “CRD ACCUMULATOR TRBL” ⇒ Flashing amber ACCUM lights on Full Core Display for 34-35 and 46-15	
WHEN dispatched to investigate HCU accumulator trouble alarms, THEN **REPORT** the following: • IF the alarms are still in, pressures are 920 psig • IF the alarms are clear, pressures are 1040 psig IF Crew does NOT recognize second accumulator trouble alarm AND alarm is still in, THEN when dispatched to first alarm, **REPORT** finding second HCU at 920(1040) psig.	• Crew dispatches NEO to check HCUs 34-35 and 46-15.	
	• CRS enters AB.IC-0001 ⇒ Condition A	
CRDM temperatures can be checked with Insight Item **lctcrd**.	• CRS directs placing AP207 CRD pump in service IAW either: ⇒ AR.ZZ-0011 OR ⇒ SO.BF-0001	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
SUPPORT any directed manipulations of the AP207 discharge valve (V007) using Remote Function **CD01**.	• RO/PO place AP207 CRD pump in service as directed by CRS.	
IF the Crew scrams before the Instrument Line Break, THEN **TRIGGER ET-2**.	• CRS recognize the following Tech Specs apply: ⇒ Control Rod Accumulators 3.1.3.5.a.2	Restore charging water pressure within 20 minutes or place the mode switch in SHUTDOWN.
‘A’ Main Steam Line RMS channel fails upscale: 5 minutes after 10C673 field report OR at the discretion of the Lead Examiner **TRIGGER ET-12.**	• Crew recognizes ‘A’ MSLRMS Channel failed high by: ⇒ OHA C6-A3 “MN STMLINE RADIATION HI” ⇒ CRIDS D2121 MAIN STM LINE RAD HI-HI/INOP” ⇒ OHA C6-B2 “MAIN STM LINE RAD HI HI OR INOP” ⇒ CRIDS R9509 3.0E+4 and rising	
	• CRS references AB.RPV-0008: ⇒ Condition B	
	• Crew monitors corroborating instrumentation for indication of rising reactor coolant activity.	
	• CRS determines actuation is not valid.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognize the following Tech Specs apply: ⇒ Isolation Actuation Instrumentation 3.3.2.B.1.c	24 hours for trip functions not common to RPS instrumentation; OR place the inoperable channel in the tripped condition, or close the affected system isolation valves within one hour, and declare the affected system inoperable.
	• Crew contacts Maintenance to initiate corrective action.	
<u>Inst Line Break in Drywell</u>: 5 minutes after the Tech Specs are addressed, <u>OR</u>, at the discretion of the Lead Examiner, **TRIGGER ET-2**.	• Crew recognizes RPV Low Level signals by: ⇒ A7-E5 “RPV LEVEL 2” ⇒ A7-F5 “RPV LEVEL 1” ⇒ C8-C3 NSSSS ISLN SIG-RPV LEVEL LO” ⇒ C1-F3 “ADS DRYWELL PRESS BYP TIMER INT”	The break is on the variable leg of a Wide Range tap. Narrow Range instruments are not affected.
	• Crew verifies RPV level in normal band.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
NOTE: Crew could use guidance in AB-0135 Condition E. –Sequencer Failure & use guidance to open sequencer breakers	• Crew recognizes 'B' Channel Initiations by: ⇒ A7-B3 "RHR PUMP B AUTO START" ⇒ B3-A3 "CORE SPRAY PUMP B AUTO START" ⇒ C8-A3 "NSSSS MSIV LOGIC B INITIATED" ⇒ Various initiation lights ⇒ B RHR and Core Spray pumps running ⇒ 'B' EDG running ⇒ 'B' SSW running ⇒ Trip of 2V212 DW Cooler Fans ⇒ Loss of NPV RMS	
IF directed to open the breakers for the 'B' LOP/LOCA sequencer, after 2 minutes THEN **TRIGGER ET-8**.	• Crew recognizes 'B' Channel Load Sheds and Isolations by: ⇒ E3-E3 "USS FEEDER BRKR TRBL" ⇒ Breaker status indication on 10C650E ⇒ Isolation valve status on 10C650D.	
	• Crew recognizes RCIC initiation by: ⇒ Rising reactor power ⇒ Rising reactor level ⇒ Lower feed flow ⇒ RCIC valves changing position	Reactor power will rise by about 1%. RPV level to about 36", then drop back to 35" as DFCS responds.
	• CRS implements AB.RPV-0001 ⇒ Condition D	Actions for Inadvertent RCIC injection may not be taken depending on when the Crew scrams the plant.

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO reduces power to pre-transient value IAW SPRI instructions	Immediate Operator action IAW AB.RPV-0001.
IF asked to place the RBVS Fans to STOP, **INSERT ET-19**	• Crew trips RCIC. • Crew recognizes Reactor Building pressure is positive, and enters AB.CONT-0003.	
	• CRS implements AB.CONT-0003 ⇒ Condition A • PO places FRVS in service IAW AB.ZZ-0001. • Crew recognizes loss of RACS to drywell by: ⇒ Indication of valves ED-HV-2353 and 2355 stroking closed on 10C651A and 10C650D ⇒ CRIDS D2424 “RECIRC PMP A SEAL COOLING FLOW LO” CRIDS D2425 “RECIRC PMP B SEAL COOLING FLOW LO”	NOTE: There could be 2 instances of loss of cooling to the RR Pumps. The crew may restore flow following the instrument line break. Cooling will be lost again on Drywell pressure reaching 1.68 psig.
	• CRS enters AB-MISC-0001 • CRS/ enters AB-COOL-0003 → Cond. B • Crew identifies RACS Isolation to RRP by: ⇒ HV-2353 inadvertently closed ⇒ CRIDS D2424(D2425), RECIRC PMP A(B) SEAL COOLING FLOW	Actions IAW AB.COOL-0003 may not be taken depending on when the Crew scrams the plant.

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF the HV-2553 and/or HV2555 is closed THEN, PLACE the HV-2553/2355 ISLN OVERRIDE keylock switch in the ON position. (bypasses isolation for both valves) • Crew attempts opening HV-2553	
	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 “DLD SYSTEM ALARM/TRBL” ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Reactor Scram Reports Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB. ZZ-0001.	• CRS enters AB-CONT-0001 as drywell pressure rises • WHEN the Crew determines drywell pressure cannot be maintained below 1.5 psig, OR Recirculation Pumps are to be shutdown, THEN CRS directs: ⇒ Reducing recirc pumps to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
ATWS: The half core ATWS is already inserted.	• Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition: ⇒ APRM indications ⇒ Absence of rod FULL IN lights on the right side of Full Core Display ⇒ Rod position indications	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments

STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION
• It is expected that the crew performs their required ATWS hard card actions after the confirmation announcement by the CRS that there is an ATWS >4% and EOP-101A has been entered. The NCO's responsible for ATWS hard card actions need to perform the hard card actions in a proficient manner to lower reactor power and minimize the impact of power oscillations.
• During the initial Terminate and Prevent steps HPCI and LP ECCS must be terminated and prevented during an AWTS >4%. When moving through the level leg and entering EOP 202A, it is not necessary to Terminate and Prevent systems that will be available to provided ACC. Even though injection is still permissible, the system available for injection need to be operated to that an uncontrolled rise in RPV level does not occur.
	• CRS implements EOP-101A.
	• CRS directs ATWS Hard Card Actions IAW AB.ZZ-0001
	• RO performs scram actions IAW AB.ZZ-0001 Attachment 1.
	• RO/PO perform ATWS Hard Card actions IAW AB.ZZ-0001
	  • Att.13 – ADS/SRV Operation
	  • Att.16 - ATWS 10C650 T&P
	  • Att.17 - ATWS 10C651 T&P, SLC Initiation, RWCU Isolation Verification
	*** CT-1 - CREW prevents an uncontrolled depressurization during ATWS conditions by inhibiting ADS ACTUATION.**
	*** CT-2 - Given a failure to scram with Reactor power above 4%, the crew will lower Reactor power <u>by one or more</u> of the following methods, in accordance with EOP-101A:**
	• Terminating and preventing all injection into the RPV except SLC, CRD, AND RCIC (Step C5-L4
	• Tripping both Recirc pumps (Step C5-Q8)
	• Injecting boron (Step C5-Q9)
	<u>The Reactor power reduction must be initiated within ten minutes of the start of the failure to scram.</u>
		Time ADS Inhibited: _____
		Time of Failure to Scram: _____
		Time power reduction initiated: _____

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
.	• CRS: ⇒ Verifying Recirc runback to minimum ⇒ Tripping reactor Recirc pumps • RO/PO: ⇒ Verify Recirc runback to minimum ⇒ Trip reactor recirc pumps • Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 “DRYWELL PRESSURE HI/HI” ⇒ OHA C5-B5 “DRYWELL PRESSURE HI” ⇒ Various system initiations and isolations	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Torus Temperature Leg Start all available Torus cooling as soon as possible to remove heat from containment.	• CRS enters EOP-102. • <u>WHEN</u> Drywell Pressure reaches 1.68#, <u>THEN</u> Crew recognizes RFPT trips by: ⇒ OHA B3-E1 “RFP TURBINE TRIP” ⇒ RFPT Control Valve indications on 10C650C ⇒ TRIP status light on RFPT bezels ⇒ RFPT discharge pressure indications on 10C650C ⇒ Feed flow indications	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION The expected initial ATWS RPV water level band when intentionally lowering level is -50" to -100". The intention of this initial band is to prevent an MSIV isolation, and to provide time complete the applicable EOP's to keep the MSIV's open. It is always permissible to lower RPV level power IAW the Retainment Override.IAW the EOP to lower Rx power as long as ACC is maintained by RPV level >-185" or if MCSF is being maintained. The crew needs to constantly validate RPV level versus power, and the impact that the current power level has on containment. If at any time power is rising due to RPV level rising the crew needs to cease the level rise to minimize the rise in Rx	• CRS directs stabilizing and maintaining RPV level initially between approximately -50 and -100 inches **THEN** maintain RPV level at >-185 OR ensure MCSF is being maintained • PO stabilizes and maintains RPV level as directed by CRS.	
	• CRS ensures/directs: ⇒ Initiating SLC ⇒ Verifying RWCU Isolates • RO/PO initiates SLC.	

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>RWCU Failure to Isolate</u>: The failure of the HV-F001/F004 to automatically isolate is already inserted.	• Crew recognizes RWCU failure to isolate by: ⇒ HV-F001/F004 OPEN indication on 10C651C and 10C650D ⇒ RWCU pump running indication on 10C651C ⇒ RWCU flow indication on CRIDS page 61 and 232 • RO/PO isolates RWCU and informs CRS of failure to automatically isolate.	

REFER to the appropriate EOP and **SUPPORT** Crew requests for EOPs IAW with the following. Validated execution time delays are built-in:
EOP-301: **ET-3**
EOP-311: **ET-4**
EOP-320: **ET-6**

REFER to the procedure for EOP-319 (Restoring Instrument Air In An Emergency). You will need to request assistance from the Control Room to validate:

Non-1E breaker positions (10C651E),
Two RACS Pumps in-service,
Service Water/Instrument Air valve positions,
Which cooling water valve to open (EA-HV-2203 or EA-HV-2204)

After validating with the Control Room that steps 5.1.2 and 5.1.3 are complete: **TRIGGER ET-14** to close breaker for the EIAC and **INFORM** the Control Room.

After validating with the Control Room that steps 5.1.10A-C are complete: **TRIGGER ET-15** to open breakers for EA-HV-2203 and EA-HV-2204 and **INFORM** the Control Room.

After validating with the Control Room which Service Water valve to be opened:
TRIGGER ET-16 to open valve EA-HV-2203 OR
TRIGGER ET-17 to open valve EA-HV-2204 AND **INFORM** the Control Room.

CRS directs performance of the following EOPs:

- ⇒ EO.ZZ-0320 “Defeating ARI and RPS Interlocks”
- ⇒ EO.ZZ-0301 “Bypassing MSIV Isolation Interlocks”
- ⇒ EO.ZZ-0311 “Bypassing Primary Containment Instrument Gas Isolation Interlocks”
- ⇒ EO.ZZ-0319 “Restoring Instrument Air in an Emergency”

The timing, order, and priority of the EOP performance may vary.

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Promptly initiate actions IAW the 300 series EOPs to shutdown the reactor. Timely actions will reduce the potential continued challenges to containment. In addition, once the post scram hard card actions have been completed and RPV level has stabilized in the required band, an NCO should be assigned the responsibility to insert control rods IAW the post ATWS CRD operation hard card and CRAM move sheets. When control room portions of EOP-320 have been completed and the NCO is ready to re-insert a manual scram, the NCO should perform a crew update and utilize the post scram hard card to implement the applicable post scram actions following the manual scram attempt.	• CRS directs bypassing the RWM and commencing manual rod insertion. • RO/PO bypasses RWM and inserts control rods IAW RE-AB.ZZ-0001 Att. 3. • **CT-3, Given a failure to scram, the crew will initiate control rod insertion, in accordance with EOP-101A. All control rods must be inserted within one hour of the start of the failure to scram.** **NOTE: This will be accomplished initially via manual control rod insertion and subsequently via completion of EOP-320 manual control room actions and re-insertion of a manual scram**	**Time of Failure to Scram:** _____ **Time all Control Rods Inserted:** _____

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
HPCI Automatic Initiation Failure: The HPCI Aux Oil pump auto-start failure is already inserted.	• WHEN RPV level reaches –38", OR Drywell Pressure reaches 1.68#, THEN Crew recognizes HPCI automatic initiation failure by: ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ HPCI Stop Valve & Control Valve failure to open ⇒ HPCI Aux Oil pump STOPPED indication	
	• CRS directs restoring: ⇒ 1E Breakers ⇒ CRD ⇒ PCIG to SRVs	The Control Room Crew needs to perform actions to restore PCIG in order for EOP-311 to maintain an Instrument Gas supply to the INBD MSIVs. In this case, restoring PCIG to the SRVs IAW AB.ZZ-0001 Att. 9 is equivalent to the Control Room actions in EOP-311.
	• IF directed, THEN RO/PO restore 1E breakers IAW AB.ZZ-0001 Att. 12.	
	• CRS directs level control with any of the following IAW EOP-101A: ⇒ HPCI ⇒ RCIC	
	• IF directed, THEN RO/PO restore a CRD pump to service IAW either: ⇒ SO.BF-0001 Sect 5.2 OR ⇒ AR.ZZ-0011 Attachment F2	

STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION

- After ATWS hard card actions are complete, the CRS should direct a pressure reduction to 450 psig with a rate up to 100 psig/min by adjusting pressure set IAW the pressure control hard card. This will allow the crew to lower RPV pressure to get within the capability of the secondary condensate pumps and closer to the shutoff head of LP ECCS. This pressure reduction rate allows the crew to stay above the MARP pressure, while also staying within the EOP cool down limit of 100 degF/hr. The crew should be cognizant of what RPV level is when the pressure reduction is ordered. If RPV level is low and no injection has commenced, the pressure reduction could challenge RPV level 1.

- Reactor Pressure is preferentially maintained above the Minimum ATWS Reactor Pressure (MARP) OF 350 psig to reduce the probability of thermal hydraulic instabilities. During an ATWS pressure shall only be allowed to go below this value if it is to support establishing adequate core cooling IAW the Retainment Override in EOP 202A.

- IF directed,
  THEN RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9

- IF the MSIVs close,
  THEN the CRS directs pressure control with the SRVs.

- IF directed,
  THEN RO/PO control pressure with SRVs IAW AB.ZZ-0001 Att. 13.

- CRS directs placing RHR pump in Suppression Pool Cooling and Spray.

- IF directed,
  THEN RO/PO place RHR pump in Suppression Pool Cooling and Spray IAW AB.ZZ-0001 Att. 3.

- IF necessary,
  THEN RO/PO align SACS loads to support RHR Hx IAW SO.EG-0001 Section 5.9.

WHEN the Crew has reset RPS,
THEN **DELETE** Malfunction

- WHEN EOP-320 Section 5.1 and 5.2 are complete,
  THEN the Crew implements

XXIII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
RP06 to allow full rod insertion on the next scram.	EOP-320 Section 5.3 and resets RPS.	
At the Lead Examiners discretion, **MODIFY** Insight Item **lclsdv** to accelerate draining of the SDV.	• WHEN OHA C6-E4 clears, THEN the Crew initiates a manual scram IAW EOP-320 Section 5.3. • Crew recognizes the reactor is shutdown by: ⇒ SPDS ALL RODS IN ⇒ RWM Confirm Shutdown ⇒ CRIDS Rod positions • CRS directs terminating SLC injection. • RO/PO terminates SLC injection.	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: • RPV Level is being maintained above –161” AND • All rods are fully inserted, or are being manually inserted.	• CRS exits EOP-101A, enters EOP-101.	

XXIV. SCENARIO REFERENCES:

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

LLL NUREG 1021 Examiner Standards

MM JTA Listing

NNN Probabilistic Risk Assessment

OOO Technical Specifications

PPP **Emergency Plan (ECG)**

QQQ **Alarm Response Procedures (Various)**

RRR HU-AA-101 Performance Tools and Verification Practices

SSS HU-AA-104-101 Procedure Use and Adherence

TTT HU-AA-1081 Fundamentals Toolkit

UUU HU-AA-1211 Briefing

VVV OP-AA-101-111-1004 Operations Standards

WWW OP-AA-106-101-1001 Event Response Guidelines

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

YYY OP-HC-108-106-1001 Equipment Operational Control

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

AAA **HC.OP-SO.SF-0001 Reactor Manual Control**

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

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

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

EEE **HC.OP-AB.IC-0001 Control Rod**

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

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

HHH **HC.OP-AB.MISC-0001 Acts of Nature**

III. **HC.OP-EO.ZZ-0301 Bypassing MSIV Isolation Interlocks**

JJJ **HC.OP-EO.ZZ-0311 Bypassing Primary Containment Instrument Gas Isolation Interlocks**

KKK **HC.OP-EO.ZZ-0319 Restoring Instrument Air in an Emergency**

LLL **HC.OP-EO.ZZ-0320 Defeating ARI and RPS Interlocks**

MM **HC.OP-EO.ZZ-0322 Core Spray Injection Valve Override**

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

OOO **HC.OP-EO.ZZ-0101A ATWS-RPV Control**

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

QQQ **HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS**

RRR **HC.OP-IO.ZZ-0006 Power Changes During Operation**

SSS Strategies For Successful Transient Mitigation For The Hope Creek Generating Station

XXV. ESG CRITICAL TASK RATIONAL

NRC 2024- #3– Critical Tasks

CT-1 - CREW prevents an uncontrolled depressurization during ATWS conditions by inhibiting ADS ACTUATION.

Justification:

Safety Significance: Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor.

Cueing: ATWS Conditions and entry into EOP-101A

Measurable performance Indicators: Manipulation of ADS Inhibit switches to the “Inhibit” position.

Performance Feedback: Failure to satisfactorily complete the task is demonstrated by an automatic ACTUATION of ADS such that the ADS SRVs open and reduce reactor pressure to less than 700 psig at RPV level < (-129”)

Bounding Criteria: Before Compensated RPV level lowers to (-129”)

NRC 2024- #3– Critical Tasks

CT-2 - Given a failure to scram with Reactor power above 4%, the crew will lower Reactor power by one or more of the following methods, in accordance with EOP-101A:

• Terminating and preventing all injection into the RPV except SLC, CRD, AND RCIC (Step C5-L4

• Tripping both Recirc pumps (Step C5-Q8)

• Injecting boron (Step C5-Q9)

The Reactor power reduction must be initiated within ten minutes of the start of the failure to scram.

Justification:

Safety Significance: High Reactor power after a scram represents a challenge to nuclear fuel and to plant heat sinks. In the event of a loss of the normal heat sink, this may result in adding heat to the Torus and challenging the Primary Containment. Lowering Reactor power reduces these challenges.

Cueing: Control rod position and Reactor power indications will indicate a failure to scram with Reactor power above 4%. EOP-101A provides direction

Measurable Performance Indicators: Manipulation of Recirculation pump bezels, Feedwater system components, and SLC pumps will provide observable actions for the evaluation team.

Performance Feedback: Lowering Recirculation flow, Feedwater flow, Reactor water level, and Reactor power will provide performance feedback regarding the success of crew actions.

Bounding Criteria: Time limit based on Operations representative recommendation.

NRC 2024- #3– Critical Tasks

CT-3 - Given a failure to scram, the crew will initiate control rod insertion, in accordance with EOP-101A. <u>All control rods must be inserted within one hour of the start of the failure to scram</u>.

NOTE: This will be accomplished initially via manual control rod insertion and subsequently via completion of EOP-320 manual control room actions and re-insertion of a manual scram.

Justification:

Safety Significance: Inserting control rods lowers Reactor power, which reduces challenges to the plant during a failure to scram. Additionally, inserting control rods ultimately provides a long-term, stable core shutdown.

Cueing: Control rod position and Reactor power indications will indicate a failure to scram. EOP-101A Step C5-Q9 provides direction to insert control rods.

Measurable Performance Indicators: Manipulation of RPS, CRD, and RMCS controls will provide observable actions for the evaluation team.

Performance Feedback: Control rod position and Reactor power will provide performance feedback regarding success of crew actions to lower power by inserting control rods.

Bounding Criteria: Time limit based on Operations representative recommendation.

HOPE CREEK ESG – PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

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

TRANSIENTS:

_____	Turbine Trip
_____	Loss of Condenser Vacuum
_____	Loss of Feedwater
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

_____	Loss of SSW
_____	Loss of SACS

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

Y/N	KEY SYSTEMS
_____	SRVs
_____	Condensate/Feedwater
_____	SSW
Y	RPS

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG.

XXVI. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

Note: The following criteria list scenario traits that are numerical in nature for a single scenario.

NRC 2024 #3

SELF-CHECK
(number noted is the minimum IAW NRC IP71111.11

x 11. Total malfunctions inserted: 5

x 12. Malfunctions that occur after EOP entry: 1

x 13. Abnormal Events: 2

x 14. Major Transients: 1

x 15. EOPs used beyond primary scram response EOP: 1

x 16. EOP Contingency Procedures used: 0

x 17. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)

x 18. EOP run time: 40-70% of scenario run time

x 19. Crew Critical Tasks: 2

x 20. Technical Specifications are exercised during the scenario: 1

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST (continued)

Crew Validation **Rev:** 00 **Date Validated:** 11/8/23
Validated with 1 SRO & 2 Ros. Runtime 56 minutes.

Validation Comments	Disposition
None	None

Crew Validation **Rev:** 01 **Date Validated:** 1-9-24
Validated with 1 SRO & 2 Ros. Runtime 53 minutes.

Validation Comments	Disposition
1. Revised Critical Tasks – reviewed by Facility Rep	Incorporated
2. Minor Edits to script for booth direction typos	Incorporated

XXVII. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

PROTECTED EQUIPMENT

A and C RFPTs
PRA software is Out of Service

REACTIVITY / Plant Status

- Power was reduced to ≈78% IAW the SPRI for RFPT "B" removal from service
- All required actions for the power reduction have been completed.
- RFPT 'B' has been removed from feeding due to a Control Signal Failure.

SHIFT ACTIONS UPON TURNOVER

- Swap "B" RFPT L. O. Pumps
- Raise Power to 83% IAW REMA

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

RFPT B has a Control Signal Failure. Maintenance informed and investigating

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**Loss of RBVS, Loss of 10A120, Recirc Vibes, LOCA**
SCENARIO NUMBER:	**NRC24 SPARE**
EFFECTIVE DATE:	When approved
EXPECTED DURATION:	1 hour
REVISION NUMBER:	**00**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

XXVIII. OBJECTIVE(S):

Enabling Objectives

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

XXIX. MAJOR EVENTS:

A. Alternate RACS pumps
B. Raise Power with Recirc Pumps
C. Loss of RBVS
D. Loss of 10A120
E. Recirc Pump Fails to Runback
F. Feedwater Line Break Inside Containment / LOCA
G. HPCI Controller Fails
H. SRV Fails to Open

XXX. SCENARIO SUMMARY:

The scenario begins with the plant at approximately 95%. RACS pumps must be swapped to support an oil change on the 'B' RACS pump. Rx power must then be raised to 100%. Once power is raised, RBVS Exhaust isolation damper GU-HD-9414B fails shut, causing a loss of RBVS and requiring FRVS to be placed in service. After FRVS is in service, the 10A120 bus deenergizes and the "A" Reactor Recirc pump fails to runback as expected requiring manual action to runback the pump. After the runback is manually performed the "A" Recirc Pump spuriously trips. This necessitates a reactor scram. During the scram, the alpha feedwater line breaks inside containment upstream of the inboard check valve. This results in a High Drywell Pressure and a slow lowering of RPV level due to leakage past the check valve. The line break also prevents stabilizing level with feedwater or HPCI, and Emergency Depressurization will be required. One of the ADS SRVs will fail to open. The scenario may be terminated when the reactor is depressurized and RPV level is being controlled above -129 inches.

XXXI. INITIAL CONDITIONS:

	I.C.
Initial	

_____ **INITIALIZE** the simulator to 100% power. **THEN** lower power to 95% using SPRI

_____ **TACS** on “A” Loop

_____ **ENSURE** ‘B’ and ‘C’ RACS pumps are in service.

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

_____ **INITIAL** IO-6 for power ascension.

_____ **COMPLETE** “Simulator Ready-for-Training/Examination Checklist”

EVENT TRIGGERS:

Initial	ET #	Description	
	13	EVENT ACTION: COMMAND: PURPOSE:	**rrprv <= 815** // Reactor Pressure <800# Fails bypass valves shut to prevent anticipating ED and depressurizing to condenser.
	9	EVENT ACTION: COMMAND: PURPOSE:	**zcrprun <= 0.0** // Mode Switch NOT in RUN Triggers Feedwater Line Break and LOCA on scram.

Initial	@Time	Event	Action	Description
	None	None	Insert Malfunction ED04 on event 3 Loss of 10A120 Bus	Loss of 10A120 Bus
	None	None	Insert Malfunction RR29A	“A” Recirc Pump Full Runback Fails
	None	None	Insert Malfunction RR30A	“A” Recirc Pump Intermediate Runback Fails
	None	None	Insert malfunction FW32 on event 9	Feedwater Line Break Inside Containment
	None	None	Insert malfunction RR31A2 to 2.000 in 1800 on event 9	‘A’ Recirc Loop Large Break LOCA
	None	None	Insert malfunction RR31B2 to 2.000 in 900 minutes on event 9	‘B’ Recirc Loop Large Break LOCA
	None	None	Insert malfunction FW26A after 5 seconds on event 9	‘A’ RFPT Trip
	None	None	Insert malfunction FW26B after 5 seconds on event 9	‘B’ RFPT Trip
	None	None	Insert malfunction FW26C after 5 seconds on event 9	‘C’ RFPT Trip
	None	None	Insert malfunction TC01-10 on event 13	All Bypass Valves Failed Shut
	None	None	Insert malfunction CD09A after 90 to 75.00 on event 6	‘A’ CRD FCV Failure
	None	None	Insert malfunction CD09B to 0.00 on event 6	‘B’ CRD FCV Failure
	None	None	Insert malfunction RR41A after 600 on event 3	“A” Recirc Pump trip
	None	None	Insert malfunction HP08	HPCI Flow Controller Auto failure
	None	None	Insert malfunction AD02CC	“C” SRV fails closed

Initia	@Time	Event	Action	Description
	None	None	Insert Remote HV06 to STOP on Event 2	CVH300 RBVS Fan TO STOP ET-2
	None	None	Insert Remote HV05 to STOP on Event 2	BVH300 RBVS Fan TO STOP ET-2
	None	None	Insert Remote HV04 to STOP on Event 2	AVH300 RBVS Fan TO STOP STOPET-2
	None	None	Insert Remote HV03 to STOP on Event 2	CV301 RBVE Fan TO STOP ET-2
	None	None	Insert Remote HV02 to STOP on Event	BV301 RBVE Fan TO STOP ET-2
	None	None	Insert Remote HV01 to STOP on Event 2	AV301 RBVE Fan TO STOP ET-2
	None	None	Insert Re AN24 to NORM after 5 on Event 2	10C382 Acknowledge
	None	None	Insert Remote CD04 to OPEN on Event 5	CRD Suction filter CLOGGING
	None	None	Insert Remote CD06 from 0 to 100 in 60 sec on Event 6	PCV Bypass valve
	None	None	Insert Remote CD10 to ON after 120 on Event 6	'B' FCV

I/O OVERRIDE SUMMARY:

Initia	@Time	Event	Action	Description
	None	None	4A1 F DI to OFF	HV-F032A CLOSE Pb
	None	None	1A175 E DI to OFF on ET-1	HD-9414B OPEN PB
	None	None	1A175 F DI to ON on ET-1	HD-9414B CLOSE Pb

XXXII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Swapping RACS pumps</u>: Crew places AP209 RACS pump in service and secures BP209 RACS pump after assuming the watch.	• CRS directs PO to place AP209 RACS pump in service and secure BP209 RACS pump.	
<u>IF</u> dispatched to AP209, <u>THEN</u> **REPORT** the AP209 RACS pump is ready for a start. <u>AFTER</u> AP209 is in service, <u>THEN</u> **REPORT** AP209 is running SAT. Monitor Items: • Normalized AP209 speed **cwnra209**	• PO dispatches RBEO to perform pre-start checks and locally observe start of AP209 RACS pump IAW HC.OP-AP.ZZ-0109. • PO starts AP209 and secures BP209 IAW SO.ED-0001 Section 5.3.	
<u>Raise Reactor Power with Recirc</u>	• CRS directs Raising Rx power IAW SPRI and IO-6 to 100% • RO commences power rise IAW SPRI and HC.OP-SO.BB-0002: -Raise Reactor Recirc Pump speed by intermittently pressing: *RAISE LOW (MED, HIGH) push button on SIC-R621A (B) PUMP A (B) SPD CONT*	

XXXII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Loss of RBVS</u>: After the Crew lowers RX Power, <u>OR</u> at the discretion of the Lead Examiner, **TRIGGER ET-1** (RBVS Exhaust Damper HD-9414B Fails shut).	• Crew recognizes Loss of RBVS by: ⇒ OHA E1-F5 “COMPUTER PT IN ALARM” ⇒ CRIDS B7164 “REACTOR BLDG DIFF PRESS” ⇒ OHA E6-C5 “RBVS & WING AREA HVAC PNL 10C382” ⇒ CRIDS D3960 “RBVS EXH RMT PNL C382 TRBL” ⇒ CRIDS D3961 “RBVS SUPPLY RMT PNL C382 TRBL” ⇒ RB D/P indication on 10C650E ⇒ SPDS RB PARAMETERS D/P indication.	
	• CRS implements AB.CONT-003: ⇒ Condition A	
	•	
<u>IF</u> dispatched to 10C382, <u>THEN</u> **REPORT** Low Flow Trip alarms on all Reactor Bldg Supply and exhaust fans.	• Crew dispatches RBEO to 10C382 to investigate.	
	• RO/PO recognize HD-9414B failed shut by 10C651E indication and inform CRS.	
<u>IF</u> directed to secure RBVS, <u>THEN</u> **TRIGGER ET-2**.	• RO/PO place FRVS in service IAW SO.GU-0001.	
<u>IF</u> dispatched to HD-9414B, <u>THEN</u> **REPORT** there is no obvious reason for the closure.	• Crew dispatches NEO and Maintenance to investigate closure of HD-9414B.	GU-HD-9414B is located in Room 4624.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognize the following Tech Specs apply: ⇒ Secondary Containment Integrity 3.6.5.1 ⇒ Secondary Containment Automatic Isolation Dampers 3.6.5.2 action a or b or c	
<u>Loss of 10A120 Bus</u>: 15 minutes after the Loss of RBVS, <u>OR,</u> at the discretion of the Lead Examiner, **TRIGGER ET-3**.	• Crew recognizes: ⇒ Reactor power lowering ⇒ Reactor level swell	
	• Crew monitors Reactor power, pressure, and level until plant conditions are stable. • PO ensures feedwater restores and maintains RPV level between LVL 4 and LVL 7. • Crew recognizes Loss of 'B' Reactor Recirc pump by: ⇒ C1-D5 "REACTOR RECIRC B TROUBLE" ⇒ CRIDS D2918 "RECIRC MG DRIVE MOTOR B BRKR" ⇒ Flashing TRIP light for 'B' Recirc MG Drive Motor bkr ⇒ 'B' Reactor Recirc pump flow and d/p indications on 10C651C • RO ensures at least one recirc pump still running.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes trip of 'B' PCP and 'B' SCP by: ⇒ OVLD/PWR FAIL lights ⇒ STOP lights lit ⇒ Motor amps zero	The trips of 'B' PCP and 'B' SCP are silent and may not be immediately recognized by the Crew.
"A" Recirc PP fails to runback: This event is triggered from previous loss of 10A120 event – **ET-3**	• RO recognizes failure of "A" Recirc Pump to automatically Runback • RO informs CRS of Runback Failure • RO manually runsback the "A" Reactor Recirc Pump by depressing LOWER pushbutton on SIC-R621A.	
	• Crew recognizes entry into the OPRM Enable Region by: ⇒ C3-F1 "OPRM TRIP ENABLE"	
	• Crew recognizes loss of BK111 TB chiller by: ⇒ OVLD/PWR FAIL light ⇒ STOP light lit ⇒ Motor amps zero	The trip of BK111 is silent and may not be immediately recognized by the Crew.
	• Crew recognizes loss of 10A120 bus from: ⇒ OHA E3-E1 7.2 KV SYS INCOMING BRKR MALF ⇒ Solid OVLD/PWR FAIL lights on loads lost ⇒ Flashing TRIP light for infeed bkr 52-12008 ⇒ CRIDS D3682 "SWGR BUS A120 DIFF LOCKOUT" ⇒ CRIDS D3684 "SWGR BUS A120 UNDERVOLTAGE"	

XXXII. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew announces loss of 10A120 on the plant page.	
	• CRS implements AB.RPV-0003: ⇒ Condition A ⇒ Condition B	The pace of the scenario will not allow the Crew to fully address single loop requirements.
IF the Crew manually scrams, THEN the Feedwater Line Break and LOCA will be automatically inserted.	• IF in Region 1 of the Pwr/Flow map, THEN RO inserts rods IAW ESG guidance as necessary to exit Region 1. • RO/PO close HV-F031B Recirc pump discharge valve for 5 minutes, then re-open. • RO/PO implement DL.ZZ-0026 Att. 3v. • CRS implements AB.RPV-0001: ⇒ Condition B	
	• CRS implements AB.RPV-0004: ⇒ Condition D ⇒ Condition G	
	• PO closes HV-1680B PCP discharge valve. • PO closes HV-1651B SCP discharge valve. • PO bypasses Feedwater Runbacks.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
WHEN dispatched, THEN **REPORT** the 10A120 Bus Differential Overcurrent Relays are tripped. There is no visible indication of damage to the bus.	• Crew dispatches TBEO and Maintenance to investigate loss of 10A120 bus.	
As RE, **REPORT** the Enhanced Stability guidance should be used to exit Region 1. The first 12 CRAM RODS will also satisfy the 80% rod line sequence for single loop IAW AB.RPV-0003.	• Crew contacts RE for guidance and to check thermal limits.	
	• CRS/STA/IA recognize the following actions apply: ⇒ Recirculation Loops 3.4.1.1 action a ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• CRS recognize the following Tech Specs apply: ⇒ Recirculation Loops 3.4.1.1 action a 4.4.1.1.1	
	• Crew contacts ESOC and Trading Floor, gives estimate of MWe output limitations and duration of limitation.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• SM contacts Operations Management.	
"A" Recirc Pump Trip 10 minutes after the Loss of the 10A120 the pump will trip	• RO recognizes trip of "A" and takes the Immediate Operator Action of HC.OP-AB.RPV-0003, "With no Recirc Pumps Running, LOCK the Mode Switch in Shutdown"	
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• CRS implements EOP-101.	
	• PO stabilizes and restores level IAW AB.ZZ-0001 Att. 14 as directed by CRS.	
Feedwater Line Break/LOCA: The feedwater line break inside containment with leakage past the check valve will be automatically inserted when the Mode Switch is taken out of RUN.	• Crew recognizes High Drywell Pressure EOP entry condition: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes Supp Pool Level Above 78.5 In EOP entry condition by: ⇒ OHA B1-C3 “SUPPRESSION POOL LEVEL HI/LO” ⇒ Various Suppression Pool level indicators • Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 “SUPPR POOL TEMP HIGH” ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators • CRS implements: ⇒ EOP-101 ⇒ EOP-102 • PO attempts to maintain level as directed by CRS.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to open the breaker for the HPCI HV-8278 in an attempt to fail the valve shut, THEN **REPORT** the breaker handle on the cubicle door does not appear to be engaging the breaker paddle inside the cubicle. You cannot get the cubicle door open and have called the 12 Hour Maintenance Supervisor and asked for an Electrician to help. Do NOT fail the valve shut.	• Crew recognizes 'A' feedwater line break by: ⇒ High Flow / Low Discharge Pressure on condensate ⇒ High Flow / Low Discharge Pressure on HPCI ⇒ Ability to vary HPCI flow with Setpoint ⇒ Absence of OHA B1-E5 "HPCI PUMP DISCHARGE FLOW LO" ⇒ Rapidly rising torus level ⇒ Lowering hotwell level ⇒ RPV Pressure trend not consistent with a LOCA greater than the capacity of HPCI/Condensate ⇒ HV-F074A open and HV-F074B shut	
IF directed to close the F032A, THEN **REPORT** the actuator appears to be broken. The valve will not stroke from the bucket or locally with the manual handwheel.	• Crew attempts to isolate the 'A' feedwater line.	The HV-F032A will not close from the Control Room.
	• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators • CRS re-enters EOP-102.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF feedwater and condensate remained aligned to feed the reactor vessel, THEN Crew recognizes low main condenser hotwell levels by: ⇒ OHA A6-F1 “CONDENSATE TRAIN A TROUBLE” ⇒ OHA A6-F2 “CONDENSATE TRAIN B TROUBLE” ⇒ OHA A6-F3 “CONDENSATE TRAIN C TROUBLE” ⇒ CRIDS D2943 “CONDENSER AE108 LEVEL” ⇒ CRIDS D2945 “CONDENSER BE108 LEVEL” ⇒ CRIDS D2947 “CONDENSER CE108 LEVEL” ⇒ 10C651A Hotwell Level indication • CRS directs injection with: ⇒ SLC ⇒ Two CRD pumps • RO/PO initiate SLC.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to align for two CRD pump injection, THEN **PERFORM** the following: **REFER** to SO.BF-0001 Sect 5.4. **TRIGGER ET-5** (Suction filter). **SET** Remote Function for Stby CRD pump discharge valve to 0% (**CD01**/**CD02**). **REPORT** Stby CRD pump ready for start. WHEN Stby CRD is running, THEN **RAMP** discharge valve to 100% open. AFTER HV-F003 is open, THEN **TRIGGER ET-6**. WHEN two minutes have elapsed, THEN **MODIFY** Malfunctions **CD09A/B** to control injection.	• RO/PO align CRD for Emergency Two CRD Pump Injection IAW SO.BF-0001 Section 5.4. • IF the CRS determines A/B RHR are NOT required to assure adequate core cooling by operating in LPCI mode, THEN CRS directs placing: ⇒ One loop of RHR in Supp Pool Cooling and Spray ⇒ One loop of RHR in Drywell Spray (If Supp Pool Level is less than 124") • WHEN RPV level reaches –129", THEN CRS directs inhibiting ADS. • RO/PO inhibit ADS IAW AB.ZZ-0001 Att. 13. • BEFORE RPV level reaches -185", CRS implements EOP-202 for Emergency Depressurization.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO Emergency Depressurize IAW AB.ZZ-0001 Att. 13. * ***Crew determines that Emergency Depressurization is required BEFORE compensated RPV water level reaches less than 185"; AND subsequently restores and maintains RPV water level to avoid SAG entry*** • Crew recognizes failure of PSV-F013B to remain open by: ⇒ Acoustic Monitor position indication on 10C650C ⇒ Tailpipe temperature on TR-R614 • RO/PO opens additional SRV IAW AB.ZZ-0001 Att. 13, informs CRS of PSV-F013B failure. * ***<u>WHEN</u> Emergency Depressurization is initiated and the PSV-F013C fails to remain open, <u>THEN</u> before RPV pressure drops below 50 psig, the Crew places the Control Switch for an additional SRV to OPEN to achieve five open SRVs.*** • CRS directs restoring RPV level to 12.5" to 54" with Low Pressure ECCS. • RO/PO restore RPV level as directed by CRS IAW AB.ZZ-0001: ⇒ Att. 4 for RHR ⇒ Att. 5 for Core Spray	<u>IF</u> RPV water level drops below –311", <u>THEN</u> the CRS may implement EOP-206.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN adequate core cooling is assured, THEN CRS directs placing: ⇒ One loop of RHR in Supp Pool Cooling and Spray ⇒ One loop of RHR in Drywell Spray (If Supp Pool Level is less than 124”) • RO/PO align RHR IAW AB.ZZ-0001: ⇒ Att 2 Drywell Spray ⇒ Att 3 Supp Pool Clg	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when • RPV level has been restored above 129” and containment parameters are improving and the reactor is depressurized		

XXXIII. SCENARIO REFERENCES:

TTT NC.TQ-DG.ZZ-0002 Conduct of Simulator Training.
UUU NUREG 1021 Examiner Standards
VVV JTA Listing
WW Probabilistic Risk Assessment
XXX Technical Specifications
YYY Emergency Plan (ECG)
ZZZ Alarm Response Procedures (Various)
AAA HU-AA-101 Performance Tools and Verification Practices
BBB SH.OP-AS.ZZ-0001 Operations Standards
CCC SH.OP-AS.ZZ-0002 Shift Technical Advisor Program
DDD HC.OP-AP.ZZ-0108 Operability Assessment and Equipment Control Program
EEE HC.OP-AP.ZZ-0109 Equipment Operational Control
FFF HC.OP-SO.AE-0001 Feedwater System Operation
GGG HC.OP-SO.BF-0001 CRD Hydraulic System Operation
HHH HC.OP-SO.ED-0001 Reactor Auxiliaries Cooling Water System Operation
IIIII. HC.OP-SO.GU-0001 Filtration, Recirculation, and Ventilation System Operation
JJJ HC.OP-AB.ZZ-0001 Transient Plant Conditions
KKK HC.OP-AB.RPV-0001 Reactor Power
LLL HC.OP-AB.RPV-0003 Recirculation System / Reactor Power Oscillations
MM HC.OP-AB.RPV-0004 Reactor Level Control
NNN HC.OP-AB.CONT-0003 Reactor Building
OOO HC.OP-AB.ZZ-000 Reactor Scram
PPP HC.OP-EO.ZZ-0101 RPV Control
QQQ HC.OP-EO.ZZ-0102 Primary Containment Control
RRR HC.OP-EO.ZZ-0202 Emergency RPV Depressurization
SSS HC.OP-EO.ZZ-0206 RPV Flooding
TTT NOTF 20149832 Feedwater Piping Wall Thickness

XXXIV.ESG CRITICAL TASK RATIONAL

NRC24 SPARE / 000

#1- Crew determines that Emergency Depressurization is required BEFORE compensated RPV water level reaches less than -185"; AND subsequently restores and maintains RPV water level to avoid SAG entry

K/A 295031 Reactor Low Water Level

EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

EA1.01 Low Pressure Coolant Injection (RHR) RO/SRO 4.3

EA1.06 Automatic depressurization system RO/SRO 4.3

EA2 **Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL:**

EA2.04 Adequate core cooling RO 4.7 SRO 4.9

When Reactor water level cannot be maintained above -185" with injection to the RPV, adequate core cooling cannot be assured (MSCRWL). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there are injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restore level. Relying on either Steam Cooling or Spray Cooling following Emergency Depressurization with all of the Low Pressure ECCS systems that are available for injection represents an unnecessary challenge to the core and an inadequate level of performance. Acceptable performance requires re-establishing RPV water level IAW EOPs.

#2 - <u>WHEN</u> Emergency Depressurization is initiated and the PSV-F013C fails to remain open, <u>THEN</u> before RPV pressure drops below 50 psig, the Crew places the Control Switch for an additional SRV to OPEN to achieve five open SRVs.

K/A 295031 Reactor Low Water Level

EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

EA1.07 Safety/Relief Valves RO 3.7 SRO 3.7

The Minimum Number of SRVs required for Emergency Depressurization (MNSRED) is five. The MNSRED is utilized to assure the RPV will depressurize and remain depressurized when Emergency Depressurization is required. When the fuses for the PSV-F013C fail, the Crew needs to ensure an additional SRV control switch is in the OPEN position to achieve five SRVs for Emergency Depressurization. This is directed by both EOP-202 and AB.ZZ-0001. SRV's are designed to open with a minimum differential pressure of 50 psid between the reactor vessel and the suppression chamber. Below this d/p, they may not open. If the Crew does not attempt to open the fifth SRV before this minimum d/p is lost, they cannot validate it's operation. This would prevent them from detecting the failure and pursuing the use of the Alternate Depressurization Systems in EOP-202.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
_____	Loss Of Offsite Power/SBO
Y	LOCA

Y/N	EVENT
_____	Internal Flooding

TRANSIENTS:

_____	Turbine Trip
_____	Loss of Condenser Vacuum
_____	Loss of Feedwater
_____	Inadvertent MSIV Closure
_____	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

_____	Loss of SSW
_____	Loss of SACS
_____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
_____	Hard Torus Vent
_____	HPCI
_____	1E 4.16KV Bus
_____	SACS Hx/Pump
_____	EDG
_____	120VAC 481/482 Inverter
_____	A/B RHR
Y	RCIC
_____	SSW Pump

Y/N	KEY EQUIPMENT
_____	SLC
_____	CRD
_____	1E 125VDC

KEY SYSTEMS

_____	500KV AC Power
_____	SRVs
_____	Condensate/Feedwater
_____	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Aligning RHR for Suppression Pool Cooling
_____	Emergency Venting of Primary Containment
Y	Emergency Depressurize RPV W/O High Pressure Injection
_____	Initiating LP ECCS with No High Pressure Injection Available
_____	Restoration of AC Power after a LOP (EDG / Offsite)
_____	Monitoring and Control of SACS heat loads
_____	Preventing LVL 8 trip of Feedwater during a transient
_____	Align Core Spray Suction to CST when at NPSH limits
_____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus

_____

_____ Inhibit ADS during ATWS

.

Note: The following criteria list scenario traits that are numerical in nature for a single scenario.

NRC 2024 -SPARE

SELF-CHECK
(number indicates minimum IAW NRC IP 711111.11)

x 21. Total malfunctions inserted: 5

x 22. Malfunctions that occur after EOP entry: 1

x 23. Abnormal Events: 2

x 24. Major Transients: 1-2

x 25. EOPs used beyond primary scram response EOP: 1

x 26. EOP Contingency Procedures used: 0

x 27. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)

x 28. EOP run time: 40-70% of scenario run time

x 29. Crew Critical Tasks: 2

x 30. Technical Specifications are exercised during the scenario: 1

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST (continued)

Crew Validation **Rev:** 00 **Date Validated:** 11-9-23
Validated with SRO Cert crew of 2. Runtime 54 minutes

Validation Comments	Disposition

IX. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None

REACTIVITY / Plant Status

95% Power

1. Swap RACS Pumps from “B” to “A” for Maintenance checks
2. Raise power to 100% using SPRI guidance. Power was previously lowered to allow for a control rod swap

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None