JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Recirculation

TASK NUMBER: 2020160101

TASK: Perform a Reactor Recirculation Pump Quick Restart

2021 NRC RO A1

Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ011 **REVISION:** 05

SAP BET: NOH05JPZZ11E

K/A NUMBER: 2.1.18 **IMPORTANCE FACTOR:** RO: 3.4 SRO: 4.7

ALTERNATE PATH: ☐

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

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.RPV-0003, Rev. 34

TOOLS, AND EQUIPMENT: Steam Tables, Calculator

ESTIMATED COMPLETION TIME: 7 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 Recirculation

TASK NUMBER: 2020160101

TASK: Perform a Reactor Recirculation Pump Quick Restart

INITIAL CONDIITONS:

1. The Reactor was scrammed when both Reactor Recirculation Pumps tripped.
2. Evidence of thermal stratification is present.
3. Actions have been taken in accordance with HC.OP-AB.RPV-0003 through Step G.11.

INITIATING CUE:

COMPLETE Step G.12 of HC.OP-AB.RPV-0003 for restart of Reactor Recirculation Pump A.

NOTE: The simulator will remain in FREEZE for the duration of this JPM.

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-AB.RPV-0003, AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
G12.	**ENSURE** Differential Temperature requirements are met by completing Attachment 2. **[T/S 4.4.1.4]**	Operator proceeds to Attachment 2.		
ATTACHMENT 2 **REACTOR RECIRCULATION PUMP PRE-START TEMPERATURE DIFFERENTIAL CRITERIA DETERMINATION**				
1.0	**REACTOR VESSEL TO BOTTOM HEAD DRAIN LINE DIFFERENTIAL TEMPERATURE CRITERIA**			
1.1	Rx Pressure Vessel Steam Space Coolant Saturation Temperature. (Rx Pressure and Steam Tables) **(Note 1)**	***Operator determines Reactor Pressure (approximately 740 psig=755 psia) and determines Saturation Temperature (approximately 512F ±2F),** and initials Step.		
Note 1:	Steam Table as part of this attachment may be utilized to determine temperature rounding the numbers in a conservative fashion. For a more accurate conversion from pressure to temperature a more detailed set of steam tables should be utilized.	Operator reads and initials Note 1.		
1.2	Bottom Head Drain Coolant Temperature. **(Note 2)** (Computer Point A2942)	***Operator obtains Bottom Head Drain Coolant Temperature using Computer Point A2942 (434F ±1F),** and initials Step.		
Note 2:	RWCU Flow required for accurate Bottom Head Drain Coolant Temperature indication.	Operator reads and initials Note 2.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
1.3	≤ 145°F between Rx Pressure Vessel Steam Space Coolant AND Bottom Head Drain Line Coolant (A – B). **[T/S 4.4.1.4]**	***#Operator determines the difference between Rx Pressure Vessel Steam Space Coolant AND Bottom Head Drain Line Coolant is approximately 78F (ensure math is correct),** and initials Step.		
1.4	Time Readings taken:	***#Operator enters the current time,** and initials Step.		
2.0	**REACTOR VESSEL TO RECIRCULATION LOOP DIFFERENTIAL TEMPERATURE CRITERIA**			
2.1	Temperature of the Rx Coolant within the idle loop to be started up. **(Note 3)**	***Operator determines Temperature of the Rx Coolant in Recirculation Loop A using TR-650-B31 Recirc Pump Suction Loop A OR CRIDS points A221 and A222 for A loop (504.0F, ±1F),** and initials Step.		
Note 3:	Use TR-650-B31 Recirc Pump Suction Loop A(B) (if available) OR if above 400°F - CRIDS points A221 and A222 for A loop (A223 and A224 for B loop). IF below 400°F AND TR-650-B31 not available, THEN have I&C obtain temperatures using RTD ohm values (reference RTD ohm values to calibration data in TDR using HC.OP-GP.ZZ-0008(Q))	Operator reads and initials Note 3.		
2.2	Temperature of coolant in the Rx Pressure Vessel. (RX Pressure and Steam Tables) **(Note 1)**	***Operator determines Reactor Pressure(approximately 740 psig=755 psia) and determines Saturation Temperature (approximately 512F ±2F),** and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
2.3	≤ 50°F between the Rx Coolant within the loop not in operation AND the Coolant in the Rx Pressure Vessel (A-B). **[T/S 4.4.1.4]**	***#Operator determines the difference between the Rx Coolant within the loop not in operation AND the Coolant in the Rx Pressure Vessel is approximately 8F (ensure math is correct),** and initials Step.		
2.4	Time Readings taken:	***#Operator enters the current time,** and initials Step.		
CONDITION G				
G.14	**ENSURE** Differential Temperature requirements are met by completing Attachment 2. **[T/S 4.4.1.4]**	Operator ensures Differential Temperature requirements are met 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 completes Step G.12 of HC.OP-AB.RPV-0003 for restart of Reactor Recirculation Pump A, IAW answer key.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ011 **NAME:** _____

REV NUMBER: 05 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ011

REVISION HISTORY

Rev #	Date	Description	Validation Required?
04	7/5/2018	Initial Conditions changed due to simulator setup and procedure revision.	Y
04	7/26/2018	Incorporated comments from NRC validation.	N
05	6/17/2019	Modified temperature values based on simulator setup.	Y
05	1/21/21	Revalidated with 2 ROs. No changes required	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ011 **REV#:** 05

TASK: Perform a Reactor Recirculation Pump Quick Restart

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. Williams	RO	ON FILE	1/22/21
E. Heil	RO	ON FILE	1/22/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ011 **REV#:** 05

INITIAL CONDITIONS:

I.C.

Initial	

_____ **INITIALIZE** to any 50-100% power IC.

_____ **TRIP** both RR Pump Drive Motor Breakers.

_____ **TAKE ACTIONS** IAW HC.OP-AB.ZZ-0001.

_____ **IMPLEMENT** EOP-101 to stabilize plant at approximately 740 psig RPV pressure.

_____ **IMPLEMENT** HC.OP-AB.RPV-0003 Condition G, G1-G11.

_____ **ACKNOWLEDGE** alarms.

_____ **PLACE** Simulator in FREEZE.

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

Initial	Description

_____ **MARKUP** HC.OP-AB.RPV-0003 up to and including G.11.

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

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

EVENT FILE:

Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Reactor was scrammed when both Reactor Recirculation Pumps tripped.
2. Evidence of thermal stratification is present.
3. Actions have been taken in accordance with HC.OP-AB.RPV-0003 through Step G.11.

INITIATING CUE:

COMPLETE Step G.12 of HC.OP-AB.RPV-0003 for restart of Reactor Recirculation Pump A.

NOTE: The simulator will remain in FREEZE for the duration of this JPM.

JOB PERFORMANCE MEASURE

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Equipment Control

TASK NUMBER: 2160010201

TASK: Perform An Accident Monitoring Instrumentation Channel Check

JPM NUMBER: 305H-JPM.ZZ025 **REVISION:** 04

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. 36

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 CONDIITONS:

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).

JPM NUMBER: ZZ025 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

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),** **1012 ±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.		

JPM NUMBER: ZZ025 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

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.**			

JPM NUMBER: ZZ025 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.6	**RECORD** the following Suppression Pool Water Level readings on Attachment 2:			
5.6.1.	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).				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ025 **NAME:** _____
REV NUMBER: 04 **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

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ025 **REV#:** 04

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

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

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

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ025 **REV#:** 04

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)

JOB PERFORMANCE MEASURE

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).

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Perform A Manual Tagout With eSOMS System Inoperable

2021 NRC RO A3

Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ21A3 **REVISION:** 00

SAP BET: NOH05JPZZ21A3

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-46-1, M-13-1 OP-AA-109-115, Rev. 14

TOOLS, AND EQUIPMENT: Highlighters; M-46-1 & M-13-1[Large Size]

ESTIMATED COMPLETION TIME: 17 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Perform A Manual Tagout With eSOMS System Inoperable

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. The Control Rod Drive System is in its normal lineup with "B" CRD PP in service.
3. "A" CRD is scheduled for a pump internals inspection.
4. RACS must be isolated to the "A" pump
5. eSOMS is not available

INITIATING CUE:

1. "A" CRD PP, and its associated piping and electrical component(s) need to be **ISOLATED,** AND **DRAINED** to perform the inspection. Use controlled station drawings M-46-1 and M-13-1(provided):

2. **VENTING** points are **NOT** required to be identified.

3. **RACs must be isolated** to the "A" CRD Pump

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

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

NOTE:

1. Double valve isolation is not required

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

JPM NUMBER: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue; M-46-1; AND M-13-1 **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)** 1. Review the following: – Controlled Documents and Drawings from the TDR or DCRMS.	Operator reviews provided M-46-1 and M-13-1		
	2. Perform the following: – Select blocking points	Operator determines the blocking points AND required positions by reviewing the controlled drawing.		
		***Applicant identifies the following mechanical isolation valves AND the required positions:** • **BF-V003 – "A" PP Suction - CLOSED** • **BF-V007 – "A" PP Discharge – CLOSED** • **BF-V102 – "A" PP Min Flow – CLOSED** • **BF-V034 –"A" PP Xtie to "B" PP – CLOSED** • **ED-V036 – RACS into "A" CRD PP Thrust Bearing & Gear Box Oil Cooler– CLOSED** • **ED-V070 – RACS from "A" CRD PP Thrust Bearing & Gear Box Oil Cooler– CLOSED** • **BF-V148 – Drain - OPEN** • **BF-V149 – Drain - OPEN**		

JPM NUMBER: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		***Applicant identifies the following ELECTRICAL components AND the required positions:** • **AP 207 – Pump Breaker** Examiner Note: Breaker numbers are not required.		
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, 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: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ21A3

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/20/20	New JPM. Validated by 2 ROs	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ21A3 **REV#:** 00
TASK: Perform A Manual Tagout With eSOMS System Inoperable

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. Griscom	RO	On File	1/21/21
M. Rooney	SRO	On File	1/21/21

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. The Control Rod Drive System is in its normal lineup with "B" CRD PP in service.
3. "A" CRD is scheduled for a pump internals inspection.
4. RACS must be isolated to the "A" pump
5. eSOMS is not available

INITIATING CUE:

1. "A" CRD PP, and its associated piping and electrical component(s) need to be **ISOLATED,** AND **DRAINED** to perform the inspection. Use controlled station drawings M-46-1 and M-13-1(provided):

2. **VENTING** points are **NOT** required to be identified.

3. **RACs must be isolated** to the "A" CRD Pump

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

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

NOTE:
1. Double valve isolation is not required

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

JOB PERFORMANCE MEASURE

FORM 4
TAGGING / UNTAGGING WORK LIST

☒ REQUEST

☐ RELEASE TYPE (circle one) FULL PARTIAL TEMPORARY

DISCIPLINE REVIEWS: [redacted]

WORK CLEARANCE DOCUMENT NUMBER: [redacted] This Worksheet: Page ____ of ____

Seq.	WCM Identifier	Tagging Point Description	Tag Type	Current Position	Desired Position	Apply/Release Date/Time	QO Initials	Verified Date/Time	QO Initials
[redacted]			[redacted]			[redacted]			

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

JOB PERFORMANCE MEASURE

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Logs

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ038 **REVISION:** 03

SAP BET: NOH05JPZZ38E

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

ALTERNATE PATH: ☐

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

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026, Rev. 166 OP-AA-111-101-1001, Rev. 6

TOOLS, AND EQUIPMENT: Red Pen

ESTIMATED COMPLETION TIME: 6 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: Logs

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

INITIAL CONDIITONS:

1. The plant is at 90% power.
2. Circulating Water Pump BP501 is tagged for motor replacement.
3. Circulating Water Pumps AP501, CP501, and DP501 are in service.
4. Cooling Tower Blowdown Weir Flow Rate Monitor 0SP-RI4861 is reading blank and has just been declared INOPERABLE. TSAS # 2020-001 was entered.
5. SSW Loop Flow CRIDS Point values as follows:
   - A2440 SERVICE WATER FLOW RATE DIV A = 18,560 gpm
   - A2441 SERVICE WATER FLOW RATE DIV B = 19,045 gpm

INITIATING CUE:

COMPLETE the Day Shift reading for HC.OP-DL.ZZ-0026, Attachment 1a, ITEM 47, for the RMS Cooling Tower Blowdown Weir Flow Rate Monitor.

JPM NUMBER: ZZ038 **NAME:** _____

REV NUMBER: 03 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a blank copy of HC.OP-DL.ZZ-0026, 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.**			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be ITEM 47.		
OP-AA-111-101-1001				
4.4.2.7.F.	When an instrument has failed or been declared inoperable, "F/I" is recorded in the entry space, red circled and treated as an out-of-specification entry.	***Operator enters "F/I" or "INOP" in both DAY entry blocks, and red circles each one.** Examiner Note: Refer to attached Examiner's Copy of Attachment 1a.		
HC.OP-DL.ZZ-0026, Attachment 1a				
3.6.2	IF an Action Statement Log Sheet is issued due to a failed surveillance, OR one is already issued that covers the failed surveillance, THEN **NOTE** the Action Statement Log Sheet Index Number in the comments section.	Operator notes the Action Statement Log Sheet Index Number in the comments section. Examiner Note: Refer to attached Examiner's Copy of Attachment 1a.		
CUE:	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**			
ITEM 47	CHANNEL CHECK: COOLING TOWER BLOWDOWN WEIR FLOW RATE MONITOR	Operator reads ITEM 47. Operator determines that NOTES 33, 35, 45, and 47 are not applicable.		

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTES:	46. IF INSTRUMENT IS INOP, USE ATTACHMENT 3Y TO ESTIMATE WEIR FLOW. THIS IS REQUIRED REGARDLESS OF WHETHER A RADIOACTIVE LIQUID RELEASE IS IN PROGRESS.	Operator refers to NOTE 46 and determines that Attachment 3y is applicable.		
HC.OP-DL.ZZ-0026, Attachment 3y				
	DATE	Operator enters today's date on attachment 3y. Examiner Note: Refer to attached Examiner's Copy of Attachment 3y.		
	METHOD 1	Operator determines data for Method 1 completion is not available and continues to METHOD 2.		
	TIME	***Operator enters the current time on Attachment 3y under Method 2.**		
	METHOD 2 CALCULATED WEIR FLOW **SSW LOOP A FLOW #** • Read from fit-2218A/B or fr-2218-1/2 or CRIDS a2440/a2441. (B SSW Loop flow (fit-2218B) is obtained locally at panametrics monitor. Flow value is the average volumetric flow rate which is displayed as "avg volumetric gal/min" on the monitor display.	Operator determines A SSW Loop Flow is 18,560 gpm from CRIDS point A2440 in the Initial Conditions. ***Operator enters CRIDS point A2440 value of 18,560 under SSW LOOP A FLOW.** Examiner's Note: # applies to next Step also.		

JPM NUMBER: ZZ038 **NAME:** _____

REV NUMBER: 03 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	SSW LOOP B FLOW #	Operator determines B SSW Loop Flow is 19,045 gpm from CRIDS point A2441 in the Initial Conditions. ***Operator enters CRIDS point A2441 value of 19,045 under SSW LOOP B FLOW.**		
	TOTAL SSW FLOW	Operator calculates Total SSW Flow at 37,605 gpm by summing Loop A and Loop B flows. ***Operator enters 37,605 under TOTAL SSW FLOW.**		
	EVAPORATIVE LOSSES* * Reference print 10855-M15-181-1 for evaporative loss estimates. USE 16,700 gpm for default value(min. dilution flow), for evaporative loss estimates if 4 circulating water pumps are in service, or 12,500 gpm if only 3 circulating water pumps are in service. This block is N/A if the cooling tower is out of service.	Evaporative Losses from * Footnote at bottom of page for 3 Circ Water Pump operation as 12,500 gpm. ***Operator enters 12,500 under EVAPORATIVE LOSSES.**		
	TOTAL WEIR FLOW	Operator determines TOTAL WEIR FLOW is 25,105 gpm by subtracting Evaporative Losses from Total SSW Loop Flow. ***Operator enters 25,105 under TOTAL WEIR FLOW.**		
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 Day Shift reading for HC.OP-DL.ZZ-0026, Attachment 1a, ITEM 47, for the RMS Cooling Tower Blowdown Weir Flow Rate Monitor.				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ038 **NAME:** _____

REV NUMBER: 03 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ038

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	6/3/2016	Revised format. Added references for F/I and TS Action Statement entries. Changed Initial Conditions. Validated with 2 ROs.	Y
02	6/7/2019	Corrected typographical errors noted during examination. Revised Revision Number of Reference Procedure. Revised Attachment changes. Editorial changes only.	N
03	8/16/20	Reference procedure revised. Changes to attachment 3Y of DL-26.	Y
03	1/20/21	Reviewed by 2 ROs. No changes required	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ038 **REV#:** 03
TASK: Complete The Daily Surveillance Logs

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥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
Scott Maier	SRO	Signature on File	9/15/20
Ron Hanna	SRO	Signature on File	9/15/20

ATTACHMENT 1a
Surveillance Log - Control Room

Operational Condition _____ **Date** _____

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
47	CHANNEL CHECK: COOLING TOWER BLOWDOWN WEIR FLOW RATE MONITOR	AT ALL TIMES	ITEM 002	< 40K	70K	0SP-RI4861 (10C604) ITEM 029 RM-11 (9AX327) **(NOTE 45.)**	F/I			
			---	NO	---	INST TRIPPED	F/I			**(NOTE 33., 35., 46., 47.)**
48	CHANNEL CHECK: COOLING TOWER BLOWDOWN RADIATION MONITOR	AT ALL TIMES	---	---	ITEM 009	SP-RI8817 (10C604)	N/A	N/A		**(NOTE 30., 41.)**
	SAMPLE FLOW		1.0	---	14.0	SP-RI8817 (10C604) ITEM 029	N/A	N/A		**(NOTE 35.)**
	SAMPLE LOW FLOW ALARM		1.0	---	1.0	SP-RI8817 (10C604) ITEM 002	N/A	N/A		**(NOTE 33.)**
			---	0000	---	SP-RI8817 (10C604) ITEM 044	N/A	N/A		**(NOTE 40.)**
	ANY OF ITEM 48		---	NO	---	INST TRIPPED	N/A	N/A		
49	CHANNEL CHECK: TBCW RADIATION MONITOR	AT ALL TIMES	---	---	$2.4E^{-6}$	SP-RI4557 OR RM-11 (9RX505)		N/A	N/A	**(NOTE 72..)**
50	CHANNEL CHECK: RACS RADIATION MONITOR	AT ALL TIMES	---	---	$9E^{-5}$	SP-RI2534 OR RM-11 (9RX500)				
51	CHANNEL CHECK: SACS LOOP A RADIATION MONITOR	AT ALL TIMES	---	---	$6E^{-5}$	SP-RI4859A1 OR (1EC267) RM-11 (9RX501)				

NOTES:
30. IF NORMAL INSTRUMENT IS INOP AND CRIDS IS USED (FOLLOWING EQUIVALENCY REVIEW), THEN ONLY OBTAIN CRIDS VALUE FROM 'RM-11 DATA' SCREEN OF THE 'GROUP 2 MENU' OF GROUP DISPLAYS. **[70134816]**
33. TO OBTAIN VALUES 006 OR 002, PRESS MON PB, KEY IN 006 OR 002, THEN ITEM PB.
35. TO OBTAIN VALUES 028, 029, OR 073, PRESS MON PB, KEY IN 028, 029, OR 073, THEN ITEM PB.
40. TO OBTAIN VALUE 044, PRESS MON PB, KEY IN 044, THEN ITEM PB. IF VALUE IS NOT AT 0000 HAVE I&C/RAD PRO INVESTIGATE OPERABILITY.
41. TO OBTAIN VALUE 009, PRESS LIQ PB, KEY IN 009, THEN ITEM PB.
45. CHANNEL CHECK SHALL CONSIST OF VERIFYING INDICATION OF FLOW DURING PERIODS OF RELEASE. CHANNEL CHECK SHALL BE MADE AT LEAST ONCE PER 24 HOURS ON DAYS ON WHICH CONTINUOUS, PERIODIC, OR BATCH RELEASES ARE MADE. WHEN THREE SSWS PUMPS ARE IN-SERVICE, AND, THE RM-11 IS AVAILABLE, RECORD THE LOWEST OF THE LAST 12 (HOURLY) AVERAGES FOR 9AX327 (CTB FLOW) AS FOLLOWS:
CLICK ON 9AX327, THEN CLICK ON 60 MIN AVG BUTTON. **[70026506]**
OR FROM THE TOP LEVEL MENU THAT CAN BE ARRIVED AT BY DEPRESSING THE "ESC" KEY, CLICK THE "LOGS/REPORTS" BUTTON, THEN THE "DAILY LOG SETUP" BUTTON, (F2) OR TYPE "ARCHIVE" IN THE YELLOW FUNCTION FIELD; CHANGE DATE AND TIME UNDER "ENTER START TIME" TO AT LEAST 12 HOURS AGO (ONLY THE BACKSPACE KEY FUNCTIONS TO ERASE EXISTING TEXT); IN THE FIELD UNDER "OR ENTER PIDS (COMMA DELIMITED):" ENTER "TR604861-4". THIS IS THE 60 MINUTE AVERAGE TREND FOR THE DESIRED POINT; SELECT F3 OR CLICK THE "F3=VIEW PID" BUTTON AT THE SCREEN BOTTOM TO DISPLAY THE DATA. **[70026506]**
46. IF INSTRUMENT IS INOP, USE ATTACHMENT 3Y TO ESTIMATE WEIR FLOW. THIS IS REQUIRED REGARDLESS OF WHETHER A RADIOACTIVE LIQUID RELEASE IS IN PROGRESS.
47. REFER TO HC.OP-SO.SP-0001(Q), RADIATION MONITORING SYSTEM OPERATION, FOR NOTES ON OPERABILITY.
72. VERIFY APRM ON-LINE GREEN LED LIT, NO UNEXPLAINED RED TRIP LED OR UNEXPLAINED RED TRIP MEM LED LIT.

EXAMINER'S COPY

ATTACHMENT 3y
Radioactive Liquid Effluent Monitoring Instrumentation
T/S 6.8.4.g ODCM Table 3.3.7.10-1 Item 3b, ACTION 112

With the number of channels OPERABLE less than required by the minimum channels OPERABLE requirement, then effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves (VTD 322848) should be used if using Method 3. **[70042554]**
Readings are taken regardless of whether a Liquid Release is in progress.
Readings are taken every 3 hours to ensure that the 4 hour Tech Spec Action limit is NOT exceeded per administrative requirements.

Date: *TODAY*

Any one of the following Methods may be used to satisfy the requirements of Action 112.

METHOD 1 DIRECT READING OF WEIR FLOW [1] (USE ANY ONE OF THE FOLLOWING)	TIME	ENTER TIME OF EACH READING IN THE T-= 0, T + 3 HRS, T + 6 HRS....., BLOCKS								
		T = 0	T + 3 HRS	T + 6 HRS	T + 9 HRS	T + 12 HRS	T + 15 HRS	T + 18 HRS	T + 21 HRS	T + 24 HRS
A) - CRIDS POINT A9327 (CTB BLOWDOWN DISCH FLOW)										
B) - RM-11, 9RX599 (PROCESS FLOW N)										
C) - 10C604 PANEL, LIQUID R/W 0SP-RI4861 (CTB FLOW P.B.)										

METHOD 2 CALCULATED WEIR FLOW [2] OR METHOD 3 ESTIMATED WEIR FLOW [4] (Circle method used) [1]

TIME	SSW LOOP A FLOW [2] A & C SSW PUMP FLOW[4]	+	SSW LOOP B FLOW [2] B & D SSW PUMP FLOW[4]	=	TOTAL SSW FLOW	-	EVAPORATIVE LOSSES *	=	TOTAL WEIR FLOW
NOW	*18,560*	+	*19,045*	=	*37,605*	-	*12,500*	=	*25,105*
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	

METHOD 3 ESTIMATED WEIR FLOW (VTD 322848 SHOULD BE USED FOR PUMP PERFORMANCE CURVE TO SUPPORT USE OF METHOD 3) [70042554]

DATE/TIME	A & C SSW PUMP FLOW	+	B & D SSW PUMP FLOW	=	TOTAL SSW FLOW	-	EVAPORATIVE LOSSES *	=	TOTAL WEIR FLOW
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	
		+		=		-		=	

[1] Use Method 2 or Method 3 when the Cooling Tower is out of service. A minimum of 12,000 gpm dilution is required during liquid releases.

[2] Read from FIT-2218A/B or FR-2218-1/2 or CRIDS A2440/A2441. B SSW Loop flow (FIT-2218B) is obtained locally at panametrics monitor. Flow value is the average volumetric flow rate which is displayed as "avg volumetric gal/min" on the monitor display.

[3] Reference print 10855-M15-181-1 for evaporative loss estimates. **USE** 16,700 gpm for default value (min. dilution flow), for evaporative loss estimates if 4 circulating water pumps are in service, or 12,500 gpm if only 3 circulating water pumps are in service. This block is N/A if the Cooling Tower is out of service.

[4] If Loop flow is unavailable, flows may be estimated for the individual pumps using page 2

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 90% power.
2. Circulating Water Pump BP501 is tagged for motor replacement.
3. Circulating Water Pumps AP501, CP501, and DP501 are in service.
4. Cooling Tower Blowdown Weir Flow Rate Monitor 0SP-RI4861 is reading blank and has just been declared INOPERABLE. TSAS # 2020-001 was entered.
5. SSW Loop Flow CRIDS Point values as follows:
   - A2440 SERVICE WATER FLOW RATE DIV A = 18,560 gpm
   - A2441 SERVICE WATER FLOW RATE DIV B = 19,045 gpm

INITIATING CUE:

COMPLETE the Day Shift reading for HC.OP-DL.ZZ-0026, Attachment 1a, ITEM 47, for the RMS Cooling Tower Blowdown Weir Flow Rate Monitor.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

2021 NRC EXAM
SRO-JPM A1

Copy _____ of _____

TASK NUMBER: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

JPM NUMBER: 305H-JPM.ZZ21N **REVISION:** 00

SAP BET: NOH05JPZZ21N

K/A NUMBER: 2.1.5 Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.
(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: OP-AA-105-102

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: 2990750302

TASK: Ensure The Operating Shift Is Adequately Manned

INITIAL CONDIITONS:

1. SRO John Smith is in the process of license re-activation for the Control Room Supervisor position in accordance with OP-AA-105-102, NRC Active License Maintenance. Refer to the provided OP-AA-105-102, Attachment 2.
2. The Operations Training Manager has signified that the license holder is current in the Requal Program and Completion of plant-specific activation guide.
3. The License Coordinator has verified that medical/respiratory protection qualifications are current.
4. SRO John Smith and the Operations Support Manager have verified that the license holder is compliant with & concurs with restrictions on current NRC license.
5. SRO John Smith has completed the following:
   - Main Control Room Tour: Completed with a current CRS on January 2, 2021
   - Turbine Building Tour: Completed with a current SM on January 3, 2021
   - Reactor Building Tour: Completed with a current NCO on January 7, 2021
   - Station Service Water and Yard Tour: Completed with the on watch Yard Equipment Operator on February 3, 2021
   - Auxiliary Building Tour: Completed with a Current CRS on February 5, 2021.
   - Reviewed Shift Turnover responsibilities / procedure.
6. SRO John Smith completed the Hours on Shift as shown.

INITIATING CUE:

Today is February 10th, 2021.

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

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

JPM NUMBER: ZZ21N **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator: the initiating cue, a copy of OP-AA-105-102; the marked up Attachment 2 of OP-AA-105-102; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
OP-AA-105-102				
4.2.3.	**DOCUMENT** the reactivation on Attachment 2, Reactivation of License Log . 1. The Shift Manager shall signify that the required OJT hours were completed.	***Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that RX & Yard tours were NOT completed with an ACTIVE SRO license holder.**		
		***Operator reviews the Attachment 2 and the Initial Conditions. The operator identifies that the watch hours stood as the CRS ONLY [for 36 hours total] is less than the 40 hours needed towards hours of watchstanding requirements.**		
		***Operator does NOT sign as the Shift Manager.**		
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 reactivation requirements have not been met in accordance with OP-AA-105-102.				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ21N **NAME:** _____

REV NUMBER: 00 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ21N

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	7/25/2016	New JPM. Incorporated comments from NRC validation.	Y
00	10/4/20	Dates revised .Editorial	N
00	1/21/21	NRC comments incorporated. Reviewed by 2 SROs	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ21N **REV#:** 00

TASK: Ensure The Operating Shift Is Adequately Manned

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

VALIDATED BY:

Qualification Level Required: SRO

Name	Qual	Signature	Date
M. Rooney	SRO	On file	1/21/21
M. Fleming	SRO	On file	1/21/21

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. SRO John Smith is in the process of license re-activation for the Control Room Supervisor position in accordance with OP-AA-105-102, NRC Active License Maintenance. Refer to the provided OP-AA-105-102, Attachment 2.
2. The Operations Training Manager has signified that the license holder is current in the Requal Program and Completion of plant-specific activation guide.
3. The License Coordinator has verified that medical/respiratory protection qualifications are current.
4. SRO John Smith and the Operations Support Manager have verified that the license holder is compliant with & concurs with restrictions on current NRC license.
5. SRO John Smith has completed the following:
   - Main Control Room Tour: Completed with a current CRS on January 2, 2021
   - Turbine Building Tour: Completed with a current SM on January 3, 2021
   - Reactor Building Tour: Completed with a current NCO on January 7, 2021
   - Station Service Water and Yard Tour: Completed with the on watch Yard Equipment Operator on February 3, 2021
   - Auxiliary Building Tour: Completed with a Current CRS on February 5, 2021.
   - Reviewed Shift Turnover responsibilities / procedure.
6. SRO John Smith completed the Hours on Shift as shown.

INITIATING CUE:

Today is February 10th, 2021.

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

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

ATTACHMENT 2
Reactivation Of License Log
Page 1 of 1

License Holder's Name: ***John Smith***
Date to resume Active status: ***2/15/2021***

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

Verified by: ***Operations Training Mgr*** (Operations Training Manager) ***Today*** (Date)

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

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

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

Verified by: ***John Smith*** (Licensee) / ***Today*** (Date) ***Operations Support Mgr*** (Operations Support Manager) / ***Today*** (Date)

D. Completion of the following:

NOTE: For LSRO/SRO reactivation for fuel handling duties, steps 4a, 4c, 4d, and 4e must be performed within 1 week of the planned start of core alterations.
NOTE: In the presence and under the sole direct supervision of an active RO or SRO, as appropriate apply to all steps below.

1. Made a tour of the MCR, reviewing status of applicable systems/panels (ALL)
2. Made a complete tour of the plant (RO/SRO only)
3. Made a tour of refuel floor/fuel handling areas (LSRO/SRO for fuel handling only)
4. Attended an Operations shift turnover meeting (LSRO/SRO for fuel handling only)
5. Reviewed applicable unit log and Limiting Condition for Operation (LCO) log (LSRO/SRO for fuel handling only)
6. Reviewed Shift Turnover responsibilities / procedure (ALL)

Performed by: ***John Smith*** (License Holder) ***Today*** (Date)

E. Hours on Shift

1. The SRO/RO license holder has completed a minimum of 40 hours of shift functions in the presence and under the sole direct supervision of an active RO or SRO, as appropriate, in the position to which the individual will be assigned. Log hours in the Shift Position log.
2. The SRO-Limited license holder has completed a minimum of one (1) 8-hour shift in the presence and under the sole direct supervision of an active SRO/SRO-Limited in the position to which the individual will be assigned.

Shift Position Log

Date	Shift Position	Shift No.	No. Hours	Entered in Appropriate Log	Active License Signature
1/4/21	CRS	D	12	Yes/No	***Active License Signature***
1/5/21	SM	D	2	Yes/No	***Active License Signature***
1/6/21	WCS	D	8	Yes/No	***Active License Signature***
1/19/21	NCO	D	4	Yes/No	***Active License Signature***
1/20/21	CRS	D	12	Yes/No	***Active License Signature***
1/22/21	WCS	N	12	Yes/No	***Active License Signature***
1/29/21	CRS	N	12	Yes/No	***Active License Signature***
	Plant tour under the sole direct supervision of an active license holder				

Reviewed by: _____ (Shift Manager) (Date)

Final Review and Approval:

Shift Operations ~~Superintendent~~Manager (Date) Operations Training Manager (Date)

JOB PERFORMANCE MEASURE

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ017 **REVISION:** 09

SAP BET: NOH05JPZZ17E

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

ALTERNATE PATH: ☐

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

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev. 166 Hope Creek Technical Specifications

TOOLS, AND EQUIPMENT: HC.OP-DL.ZZ-0026; HC.OP-IS.BD-0001; Technical Specifications

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: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

INITIAL CONDIITONS:

1. The Plant is in OPCON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. RCIC IST is in progress and being turned over.
4. River level is at 96.1 feet due to recent heavy rains.
5. River temperature is 83°F but is NOT expected to exceed 85°F.
6. All EDGs, SACS, and SSW pumps are operable.
7. Torus temperature is 81°F.
8. The SPV Effluent RMS Skid (all components) is inoperable and has been C/T for repairs.

INITIATING CUE:

You are the Control Room Supervisor.
IMPLEMENT the log at the beginning of today by completing Attachment 1, Section A; Log Initiation, **IDENTIFYING** those Attachments that require performance due to the present conditions.

JPM NUMBER: ZZ017 **NAME:** _____

REV NUMBER: 09 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; a paper copy of HC.OP-DL.ZZ-0026; Attachment 1 of HC.OP-DL.ZZ-0026; Technical Specifications; AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	If requested, provide copy of HC.OP-IS.BD-0001.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.1.		
2.1	**Shift Manager/Control Room Supervisor** - the SM/CRS is responsible to implement, review, and ensure completion of the log including (CRS has primary responsibility for all log reviews and documentation): 2.1.1 The SM/CRS shall implement the log at the beginning of each day by completing Attachment 1, Section A; Log Initiation, listing those Attachments that require performance due to present conditions. Also, the present Operational Condition shall be listed.	Examiner Note: Examiner Copy Exhibit 1 is provided for reference. Operator determines Attachment 1 is required due to current Operational Condition.		
		Operator places a "1" in the Operational Condition blank.		
		***Operator checks Attachment 1 on Attachment 1 Section A Log Initiation.**		
		Operator determined Attachment 3m is required due to RCIC IST adding heat to the Suppression Pool. ***Operator checks Attachment 3m on Attachment 1 Section A Log Initiation.**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator determines Attachment 3k is required IAW Item 1 and T/S 4.7.3 due to current River Water level. ***Operator checks Attachment 3k on Attachment 1 Section A Log Initiation.**		
		Operator determines Attachment 3h is required IAW Item 1 and T/S 4.7.1.3.b.1 due to current River Water temperature. ***Operator checks Attachment 3h on Attachment 1 Section A Log Initiation.**		
		Operator determines Attachment 3t is required IAW Item 42 due to SPV RMS Inoperable. ***Operator checks Attachment 3t on Attachment 1 Section A Log Initiation.**		
		Operator places a "1" in the Operational Condition blank.		
		Operator determines Attachment 3z is required for tracking purposes. Operator checks Attachment 3z on Attachment 1 Section A Log Initiation.		
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 implements the log at the beginning of the day by completing Attachment 1, Section A, of HC.OP-DL.ZZ-0026.				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ017 **NAME:** _____

REV NUMBER: 09 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ017

REVISION HISTORY

Rev #	Date	Description	Validation Required?
04	7/25/2016	Updated procedure revision. No changes to operator actions. Added comments and revised Completion Time from NRC validation.	N
05	09/27/2017	Minor changes to Initial Conditions and available references. Editorial.	Y
06	6/7/2019	Revised due to procedure revision. Editorial	N
07	10/9/19	Reference procedure, HC.OP-DL.ZZ-0026 revised. No JPM steps affected. Editorial only	N
08	10/6/20	Reference procedure revised. No change to JPM steps.	N
09	1/21/21	Revised based on NRC comments. Validated by 2 SROs	Y

JOB PERFORMANCE MEASURE

VALIDATION CHECKLIST

JPM NUMBER: ZZ017 **REV#:** 09
TASK: Complete the Daily Surveillance Logs

X	1.	Task description and number, JPM description and number are identified.
X	2.	Knowledge and Abilities (K/A) is identified, and is: ≥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. Fleming	SRO	ON FILE	1/21/21
M. Rooney	SRO	ON FILE	1/21/21

JOB PERFORMANCE MEASURE

EXAMINER'S COPY
EXHIBIT 1

ATTACHMENT 1
Surveillance Log

Date *TODAY'S DATE*

A. LOG INITIATION

1. Operational Condition *1*
2. Check (✓) Attachments to be performed

1	√	3a		3f		3k	√	3r		3v		3z		4c					
2		3c		3g		3m	√	3s		3w		3aa							
		3d		3h	√	3p		3t	√	3x		4a							
		3e		3j		3q		3u		3y		4b							

B. LOG PERFORMANCE

1. Ensure compliance with T/S by using procedure steps 3.11 thru 3.16 T/S reference numbers and surveillance item note(s), as applicable, for any log item(s) requiring additional action.
2. Operators signature below indicates appropriate subsection of Attachment 1 and any Attachment checked (✓) above have been completed.

	DAY	EVE (See Note 3.1)	MID (See Note 3.1)
Attachment 1a Control Room			
Attachment 1b Auxiliary Bldg			
Attachment 1c Reactor Bldg			
Attachment 1d Turbine Bldg		NA	NA
Attachment 1e Yard		NA	NA

3. Signature below indicates review of all required attachments checked (✓) above has been completed, and approved for compliance with T/S requirements.

Day (Review Before 1300)	Eve (Review Before 2100)	Mid (Review Before 0500)
SM/CRS	SM/CRS	SM/CRS

C. LOG COMPLETION

EXAMINER'S COPY
EXHIBIT 1

1. Operational Condition _____
2. Check (✓) Attachments that have been performed

1		3a		3f		3k		3r		3v		3z		4c					
2		3c		3g		3m		3s		3w		3aa		5					
		3d		3h		3p		3t		3x		4a							
		3e		3j		3q		3u		3y		4b							

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is in OPCON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. RCIC IST is in progress and being turned over.
4. River level is at 96.1 feet due to recent heavy rains.
5. River temperature is 83°F but is NOT expected to exceed 85°F.
6. Torus temperature is 81°F.
7. All EDGs, SACS, and SSW pumps are operable.
8. The SPV Effluent RMS Skid (all components) is inoperable and has been C/T for repairs.

INITIATING CUE:

You are the Control Room Supervisor.

IMPLEMENT the log at the beginning of today by completing Attachment 1, Section A; Log Initiation; **IDENTIFYING** those Attachments that require performance due to the present conditions.

ATTACHMENT 1
Surveillance Log

Date _____

A. LOG INITIATION

1. Operational Condition _____

2. Check (✓) Attachments to be performed

1	____	3a	____	3f	____	3k	____	3r	____	3v	____	3z	____	4c	____
2	____	3c	____	3g	____	3m	____	3s	____	3w	____	3aa	____	5	____
		3d	____	3h	____	3p	____	3t	____	3x	____	4a	____		
		3e	____	3j	____	3q	____	3u	____	3y	____	4b	____		

B. LOG PERFORMANCE

1. Ensure compliance with T/S by using procedure steps 3.11 thru 3.16 T/S reference numbers and surveillance item note(s), as applicable, for any log item(s) requiring additional action.

2. Operators signature below indicates appropriate subsection of Attachment 1 and any Attachment checked (✓) above have been completed.

	DAY	EVE (See Note 3.1)	MID (See Note 3.1)
Attachment 1a Control Room	_____	_____	_____
Attachment 1b Auxiliary Bldg	_____	_____	_____
Attachment 1c Reactor Bldg	_____	N/A _____	_____
Attachment 1d Turbine Bldg	_____	NA _____	NA _____
Attachment 1e Yard	_____	NA _____	NA _____

3. Signature below indicates review of all required attachments checked (✓) above has been completed, and approved for compliance with T/S requirements.

Day (Review Before 1300)	Eve (Review Before 2100)	Mid (Review Before 0500)
_____	_____	_____
SM/CRS	SM/CRS	SM/CRS

C. LOG COMPLETION

1. Operational Condition _____

2. Check (✓) Attachments that have been performed

1	____	3a	____	3f	____	3k	____	3r	____	3v	____	3z	____	4c	____
2	____	3c	____	3g	____	3m	____	3s	____	3w	____	3aa	____	5	
		3d	____	3h	____	3p	____	3t	____	3x	____	4a	____	N/A	
		3e	____	3j	____	3q	____	3u	____	3y	____	4b	____		

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: WCD_CRS_001

TASK: Perform WCD Review and Pre-Approval

2021 NRC SRO A3

Copy _____ of _____

JPM NUMBER: 305H-JPM.ZZ21A3 **REVISION:** 00

SAP BET: NOH05JPZZ21A3

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: OP-AA-109-115, Rev. 14 M-46-1, M-13-1

TOOLS, AND EQUIPMENT: M-46-1 [Large size]; OP-AA-109-115, Rev. 14;

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: Administrative

TASK NUMBER: WCD_CRS_001

TASK: Perform WCD Review and Pre-Approval

INITIAL CONDIITONS:

1. "A" CRD PP, and its associated piping and electrical component(s) needs to be **ISOLATED,** AND **DRAINED** to perform the inspection.
2. Venting points are NOT required.
3. **RACs must be isolated** to the "A" CRD Pump
4. "B" CRD Pump is in service
5. eSOMS is NOT available

INITIATING CUE:

You are the licensed Authorizing Supervisor designated to review and approve Work Clearance Documents (WCDs). You have been presented with the WCD for Independent Review and Pre-Approval in accordance with OP-AA-109-115, Safety Tagging Operations.

PERFORM the following:

1. Independently check that the WCD adequately isolates and drains the equipment to be worked. **NOTE:** Electrical breaker number(s) are NOT required to be identified. Additionally, the type of tag (Red blocking Tag, Worker Blocking Tag, etc.), and the sequence of blocking points, are NOT required to be identified.

2. Print markup is not required

3. **PRE-APPROVE** the WCD. The TAGOUT # is 12121212

   OR IF changes are required, THEN **IDENTIFY/ENTER** the changes on the WCD.

JPM NUMBER: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; M-46-1, and M-13-1; OP-AA-109-115; marked up OP-AA-109-115 FORMS 1 AND 4; 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 4.2.3.		
4.2.3.	**Perform WCD Independent Review and Pre-Approval (Approving Supervisor)** 1. The Approving Supervisor shall be designated by the Operations Director to approve WCDs.	Operator reads Step.		
NOTE:	Independence is maintained as follows: • Do not discuss the clearance with the clearance writer until the approving supervisor has developed his or her own idea of the clearance boundary • Use appropriate references (procedures, drawings, manuals, planning documents, etc.) • Separately assess and understand the work scope • Separately assess and understand the hazards • Separately walk down the work area, if needed • Mark up prints from a clean copy, especially for clearances on complex equipment where no historical/archived clearance is referenced • Do not read the draft boundary tag list until the above is complete	Operator reads NOTE.		
	2. The Initiator and Approving Supervisor shall be different individuals and independent. At least one individual must be a currently licensed SRO. **[CD-538E]**	Operator reads Step.		

JPM NUMBER: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. Perform the following: – Review applicable documents and drawings. – Independently check that the WCD adequately isolates the equipment to be worked.	Examiner Note: Only specific portions of 4.2.3.3 are being performed. ***Operator: Reviews M-46-1, M-13-1 and the WCD; Determines the following:** • BF-V034 – "A" PP Xtie to "B" PP – Should be tagged CLOSED. Not Identified • ED-V071– wrong valve identified. Should be ED-V070 tagged CLOSED • BF-V148 – tagged in wrong position. Should be OPEN Examiner Note: Tagging Point Description is NOT critical.		
EXAMINER NOTE:	**1. Tagging Point Description is NOT critical.** **2. HS 4011A May be identified (Handswitch) but is NOT CRITICAL**			
CUE:	**If operator requests additional information to complete the Tagging Point Description, STATE exact description is not required at this time.**			
	4. IF changes are required, THEN return the tagging package to the Initiator.	Operator does NOT sign for approval, and returns the package.		
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 required portions of the Approving Supervisor's Independent Review of the WCD in accordance with OP-AA-109-115.				

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

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ21A3 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ21A3

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/15/20	New JPM.	Y
00	1/21/21	NRC Comments incorporated. Validated by 2 SROs	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ21A3 **REV#:** 00
TASK: Perform WCD Review and Pre-Approval

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
S. Laning	SRO	On File	11/20/20
M. Rooney	SRO	On File	1/21/21

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. "A" CRD PP, and its associated piping and electrical component(s) needs to be **ISOLATED,** AND **DRAINED** to perform the inspection.
2. Venting points are NOT required.
3. **RACs must be isolated** to the "A" CRD Pump
4. "B" CRD Pump is in service
5. eSOMS is NOT available

INITIATING CUE:

You are the licensed Authorizing Supervisor designated to review and approve Work Clearance Documents (WCDs). You have been presented with the WCD for Independent Review and Pre-Approval in accordance with OP-AA-109-115, Safety Tagging Operations.

PERFORM the following:

1. Independently check that the WCD adequately isolates and drains the equipment to be worked.

   NOTE: The type of tag (Red blocking Tag, Worker Blocking Tag, etc.), and the sequence of blocking points, are NOT required to be identified.

2. **PRE-APPROVE** the WCD; The TAGOUT # is 12121212

   OR

   IF changes are required, THEN **IDENTIFY/ENTER** the changes on the WCD.

FORM 1
WORK CLEARANCE DOCUMENT:

ESO NUMBER:

WORK CLEARANCE DOCUMENT INFORMATION	
EQUIPMENT UNAVAILABLE/Reference object:	"A" CRD Pump AP207
COMMENTS:	
SPECIAL INSTRUCTIONS FOR TAGGING:	
Ensure RACS is isolated to the thrust bearing and gear box oil cooler	
Venting is NOT required	
INITIATED BY: *John Smith*	**DATE:** *Today*
PRE-APPROVED BY:	**DATE:**
TAGUT AUTHORIZED BY: **(ON-DUTY SM/CRS/WCCS)**	**DATE:**

TAGGING RELEASE INFORMATION	
SPECIAL INSTRUCTIONS FOR RELEASE:	
TAGOUT RELEASE APPROVED BY:	**DATE:**
RELEASED CONFIRMED (IF eSOMS MODULE UNAVAILABLE UPON REQUEST)	

JOB PERFORMANCE MEASURE

TRAINING ONLY

FORM 4
TAGGING / UNTAGGING WORK LIST

☒ REQUEST

☐ RELEASE TYPE (circle one) FULL PARTIAL TEMPORARY

DISCIPLINE REVIEWS: _____

TAGOUT NUMBER: 12121212 **This Worksheet: Page** 1 **of** 1

Seq.	FLOC Identifier	Tagging Point Description	Tag Type	Current Position	Desired Position	Apply/Release Date/Time	QO Initials	Verified Date/Time	QO Initials
[redacted]	BF-V003	"A" CRD PP Suction Valve	[redacted]	[redacted]	CLOSED	[redacted]	[redacted]	[redacted]	[redacted]
	BF-V007	"A" CRD PP Discharge Valve			CLOSED				
	BF-V102	"A" CRD PP Min Flow Vavle			CLOSED				
	ED-V036	RACS into "A" CRD PP Oil Cooler			CLOSED				
	BF-V071	RACS from "A" CRD PP Oil Cooler			CLOSED				
	BF-V148	A" CRD PP Drain Valve			CLOSED				
	BF-V149	A" CRD PP Drain Valve			OPEN				
	"A" CRD PP BKR	"A" CRD PP BKR			OPEN				
	•								

TAGGED BY: _____ **DATE/TIME:** _____ **VERIFIED BY:** _____ **DATE/TIME:** _____

Training ONLY

JOB PERFORMANCE MEASURE

Copy _____ of _____

STATION: Hope Creek

2021 NRC SRO A4

SYSTEM: Administrative

TASK NUMBER: 2990740302

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

JPM NUMBER: 305H-JPM.ZZ032 **REVISION:** 08

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 CONDIITONS:

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.

JPM NUMBER: ZZ032 **NAME:** _____

REV NUMBER: 08 **DATE:** _____

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(or 6.3) 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.		

JPM NUMBER: ZZ032 **NAME:** _____

REV NUMBER: 08 **DATE:** _____

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: ZZ032 **NAME:** _____

REV NUMBER: 08 **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 actions required.				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ032 **NAME:** _____
REV NUMBER: 08 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ032

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	11/9/08	Converted ZZ032 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Changed JPM to have CRS review completed GP.ZZ-0004 instead of completing the final step. This has greater Operational Validity for the SRO position. Added Examiner Cue: "IF the Operator goes beyond the Leak Rate Determination Tech Specs, CUE the Operator to stay with the Leak Rate Determination." per Chief Examiner request.	Y
02	12/30/11	Updated reference procedures. No changes to operator actions. No validation required.	N
03	7/2/13	Updated reference procedure. No changes to operator actions, critical steps	N
04	6/8/2016	Modified format and Critical Steps. Validated with 2 SROs.	Y
05	9/6/2016	Modified Initiating Cue. Editorial.	N
06	9/15/2017	Revised Procedure Revision Number only. Editorial.	N
07	9/19/2018	Revised Technical Specification Amendment Number. Editorial.	N
08	6/17/2019	Revised Technical Specification Amendment Number. Editorial. Incorporated comments during review. Editorial	N
08	1/21/21	Reviewed by 2 SROs . No changes required.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ032 **REV#:** 08

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
M. Fleming	SRO	SIGNATURE ON FILE	11/20/20

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

STATION: Hope Creek

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

2021 NRC SRO A5

Copy _____ of _____

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

JPM NUMBER: 305H-JPM.ECG002 **REVISION:** 07

SAP BET: NOH05JPCL02E

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. 7 EP-HC-325-101 Rev. 0

EAL Flowcharts and EAL Wallcharts HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-325-F*[1-5, 24]; EP-HC-325-101; EAL Flowcharts and EAL Wallcharts: HCGS ECG – EAL Technical Basis; Phone with EP Aid-031-Simulator Only.

ESTIMATED COMPLETION TIME: 12 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 15 Minutes

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

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

INITIAL CONDIITONS:

1. The plant was operating at 100% power with Plant Effluent activity of:
   - 1.17E+01 µCi/sec Noble Gas
   - 1.17E-02 µCi/sec I-131
2. Hope Creek experienced an earthquake which indicates a magnitude of > 0.1g.
3. Control Room Annunciator C6-C4 is in alarm.
4. ON Panel 10C673:
   - The SMA-3 Event Indicator is White.
   - The Strong Motion Accelerograph Tape Machines have advanced but are not currently running.
   - The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit.
5. Numerous amber lights and 3 red lights are lit on the response Seismic Response Spectrum Annunciator.
6. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to –250"; then stabilizing between –225" and –205", and is being maintained using all available ECCS (2 LPCI Loops only).
7. Drywell Pressure peaked at 44 psig, then dropped to < 2 psig over the next 90 seconds, and continues to slowly drop.
8. The current 33 ft. elevation wind direction is from 163° at 11 mph.
9. Plant Effluent activity is:
   - 3.27E+08 µCi/sec Noble Gas
   - 3.27E+06 µCi/sec I-131
10. DAPA monitors indicate:
    - 1.942E+04 R/HR DAPA A
    - 1.761E+04 R/HR DAPA B

INITIATING CUE:

Based on this information, **CLASSIFY** this event.

This is a time critical task.

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

JPM NUMBER: ECG002 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

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				
	Classification	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 flowcharts or EAL wallcharts. The user of the EAL flowcharts or wallcharts may (but is not required to) consult the EAL Technical Basis in order to obtain additional information concerning the EALs under classification consideration. To use the EAL flowcharts or 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 H, R, and S, are appropriate ECG categories; and H2, R1, and S5 are appropriate subcategories.		
4.4	For each applicable subcategory, review EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).	Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in H2, and R1.		

JPM NUMBER: ECG002 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

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.	Operator examines the FPB categories in the left column of the table.		
	b . Select the category that most likely coincides with event conditions.	Operator selects categories RPV Level; and RPV/DrywellPressure /Temperature/H2 & O2 Levels/RCS Leakage, Leak isolation, PC venting, and most likely coincide with event conditions.		
	c. Review all thresholds in this category for each fission product barrier.	Operator reviews all thresholds in each of the categories identified in 5.b for each fission product barrier, and determines FB1.L or FB2.L, RB1.L or RB2.L, and CB1.L or CB2.L apply to this event.		
	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 Bases, Attachment 1).	Operator proceeds to the FPB Table to determine the point values and classification level.		

JPM NUMBER: ECG002 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
Hope Creek-Fission Product Barrier Table				
	Use of Fission Product Barrier Table **OPCONs** 1 2 3 _ _ _ A point system is used to determine the Emergency Classification Level based on the Fission Product Barrier Table. Each Fission Product Barrier Loss and Potential Loss threshold is assigned a point value as noted below. Perform the following: 1. Review all columns of the Fission Product Barrier Table and identify which need further review. 2. For each of the three barriers, determine the EAL with the highest point value. No more than one EAL should be selected for each barrier. 3. Add the point values for the three barriers. 4. Classify based on the point value sum as follows:	Operator identifies the point values **FB1.L (or FB2.L) = 5 points, RB1.L (OR RB2.L) = 5 points, and CB1.L (or CB2.L) = 3 points.** ***Operator adds the values, for a total of: 13 points – General Emergency.**		

If sum is:	Classify as:	Emergency Action Levels (EALs)	Refer to ECG ATT#
4, 5	ALERT	**ANY** loss or **ANY** potential loss of either Fuel Clad or RCS	2
6 - 11	SITE AREA EMERGENCY	Loss or potential loss of **ANY** two barriers, **OR** Potential loss of 2 barriers with the loss of the 3rd barrier	3
12 Or 13	GENERAL EMERGENCY	Loss of **ANY** two barriers **AND** Loss or potential loss of the third barrier	4

5. Implement the appropriate ECG Attachment per above table.
6. Continue to review the Fission Product Barrier Table for changes that could result in emergency escalation or de-escalation.

JPM NUMBER: ECG002 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
EP-HC-111-101				
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 RS1.1 as the highest emergency action level met or exceeded (SAE). However, the classification determined by the FPB Table (GENERAL EMERGENCY) is the highest.		
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.	N/A	
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. **FINISH TIME:** _____ **NOTE: Start to Finish time must be ≤ 15 minutes.**		
CUE:	**IF the Operator requests the STA/IA to independently verify the EAL Classification, THEN INFORM the Operator the STA/IA is not available.** **Inform Operator JPM is complete**			
Task Standard: Within 15 minutes, Operator declares a General Emergency in accordance with EALs FB1.L (OR (FB2.L), RB1.L (OR RB2.L), and CB1.L (OR CB2.L).				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ECG002 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ECG002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	9/2/2015	Complete rewrite. Modified ECG006, Revision 8 to include a release in progress. Validated with two SROs.	Y
04	10/1/2015	Revised due to procedure revisions. No significant change to operator actions. No validation required.	N
05	8/26/2017	Minor Editorial Changes made to Initiating Cue. Added reference to Operator Fundamentals of SER 3-05. [IER L1-11-3 Rec. 3b] Editorial change only. No changes to operator actions. No validation required.	N
06	9/4/2018	Revised procedure revision number. No changes to operator actions. No validation required.	N
07	9/4/2019	Revised based on new revision to EP-HC-325.	Y
07	1/21/21	Validated by 2 SROs for NRC exam – No changes	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ECG002 **REV#:** 07

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. Rooney	SRO	On File	1/21/21
M. Fleming	SRO	On File	1/21/21

JOB PERFORMANCE MEASURE

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. Hope Creek experienced an earthquake which indicates a magnitude of > 0.1g.
3. Control Room Annunciator C6-C4 is in alarm.
4. ON Panel 10C673:
   - The SMA-3 Event Indicator is White.
   - The Strong Motion Accelerograph Tape Machines have advanced but are not currently running.
   - The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit.
5. Numerous amber lights and 3 red lights are lit on the response Seismic Response Spectrum Annunciator.
6. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to –250"; then stabilizing between –225" and –205", and is being maintained using all available ECCS (2 LPCI Loops only).
7. Drywell Pressure peaked at 44 psig, then dropped to < 2 psig over the next 90 seconds, and continues to slowly drop.
8. The current 33 ft. elevation wind direction is from 163° at 11 mph.
9. Plant Effluent activity is:
   - 3.27E+08 µCi/sec Noble Gas
   - 3.27E+06 µCi/sec I-131
10. DAPA monitors indicate:
    - 1.942E+04 R/HR DAPA A
    - 1.761E+04 R/HR DAPA B

INITIATING CUE:

Based on this information, **CLASSIFY** this event.

This is a time critical task.

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

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Feedwater

TASK NUMBER: 4000510401

TASK: Respond To Rising Drywell Pressure

NRC 2021
JPM A

Copy _____ of _____

JPM NUMBER: 305H-JPM.AE004 **REVISION:** 14

SAP BET: NOH05JPAE04E

K/A NUMBER: 290002 A2.01 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 4.0

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0001 Rev. 3 HC.OP-SO.AE-0001 Rev. 78

TOOLS, AND EQUIPMENT: Keys for: RCIC HV-F013; HPCI HV-8278; and FW Cross-Tie HV-4144

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: Feedwater

TASK NUMBER: 4000510401

TASK: Respond To Rising Drywell Pressure

INITIAL CONDIITONS:

1. The plant was at 100% power when a LOCA with indications of major fuel failure occurred.
2. The plant is depressurized.
3. The HPCI and RCIC jockey pumps are available.
4. RPV water level is being maintained by another operator.
5. HC.OP-AB.CONT-0001 Condition D is being implemented.

INITIATING CUE:

PLACE a water seal on BOTH the 'A' AND 'B' Feedwater headers using HPCI in accordance with HC.OP-SO.AE-0001.

JPM NUMBER: AE004 **NAME:** _____

REV NUMBER: 14 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND copy of HC.OP-SO.AE-0001. **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations of HC.OP SO.AE 0001.		
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 4.17.1.		
NOTE	The HPCI AND the RCIC Jockey Pump Loops are used to maintain a water seal in the Feedwater lines following a LOCA.	Operator reads and initials the NOTE.		
4.17.1.	**ENSURE** all prerequisites of Section 3.17 are satisfied.	Operator ensures that all prerequisites have been satisfied, and initials Step. Examiner Note: The Initial Conditions state that the HPCI and RCIC jockey pumps are available.		
CUE:	**IF excessive time is taken reviewing prerequisites, THEN INFORM operator that all are satisfied.**			
4.17.2.	**ENSURE** the following valves are closed: • BJ-HV-8278, HPCI DSCH THRU FW ISLN MOV	Operator observes the HPCI DSCH THRU FW ISLN MOV HV8278 OPEN light is illuminated and CLSD light is extinguished. ***Operator presses the HV8278 CLOSE pushbutton,** observes the HV8278 CLSD light illuminates and the OPEN light extinguishes, and initials Step. **Examiner Note: 30 seconds after pressing the HV8278 CLOSE pb the AP228 HPCI Jockey Pump will trip.**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator recognizes HPCI Jockey Pump trip by OHAs and OVLD/PWR FAIL indication. Operator informs CRS of HPCI Jockey pump trip.		
CUE:	**INFORM the Operator the trip of the HPCI Jockey pump will be investigated by another operator.** **DIRECT the Operator to continue to place a water seal on the 'A' & 'B' Feedwater lines.**			
	• BD-HV-F013, RCIC PUMP DSCH TO FW	Operator observes the F013 CLSD light illuminated and the OPEN light extinguished, and initials Step.		
	• HV-F032A, FW INLET CHK VLV	Operator observes the FW INLET CHK VLV HVF032A OPEN light is illuminated and the CLOSE light is extinguished. ***Operator presses the HVF032A CLOSE pushbutton,** observes the HVF032A CLOSE light illuminates and the OPEN light extinguishes, and initials Step.		
	• HV-F032B, FW INLET CHK VLV	Operator observes the FW INLET CHK VLV HV-F032B OPEN light is illuminated and CLOSE light is extinguished. ***Operator presses the HVF032B CLOSE pushbutton,** observes the HVF032B CLOSE light illuminates and the OPEN light extinguishes, and initials Step.		
	• HV-4144, FW LINE CROSS-TIE ISL VLV	Operator observes the HV-4144, FW LINE CROSS-TIE ISL VLV CLOSE light is illuminated and OPEN light is extinguished, and initials Step.		
	• HV-F039, OP/V021 RWCU RTN – RPV	***Operator presses the HV-F039, OP/V021 RWCU RTN – RPV, CLOSE pushbutton, observes the HV-F039 CLSD light illuminates and the OPEN light extinguishes, and initials Step.**		

JPM NUMBER: AE004 **NAME:** _____

REV NUMBER: 14 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
4.17.3.	IF AP228, HPCI JOCKEY PUMP will be used to seal the B Feedwater Line, OR BP228, RCIC JOCKEY PUMP will be used to seal the A Feedwater Line, THEN **PERFORM** the following: A. **PLACE** the keylock switch for HV-4144, FW LINE CROSS-TIE ISLN VLV, in the ON position to arm the control switch.	Based on current conditions, Operator determines that this Step now applies. ***#Operator inserts key and places the Keylock switch for the HV-4144, FW CROSS TIE LINE ISLN, in the ON position,** and initials Step. Examiner Note: OHA B3-D2 FEEDWATER LINE FILL ALT MODE will alarm.		
	B. **OPEN** HV-4144, FW LINE CROSS-TIE ISL VL	Operator observes the HV-4144, FW LINE CROSS-TIE ISL VLV CLOSE light is illuminated and OPEN light is extinguished. ***Operator presses the FW CROSS TIE LINE ISLN HV-4144 OPEN pushbutton,** observes the OPEN light illuminates and the CLOSED light extinguishes, and initials Step.		
4.17.4.	IF AP228, HPCI JOCKEY PUMP is to be used to seal one or both Feedwater lines, THEN **PERFORM** the following: ...	Based on current conditions, Operator determines that this step does not apply, marks Step as N/A, and continues at step 5.17.5.		
4.17.5.	IF the BP228, RCIC JOCKEY PUMP is to be used to seal one or both Feedwater lines, THEN **PERFORM** the following: A. **PLACE** the NORM/BYPASS Keylock Switch for BD-HV-F013, RCIC PUMP DSCH TO FW, in the BYPASS position to arm the Control Switch.	***#Operator inserts key and places the Keylock switch for the RCIC HV-F013 in the BYPASS position,** and initials Step. Examiner Note: OHA B3-D2 FEEDWATER LINE FILL ALT MODE will alarm.		

JPM NUMBER: AE004 **NAME:** _____

REV NUMBER: 14 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	B. **OPEN** BD-HV-F013, RCIC PUMP DSCH TO FW.	Operator observes the RCIC PUMP DSCH TO FW HVF013 CLSD light is illuminated and OPEN light is extinguished. ***Operator presses the HVF013 OPEN pushbutton,** observes the OPEN light illuminates and the CLSD light extinguishes, and initials Step.		
	C. **OPEN** BD-HV-F012, RCIC PUMP DSCH VLV.	Operator observes the HV-F012 OPEN light is illuminated and CLSD light is extinguished, and initials Step.		
	D. WHEN required, THEN **START** BP228, RCIC JOCKEY PUMP.	Operator observes the RCIC JOCKEY PUMP red RUNNING light is illuminated and green STOPPED light is extinguished, 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 places a Water Seal on the A & B Feedwater Lines in accordance with HC.OP-SO.AE-0001 using the RCIC Jockey Pump.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: AE004 **NAME:** _____

REV NUMBER: 14 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AE004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
09	9/10/2014	Revised format and Standard terminology. Editorial changes. Updated procedure revision number. Editorial change. Revised Cue following AP228 trip. Editorial change. Removed Critical Step identifications for 5.17.5.C and D due to observation only. Editorial change. Changes have no effect on operator actions and timing.	N
10	5/29/2016	Revised procedure Revision Number. Editorial changes only.	N
11	7/26/2016	Added @ description per IER L1-11-3 Rec. 3b. Editorial.	N
12	11/14/2017	Revised reference procedure Revision Number and Step Number only. Modified Initial Conditions and Simulator Setup. Validated with SRO and RO.	Y
13	7-20-20	Revised reference procedure Revision Number. JPM action steps unchanged & renumbered. Editorial changes only.	N
14	1-23-20	Revalidated for NRC exam. Designated HV-F039 operation a critical step	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: AE004 **REV#:** 14
TASK: Respond To Rising Drywell 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
E. Heil	RO	On File	1/22/21
J. Williams	RO	On File	1/22/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: AE004 **REV#:** 14

INITIAL CONDITIONS:

I.C.	
Initial	

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

_____ **INSERT** Malfunction CR01 at 100% using ET-1.

_____ WHEN MSL Radiation levels reach 3xNFPB, THEN **INSERT** Malfunction RRO3A using ET-2.

_____ **INSERT** Malfunction RM9635 to 5211 and RM9636 to 5185 to raise DAPA RMS readings using ET-3.

_____ **IMPLEMENT** EOP-101 AND EOP-102.

_____ **ENSURE** MSIVs are closed.

_____ **TRIP** all PCPs AND SCPs.

_____ **TRIP** RHR Pump A.

_____ **ESTABLISH** RPV water level control.

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

_____ **ENSURE** F013 is CLOSED

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

Initial	**Description**

_____ **ENSURE** a copy of HC.OP-SO.AE-0001 is available.

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

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

EVENT FILE:

Initial	**ET**	
	4	Event code: ZDHP278C >=1.0 Description: HPCI 8278 CLOSE pb pressed// Trips HPCI Jockey Pump

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CR01 to 100.00000 on event 1	Fuel cladding leak
	None	None	Insert malfunction RR03A on event 2	Recirc pump A suction pipe failure
	None	None	Insert malfunction RM9635 to 5211.00000 on event 3	9RX635, DAPA 'A' - Drywell Atmos Post-Accident Chan 'A'
	None	None	Insert malfunction RM9636 to 5185.00000 on event 3	9RX636, DAPA 'B' - Drywell Atmps Post-Accident Chan 'B'
	None	None	Insert malfunction AN-B1E4 after 30 on event 4	CRYWOLF ANN B1E4 HPCI JOCKEY PUMP 1AP228 TROUBLE
	None	None	Insert malfunction AN-B1F3 after 30 on event 4	CRYWOLF ANN B1F3 HPCI COMPONENT O/PF

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote IA10 to RUN	IA10 Temporary station air compressor
	None	None	Insert remote ET066 to FAIL_OPEN on event 2	ET066 HV-8278 HPCI to FW
	None	None	Insert remote ET066 after 1 to NORMAL on event 4	ET066 HV-8278 HPCI to FW

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 9S139_A_DI after 30 to Off on event 4	HPCI JOCKEY START/STOP (DI)
	None	None	Insert override 9S138_A_LO after 30 to On on event 4	AP228 OVLD/PWR FAIL (LO)
	None	None	Insert override 9DS111_B_LO after 30 to Off on event 4	AP228 STOPPED (LO)
	None	None	Insert override 9M6_R_AO after 30 from 95.00000 to 0 in 5 on event 4	PI-4891 R (AO)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was at 100% power when a LOCA with indications of major fuel failure occurred.
2. The plant is depressurized.
3. The HPCI and RCIC jockey pumps are available.
4. RPV water level is being maintained by another operator.
5. HC.OP-AB.CONT-0001 Condition D is being implemented.

INITIATING CUE:

PLACE a water seal on BOTH the 'A' AND 'B' Feedwater headers using HPCI in accordance with HC.OP-SO.AE-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: High Pressure Coolant Injection

TASK NUMBER: 2060180201

TASK: Place HPCI in Full Flow Test Operation

2021 NRC
JPM B

Copy _____ of _____

JPM NUMBER: 305H-JPM.BJ014 **REVISION:** 07

SAP BET: NOH05JPBJ14E

K/A NUMBER: 206000 A4.06 **IMPORTANCE FACTOR:** RO: 4.3 SRO: 4.3

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Rev 38

TOOLS, AND EQUIPMENT: None

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: High Pressure Coolant Injection

TASK NUMBER: 2060180201

TASK: Place HPCI in Full Flow Test Operation

INITIAL CONDIITONS:

1. The Reactor has scrammed due to a spurious Group 1 isolation.
2. All control rods are full in.
3. RCIC has automatically initiated on low reactor water level and is injecting to the RPV.
4. HPCI has automatically initiated on low reactor water level and is injecting to the RPV.
5. Reactor water level is currently approximately -15 inches and slowly rising.
6. RHR Loop B is in Suppression Pool Cooling.
7. Another operator is controlling RPV level.

INITIATING CUE:

PLACE HPCI into the Full Flow Test Mode in order to commence a plant cooldown IAW HC.OP-AB.ZZ-0001(Q), Attachment 6.
The simulator will remain in FREEZE until you are ready to start the task.

JPM NUMBER: BJ014 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, **ENTER** START TIME AFTER Operator repeats back the Initiating Cue AND states ready to begin. **START TIME:** _____			
NOTE:	**Evaluator should be positioned to the right of HPCI (SRV side) to better observe operator actions**			
CUE:	**PLACE the simulator in RUN, and inform the Operator that the simulator is in RUN.**			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
NOTE	Loss of 1AD481, 1CD481, 1AD482, or 1CD482 may affect controls and indication.	Operator reads and initials NOTE.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.0 on page 6 of 8.		
2.0	IF HPCI is in the Injection Mode of Operation, THEN **PERFORM** the following: A. IF necessary, **RESET** HPCI INITIATION LOGIC.	***Operator depresses the RESET HPCI INITIATION LOGIC pushbutton,** and initials Step.		
	B. **ADJUST** FIC R600 HPCI FLOW setpoint (STPT) to zero %	Operator depresses the Lower Setpoint Pushbutton until zero % indication is reached on FIC-R600, and initials Step. Examiner Note: Under the Initial Conditions, HPCI will trip on RPV High Water Level 8 in ≈2.5 minutes with no operator action once the simulator is taken out of FREEZE.		
	C. WHEN FLOW indicates zero gpm THEN **CLOSE** HV-F006.	***When zero gpm is reached, operator depresses the CLOSE pushbutton for HV-F006,** and initials Step.		
	D. **CLOSE** HV-8278.	***Operator depresses the CLOSE pushbutton for HV-8278,**		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	E. **ENSURE** HPCI AND RCIC Suctions are lined up to the CST.	Operator observes HPCI AND RCIC Suctions are lined up to the CST. (OPEN lights for BJ-HV-F004 and BD-HV-F010 are illuminated) and initials Step.		
	F. **PRESS** HV-F008 INCR PB for ≈ 20 seconds	***Operator depresses the HV-F008 INCR pushbutton for approximately 20 seconds and observes the OPEN light illuminate, resulting in dual indication for the F008,** and initials Step. Examiner Note: Any timing method is acceptable, as the time requirement is "approximately" 20 seconds.		
	G. **OPEN** AP-HV-F011.	***Operator depresses the AP-HV-F011 OPEN pushbutton,** and initials Step.		
Examiner Note: Pressing the AP-HV-F011 pushbutton will activate ET-1, starting a slow rise in Suppression Pool water level.				
	H. **ADJUST** FIC-R600 setpoint to achieve 3000 gpm flow.	***Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow indicates approximately 3000 gpm on FIC-R600,** and initials Step.		
Examiner Note: WHEN Suppression Pool Water Level reaches 78.5 inches, Overhead Annunciator B1-C3 SUPPRESSION POOL LEVEL HI/LO alarm and HPCI suction transfer occur. Performance of the next Step may/may not be observed.				
	I. THROTTLE HV-F008 AND **ADJUST** FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/reactor pressure.	Operator throttles and adjusts FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/ reactor pressure.		

STEP NUMBER	ELEMENT	**(*Critical Step) (#Sequential Step)** STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		Operator identifies HPCI Suction Swap is occurring based on OHA B1-C3 and HPCI Pump suction auto-transferring from the CST (HV-F004) to the Torus (HV-F042). Operator announces 'Suppression Pool Level Hi(/Lo)', and informs CRS.		
		Examiner Note: The following actions may be performed by the Operator using the guidance from HC.OP-AB.ZZ-0001, Attachment 6 section for HPCI Suction Transfer to CST without/prior to direction from the CRS based on the direction in step 1.0 of that section.		
Operator identifies the need to perform HC.OP-AB.ZZ-0001, Attachment 6 section for HPCI Suction Transfer to CST (page 7) and take the required actions from that section.				
CUE:	**IF necessary, DIRECT the Operator to transfer HPCI suction back to the CST and place HPCI in Full Flow Test mode to continue plant cooldown in accordance with HC.OP-AB.ZZ-0001.**			
NOTE	Loss of 1AD481 may affect controls and indication.	Operator reads and initials NOTE.		
1.0	IF a HPCI Suction Transfer has occurred while in Full Flow Test, OR HPCI is in Full Flow Test AND a Suction Swap is anticipated, THEN **PERFORM** the following: A. **ADJUST** FIC R600 Flow Setpoint to zero gpm.	***Operator depresses the Lower Setpoint Pushbutton until zero gpm flow indication is reached on FIC-R600,** and initials Step.		
	B. IF required, **CLOSE** AP-HV-F011.	Operator may depress the CLOSE Pb for AP-HV-F011, and initials Step. Examiner Note: Valve will auto close when BJ-HV-F042 is full open.		
	C. WHEN Suction Swap to Suppression Pool is completed, (HV-F042 OPEN, HV-F004 and AP-HV-F011 are CLOSED) THEN **PROCEED** in this Attachment.	Operator observes position indication and when the CST Suction valve HV-F004 indicates CLSD and the Torus Suction valve HV-F042 indicates open, and initials Step.		

JPM NUMBER: BJ014 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
2.0	**PRESS** HV-F042 AUTO OPEN OVRD Pushbutton AND **VERIFY** the HV-F042 OVRD Light is LIT.	***Operator depresses the OVRD Pb for HV-F042,** and initials Step.		
3.0	IF a HPCI Initiation Signal is present, THEN **PERFORM** the following:	Operator identifies that the HPCI Initiation Signal is **NOT** present, marks Step as N/A, and proceeds to Step 4.0. Examiner Note: The initiation signal was reset during the initial actions to place HPCI in Full Flow Test.		
4.0	IF a HPCI Initiation Signal is NOT present, THEN **PERFORM** the following: A. **PRESS** the HV-F042 CLOSE Pushbutton	***Operator depresses the HV-F042 CLOSE Pb,** and initials Step.		
	B. WHEN HV-F042 indicates dual position, THEN **OPEN** HV-F004.	Operator observes both the OPEN and CLSD lights are illuminated for HV-F042, ***Operator depresses the HV-F004 OPEN Pb,** and initials Step.		
CUE:	**IF the CRS is asked about restoring HPCI to full flow test, DIRECT the Operator to restore HPCI to the Full Flow Test mode to continue plant cooldown.**			
5.0	IF required, **RESTORE** HPCI to Full Flow Test as follows: A. **ADJUST** FIC-R600 HPCI FLOW setpoint to 1000 gpm.	***Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow setpoint indicates approximately 1000 gpm on FIC-R600,** and initials Step.		
	B. **IMMEDIATELY OPEN** AP-HV-F011.	***Operator depresses the AP-HV-F011 OPEN pushbutton,** and initials Step.		

JPM NUMBER: BJ014 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. WHEN Discharge Pressure turns **ADJUST** FIC-R600 setpoint to 3000 gpm.	WHEN HPCI discharge pressure begins to lower, Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow setpoint indicates approximately 3000 gpm on FIC-R600, and initials Step. Examiner note: The termination statement by the Operator may be a report to the CRS that HPCI is in Full Flow Test mode of operation. At that time it is acceptable to terminate the JPM.		
	D. **THROTTLE** HV-F008 AND **ADJUST** FIC-R600 setpoint, as necessary, to control HPCI pump parameters/reactor pressure.	Operator throttles and adjusts FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/ reactor pressure.		
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 HPCI in Full Flow Test mode and returns to Full Flow Test mode after HPCI Suction Transfers to CST in accordance with HC.OP-AB.ZZ-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BJ014 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BJ014

REVISION HISTORY

Rev #	Date	Description	Validation Required?
4	7/26/2016	Updated due to procedure revision. Revised format. Changed Step 1.0 B to not critical since valve will auto close when BJ-HV-F042 is full open. Added Note describing valve operation. No changes to operator actions. Modified Initial Conditions.	N
05	1/12/2018	Incorporated comments from NRC.	N
06	10/9/19	Reference procedure, HC.OP-AB.ZZ-0001, revised. No change to JPM steps. Editorial only.	N
07	8/12/20	Reference procedure, HC.OP-AB.ZZ-0001, revised. No change to JPM steps. Editorial only.	N
08	1/22/21	Revalidated for NRC exam. Added note to evaluator regarding observation area	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BJ014 **REV#:** 07

TASK: Place HPCI in Full Flow Test Operation

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. Williams	RO	ON FILE	1/22/21
E. Heil	RO	ON FILE	1/22/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: BJ014 **REV#:** 07

INITIAL CONDITIONS:

I.C.

Initial	

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

_____ **INSERT** Malfunction MS15 Spurious MSIV Closure.

_____ **IMPLEMENT** EOP-101 and EOP-102.

_____ **STABILIZE** Reactor Pressure using SRV's

_____ WHEN Reactor Water Level reaches -38 inches, **CONTROL** HPCI and RCIC injection to restore Reactor Water level. **STABILIZE** Reactor Water Level at approximately -15 inches with HPCI (at a low injection rate) and RCIC injecting.

_____ **PLACE** 'B' RHR in Suppression Pool Cooling mode of operation.

_____ **ESTABLISH** Suppression Pool level at approximately 77.9 inches.

_____ **STATION** Instructor in Outer/Inner horseshoe to acknowledge overhead alarms/control pressure/RCIC flow.

_____ **ENSURE RPV water level remains greater than -38 inches to prevent an initiation signal.**

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

Initial	Description

_____ **ENSURE** a copy of HC.OP-AB.ZZ-0001 is available.

_____ **MARKUP** HC.OP-AB.ZZ-0001, Attachment 6 for HPCI injection.

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

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

EVENT FILE:

Initial	ET	
	2	Event code: ZDHPF11O Description: APHV-F011 open pushbutton pressed
	3	Event code: ZDHPCSTO Description: HV-F042 AUTO OPEN OVRD pushbutton pressed

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction MS15	Spurious Group 1 isolation

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote CS01 to 30.00000 on event 2	CS01 CST to core spray pump A valve V049
	None	None	Insert remote CS01 to 0 on event 3	CS01 CST to core spray pump A valve V049
	None	None	Insert remote CS25 to 100.00000	CS25 CS CST to A/CP206 suction (AP-V027) -(EOP-315)

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Reactor has scrammed due to a spurious Group 1 isolation.
2. All control rods are full in.
3. RCIC has automatically initiated on low reactor water level and is injecting to the RPV.
4. HPCI has automatically initiated on low reactor water level and is injecting to the RPV.
5. Reactor water level is currently approximately -15 inches and slowly rising.
6. RHR Loop B is in Suppression Pool Cooling.
7. Another operator is controlling RPV level.

INITIATING CUE:

PLACE HPCI into the Full Flow Test Mode in order to commence a plant cooldown IAW HC.OP AB.ZZ-0001(Q), Attachment 6.

The simulator will remain in FREEZE until you are ready to start the task.

JOB PERFORMANCE MEASURE

NRC –C-

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Reactor Core Isolation Cooling

TASK NUMBER: 5000040501

TASK: Place RCIC In Service From The RSP

JPM NUMBER: 305H-JPM.BD014 **REVISION:** 04

SAP BET: NOH05JPBD14E

K/A NUMBER: 217000 A3.02 **IMPORTANCE FACTOR:** RO: 3.6 SRO: 3.5

ALTERNATE PATH: ☐

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

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.HVAC-0002 Rev. 12

TOOLS, AND EQUIPMENT: Stopwatch

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: Reactor Core Isolation Cooling

TASK NUMBER: 5000040501

TASK: Place RCIC In Service From The RSP

INITIAL CONDIITONS:

1. The control room has been abandoned due to dense smoke.
2. HC.OP-AB.HVAC-0002, Control Room Environment, is being implemented.
3. The Reactor has been scrammed, and all control rods are fully inserted.
4. Condition 'C' of AB.HVAC-0002 has been completed up to step C.9.
5. The PSV-F013P SRV is stuck open and RPV water level is lowering.

INITIATING CUE:

ESTABLISH control at the Remote Shutdown Panel (RSP); **PLACE** RCIC in service from the RSP; AND **COMMENCE INJECTION** to the Reactor Vessel in accordance with HC.OP-AB.HVAC-0002.
The simulator is in freeze and will be placed in run after you acknowledge the Initiating Cue.

JPM NUMBER: BD014 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
NOTE 2	The following actions are performed when initially establishing control at the Remote Shutdown Panel prior to executing HC.OP-IO.ZZ-0008(Q).	Operator reads Note and initials Step.		
NOTE 3	IF the Reactor was NOT scrammed AND the MSIVs are still open, then the Feedwater System AND the Main Turbine Bypass Valves may be regulating Rx level AND Rx pressure at this time.	Operator reads Note and initials Step.		
C.9	**MONITOR** the following Plant Parameters: • Reactor Pressure • Reactor Level	Operator notes required parameter indications on PR-7853D and LR-7854, and initials Step.		
C.10	**PLACE** the following RSP Panel Transfer Switches to EMER: • Channel 'A' TRANSFER	***Operator rotates the Channel 'A' TRANSFER switch to EMERGENCY** observes the NORMAL light extinguishes and EMERGENCY light illuminates, and initials Step.		
	• Channel 'C' TRANSFER	***Operator rotates the Channel 'C' TRANSFER switch to EMERGENCY** observes the NORMAL light extinguishes and EMERGENCY light illuminates, and initials Step.		
	• Channel 'B' TRANSFER	***Operator rotates the Channel 'B' TRANSFER switch to EMERGENCY** observes the NORMAL light extinguishes and EMERGENCY light illuminates, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	• Channel 'D' TRANSFER	***Operator rotates the Channel 'D' TRANSFER switch to EMERGENCY** observes the NORMAL light extinguishes and EMERGENCY light illuminates, and initials Step.		
	• Channel 'NON-1E' TRANSFER	***Operator rotates the Channel 'NON-1E' TRANSFER switch to EMERGENCY** observes the NORMAL light extinguishes and EMERGENCY light illuminates, and initials Step.		
C.11	IF emergency takeover is successful, **NOTIFY** the Shift Manager that control has been established from the Remote Shutdown Panel.	Operator notifies Shift Manager that control has been established from the Remote Shutdown Panel, and initials Step.		
CUE:	**Acknowledge message as Shift Manager.**			
CAUT 5	**The high level trip may NOT function in the event a fire occurs in the relay room. [CD-012Z]**	Operator reads CAUTION and initials Step.		
C.12	WHEN HPCI is no longer required, **SHUTDOWN** HPCI IAW Attachment 2.	Operator MAY/MAY NOT determine HPCI is no longer required, and EITHER directs field operator to implement Attachment 2, OR circles step.		
CUE:	**Acknowledge order as the field operator if required.**			

JPM NUMBER: BD014 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
C.13	IF RCIC operation is required, THEN **VERIFY** RCIC System auto initiation OR PLACE RCIC in service as follows: a. **ENSURE** RCIC Flow Controller is set to 600 gpm AND AUTO is ON.	Operator determines that RCIC is required and has not Auto-initiated. Operator determines that RCIC Flow Controller is NOT set to 600 gpm and AUTO is ON. ***Operator adjusts controller** to 600 gpm, ensures in AUTO, and initials Step. Examiner Note: This Critical Step can be completed satisfactorily as part of Step C.14 when flow to the RPV is observed AND being controlled above 50 gpm.		
	b. **START** 0P219.	Operator presses the VACUUM PUMP 0P219 START pushbutton, observes the RUNNING indicator illuminates and the STOPPED indicator extinguishes, and initials Step.		
	c. **OPEN** HV-F046.	Operator presses HVF046 OPEN pushbutton, observes the OPEN light illuminates and the CLSD light extinguishes, and initials Step.		
	d. **ENSURE** FC-HV-4282 is OPEN.	Operator determines that FC-HV-4282 is open by observing the OPEN light illuminated and the CLSD light extinguished, and initials Step.		
CAUT 6	**To prevent RCIC Turbine exhaust piping and check valve vibration problems, RCIC Turbine speed should be rapidly increased to ≥ 2150 rpm and maintained above 2150 rpm to prevent possible bearing damage.**	Operator reads CAUTION and initials Step.		
CAUT 7	**The OPEN push button for the HV-F045 TURB STM SUP VLV must be held pressed until the valve is fully open.**	Operator reads CAUTION and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	e. SIMULTANEOUSLY **PERFORM** the following: • **PRESS** AND **HOLD** HV-F045 OPEN PB UNTIL OPEN. • **OPEN** HV-F013.	***Operator simultaneously opens HV-F045 and HV-F013** observes the OPEN lights illuminate and the CLSD lights extinguish, and initials Steps. Examiner Note: The HVF045 OPEN pushbutton must be HELD pressed to fully open the valve. It is critical to FULLY open the HVF045 before the JPM is completed; otherwise, the ramp circuit will not be initiated and the RCIC governor valve will continuously cycle open and closed.		
CUE:	**IF at any time the operator reports that RCIC is injecting to the RPV, PROVIDE the Terminating Cue.**			
	ENSURE the following: • HV-F025 is CLOSED • HV-F004 is CLOSED • HV-F022 is CLOSED • RCIC Turbine Speed of 2150 - 4500 rpm	Operator ensures HV-F025, HV-F004, AND HV-F022 are closed ; RCIC Turbine Speed is between 2150 - 4500 rpm on SI-4280-2, and initials Step.		
C.14	**ADJUST** RCIC Flow Controller RAISE/LOWER SETPOINT as required to maintain Reactor Level.	Operator adjusts RCIC Flow Controller RAISE/LOWER SETPOINT as required to maintain Reactor Level and initials Step. Examiner Note: Will satisfy Critical Step in C.13 when flow to the vessel is observed and being controlled above 50 gpm.		
NOTE 4	During normal observed operation of the RCIC Turbine, Gland Seal Condenser Condensate Pump 0P220 cycles ON for ≈1.5 minutes of every 2.5 minutes. This run frequency maintains the collection tank within the 6.75 - 13.25 ≈level band.	Operator reads Note and initials Step.		

JPM NUMBER: BD014 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
C.15	WITH the RCIC Turbine in service, Approximately every 2.5 minutes **PRESS** AND **HOLD** 0P220 START PB for ≈1.5 min, THEN **RELEASE** the START push button.	Approximately every 2.5 minutes , Operator starts running the RCIC CONDENSER CONDENSATE PUMP 0P220 by pressing AND holding the 0P220 START push button for ≈1.5 min, THEN releasing the 0P220 START push button ≈1.0 min		
C.16	**MAKE** a plant announcement stating the RCIC system is in service and for all personnel to stay clear of the Torus Chamber area.	Operator makes a plant announcement stating the RCIC system is in service and for all personnel to stay clear of the Torus Chamber area 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 establishes control at the Remote Shutdown Panel (RSP); places RCIC in service from the RSP AND commences injection at rated flow to the Reactor Vessel in accordance with HC.OP-AB.HVAC-0002.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BD014 **NAME:** _____

REV NUMBER: 04 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BD014

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	9/8/2014	Created Alternate Path JPM from BD008. Deleted Time Critical requirement. Incorporated comments and Estimated Completion Time from validation. Average Completion Time was 13 minutes.	Y
01	8/26/2017	Added reference to Operator Fundamentals of SER 3-05. [IER L1-11-3 Rec. 3b] Editorial change only. No changes to operator actions. No validation required.	N
02	10/20/2017	Corrected typographical error (duplicate C.14 steps).	N
03	6/16/19	HC.OP-AB.HVAC-0002 Revision 11 was issued. No change to JPM steps. Editorial change	N
04	1/22/21	Revised to NON alternate path per NRC comments. Revalidated	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BD014 **REV#:** 04
TASK: Place RCIC In Service From The RSP

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
M. Rooney	SRO	ON-FILE	1-22-21
J. Wiilliams	RO	ON-FILE	1-22-21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: BD014 **REV#:** 04

INITIAL CONDITIONS:

I.C.	
Initial	

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

_____ **EVACUATE** the Control Room IAW AB.HVAC-0002 up through and including step C.8.

_____ AFTER Lo-Lo set actuates, **INSERT** Malfunction AD02PO to fail open the PSV-F013P SRV using ET-1.

_____ **ESTABLISH** RPV level at between 0 and –30".

_____ **REDUCE** the RCIC Flow Controller setpoint on the RSP to 0 gpm.

_____ **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

_____ **INITIAL** a copy of HC.OP-AB.HVAC-0002 up through step C.8.

_____ **PERFORM** lamp test of RSP controls.

_____ **TOGGLE** Control Room Horns to OFF.

_____ **MINIMIZE** the RM11 volume.

_____ **ENSURE** a magnetic backed timer (or equivalent) is available for timing RCIC Condensate Pump runs.

_____ **ENSURE** the RSP Chart Recorders are ready.

_____ **ENSURE** the RSP Transfer switch target flags are green.

_____ **ENSURE** the simulator is reset AND in FREEZE.

EVENT FILE:		
Initial	ET	
	2	Event code: rcfm >= 40 & spfsetp >= 0.12 Description: RCIC injecting and FIC4158 >50 gpm // Deletes stuck open SRV
		Event code: Description:

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction HP01	HPCI system auto start failure
	None	None	Insert malfunction RC02	RCIC auto start failure
	None	None	Insert malfunction RR20E to 30.00000	ECCS level transmitter N091E failure
	None	None	Insert malfunction RR20F to 30.00000	ECCS level transmitter N091F failure
	None	None	Insert malfunction RR20G to 30.00000	ECCS level transmitter N091G failure
	None	None	Insert malfunction RR20H to 30.00000	ECCS level transmitter N091H failure
	None	None	Insert malfunction AD02PO on event 1	ADS/Relief valve F013P (MS LINE B) sticks open
	None	None	Insert malfunction AD02PO on event 2 delete in 1	ADS/Relief valve F013P (MS LINE B) sticks open

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The control room has been abandoned due to dense smoke.
2. HC.OP-AB.HVAC-0002, Control Room Environment, is being implemented.
3. The Reactor has been scrammed, and all control rods are fully inserted.
4. Condition 'C' of HC.OP-AB.HVAC-0002 has been completed up to step C.9.
5. The PSV-F013P SRV is stuck open, AND RPV water level is lowering.

INITIATING CUE:

ESTABLISH control at the Remote Shutdown Panel (RSP); **PLACE** RCIC in service from the RSP; AND **COMMENCE INJECTION** to the Reactor Vessel in accordance with HC.OP-AB.HVAC-0002.

The simulator is in freeze and will be placed in run after you acknowledge the Initiating Cue.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Emergency Diesel Generators

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

2021 NRC
JPM D

Copy _____ of _____

JPM NUMBER: 305H-JPM.KJ007 **REVISION:** 15

SAP BET: NOH05JPKJ07E

K/A NUMBER: 264000 A4.04 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 3.7

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD:

REFERENCES: HC.OP-SO.KJ-0001, Rev. 76

TOOLS, AND EQUIPMENT: None

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 Generators

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

INITIAL CONDIITONS:

1. The plant is at 100% reactor power.
2. A manual start and synchronization of the Emergency Diesel Generator BG400 is required.
3. Load Dispatcher has been informed of parallel grid operation.
4. Emergency Diesel Generator BG400 was started from the Control Room in accordance with HC.OP-SO.KJ-0001.

INITIATING CUE:

SYNCHRONIZE Emergency Diesel Generator BG400 from the Control Room AND **LOAD** to 2000 KW, and 1000 KVAR in accordance with HC.OP-SO.KJ-0001.

JPM NUMBER: KJ007 **NAME:** _____

REV NUMBER: 15 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue AND procedure HC.OP-SO.KJ-0001 **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitation of HC.OP-SO.KJ-0001		
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 Section to be 4.6.12		
CAUTION	**Upon synchronization, a minimum 10% load (443 Kw) should be applied immediately to prevent reverse power. [CD-319X, CD-309Y]**	Operator reads and initials CAUTION.		
4.6.12	**SYNCHRONIZE** either from Control Room OR from Remote Generator Control Panel 1A(B,C,D)-C422 El. 130' as follows: **[CD-297Y]**			
NOTE	Continuous Operation of the EDGs at less than 840 Kw is not recommended. Prolonged operation under low loads results in carbon deposits inside engine cylinders. **[CD-379Y]** D4568, 4.16KV DIESEL GEN B CKT BRKR may alarm and clear while closing the output breaker. It should be verified that the breaker remains closed.	Operator reads and initials NOTE.		
1.	**SYNCHRONIZE** from Control Room a s follows: a. **PRESS** DIESEL ENG GOV DROOP MODE PB **AND ENSURE** that the DROOP MODE light is ON.	***#Operator presses the DIESEL ENG GOV DROOP MODE PB, and initials Step.**		

JPM NUMBER: KJ007 **NAME:** _____

REV NUMBER: 15 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	b. **TURN** selected GEN BRKR SYNC CHECK SW ON.	***#Operator inserts key into GEN BRKR SYNC CHECK SW, turns GEN BRKR SYNC CHECK SW to ON,** and initials Step.		
	c. **IF** necessary, **ADJUST** the GENERATOR A(B,C,D) VOLTS slightly higher (0.5 of an increment, approximately 50 Volts) than associated BUS (RUN) VOLTS by pressing GEN VR RAISE OR LOWER PBs. **[CD-388H]**	***#Operator presses the △ and/or ▽ push button to adjust GENERATOR A(B,C,D) VOLTS slightly higher (≤+200 Volts) than associated BUS (RUN) VOLTS,** and initials Step.		
	d. **ADJUST** EDG Speed by pressing DIESEL ENG GOV INCR OR DECR until SYNCHROSCOPE pointer is moving SLOWLY in the FAST (clockwise) direction.	***#Operator adjusts EDG Speed by pressing DIESEL ENG GOV INCR OR DECR until SYNCHROSCOPE pointer is moving SLOWLY** in the FAST (clockwise) direction, and initials Step. Examiner Note: Critical that the output breaker does not trip on reverse power following breaker closure.		
	e. **ENSURE** the Generator Field Current Low is not in ALARM at Remote Panel 1A(B,C,D)C422.	Operator calls Equipment Operator in field to check Generator Field Current Low is not in ALARM at Remote Panel 1BC422, and initials Step.		
CUE:	**Respond as EO that Generator Field Current Low is not in ALARM at Remote Panel 1BC422.**			
	f. **WHEN** the SYNCHROSCOPE pointer is at 3 minutes to 12 O'clock position, **CLOSE** 40107(40207,40307,40407) GEN BRKR.	***#Operator presses the CLOSE push button for 40207 when SYNCHROSCOPE pointer is at 3 minutes to 12 O'clock position,** and initials Step.		

JPM NUMBER: KJ007 **NAME:** _____

REV NUMBER: 15 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	g. **RAISE** Generator load to 500 Kw using DIESEL ENG GOV INCR push-button **AND ADJUST** KiloVar loading to approximately 100 to 500 KvARs using GEN VR INCR **OR** DECR push-buttons.	***#Operator presses the ⌃ and/or ⌄ push button to raise Generator load to 500 Kw; GEN VR INCR OR DECR push-buttons to adjust KVAR loading to 100-500 KVARs (>0≤+1000 KVARS),** and initials Step.		
	h. **TURN** OFF selected GEN BRKR SYCH CHECK SW.	Operator turns key in GEN BRKR SYNC CHECK SW to OFF, and initials Step.		
NOTE	The Emergency Diesel Generator is rated for 4430 Kw load, 4160 volts at 0.8 power factor and 60Hz continuous operation, and 10% overload (4873 Kw) for 2 hours during a 24 hour period. **[CD-319X]** The KvAR load may be applied to the Generator incrementally with the Kw loading / unloading.	Operator reads and initials NOTE.		
	i. **CHANGE** EDG load in up to 500 Kw increments by pressing DIESEL ENG GOV INCR PB or DECR PB, (**STOP** at 1000 Kw increments for 3 to 5 minutes to stabilize pressures and temperatures). **[CD-931D]**	***#Operator presses the INCR push button to raise Generator load to 2000 Kw (stopping at 1000 KW for 3 to 5 minutes),** and initials Step.		
CUE:	**When the operator stops at 1000 kw, INFORM the operator that 3-5 minutes has elapsed.**			
	j. **USING** GEN VR RAISE **OR** LOWER PBs, **ADJUST** Generator Reactive Load (KvARS) as directed by SM/CRS. [CD-225G]	***#Operator presses the ⌃ and/or ⌄ push button to adjust KVAR loading to 1000 KVARs,** 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:** _____			

JPM NUMBER: KJ007 **NAME:** _____

REV NUMBER: 15 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD **(*Critical Step) (#Sequential Step)**	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
Task Standard: Operator synchronizes Emergency Diesel Generator BG400 from the Control Room, AND loads to 2000 KW and 1000 KVAR in accordance with HC.OP-SO.KJ-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: KJ007 **NAME:** _____

REV NUMBER: 15 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KJ007

REVISION HISTORY

Rev #	Date	Description	Validation Required?
13	6/13/2019	Revised format and referenced procedure revision number. Editorial.	Y
14	10/6/20	Reference procedure revised. No change to JPM steps..	N
15	1/22/21	Designated placing the EDG in droop a critical step per NRC comments (4.6.12.1)	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: KJ007 **REV#:** 15

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 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
T. Hendricks	SRO	ON FILE	1/21/21
M. Rooney	SRO	ON FILE	1/21/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: KJ007 **REV#:** 15

INITIAL CONDITIONS:

I.C.	
Initial	

_____ INITIALIZE the simulator to any 100% power IC.

_____ START BG400 EDG IAW Steps 4.6.1 - 4.6.11 of HC.OP-SO.KJ-0001.

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

_____ **MARKUP** HC.OP-SO.KJ-0001 through Step 4.6.11.

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

EVENT FILE:		
Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:				
Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:				
Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:				
Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% reactor power.
2. A manual start and synchronization of the Emergency Diesel Generator BG400 is required.
3. Load Dispatcher has been informed of parallel grid operation.
4. Emergency Diesel Generator BG400 was started from the Control Room in accordance with HC.OP-SO.KJ-0001.

INITIATING CUE:

SYNCHRONIZE Emergency Diesel Generator BG400 from the Control Room AND **LOAD** to 2000 KW, and 1000 KVAR in accordance with HC.OP-SO.KJ-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Auxiliaries Cooling System

2021 NRC
JPM E

Copy _____ of _____

TASK NUMBER: 4000230401

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

JPM NUMBER: 305H-JPM.ED003 **REVISION:** 00

SAP BET: NOH05JPED02E

K/A NUMBER: 400000 A3.01 **IMPORTANCE FACTOR:** RO: 3.0 SRO: 3.0

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.ED-0001, Rev. 31 HC.OP-AR.ZZ-0002, Rev. 27

HC.OP-AB.COOL-0003, Rev. 8

TOOLS, AND EQUIPMENT: None

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: Reactor Auxiliaries Cooling System

TASK NUMBER: 4000230401

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

INITIAL CONDIITONS:

1. The RACS System is in service with the AP209 and CP209 RACS pumps running.
2. AP209 RACS pump is scheduled for an oil change.
3. The Reactor Building EO has been briefed and is stationed at the BP209 RACS pump.
4. The BP209 has NOT been isolated since the last time it was in service and is ready for a start.

INITIATING CUE:

PLACE the BP209 RACS pump in service AND **SECURE** the AP209 RACS pump IAW HC.OP-SO.ED-0001.

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

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 the correct procedure.	Operator obtains procedure HC.OP-SO.ED-0001.		
	Operator reviews precautions and limitations.	Operator reviews and initials the 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 5.3.1.		
NOTE	A and B RACS Pumps are the preferred pumps for normal operation. C RACS Pump should be used as the standby pump.			
5.3.1.	**ENSURE** all prerequisites have been satisfied IAW Section 2.3.	Operator ensures that all prerequisites have been satisfied, and initials the Step.		
CUE:	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**			
5.3.2.	**ENSURE** that one of the following valves are OPEN (10C651A): ED-HV-2537A(B), HX INLET VLVS.	On 10C651A operator observes the HX INLET VALVES: • HX AE217 INLET red HV-2537A OPEN light is illuminated and green CLOSE light is extinguished • HX BE217 INLET red HV-2537B OPEN light is illuminated and green CLOSE light is extinguished, and initials the Step.		
5.3.3.	**OBSERVE** the following lights are off for the RACS Pumps going in service: • OVLD/PWR FAIL • INOP • REMOTE	Operator observes the REACTOR AUXILIARIES COOLING PUMPS PUMP B amber OVLD/PWR FAIL, INOP, and white REMOTE lights are extinguished, and initials the Step.		

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.3.4.	For the 1AP209 and/or 1BP209, as applicable, **ENSURE** RACS PMP 1AP209 BKR 52-41011, and/or 1BP209 BKR 52-42011 CLOSED is on. (10C650E)	On 10C650E operator observes the RACS PMP BP209 BRKR 52 42011 green TRIPPED light is illuminated and red CLOSED light is extinguished. ***#Operator presses the RACS PMP BP209 BRKR 52-42011 red CLOSE pushbutton,** observes the red CLOSED light illuminates, and the green TRIPPED light extinguishes, and initials Step.		
CUE:	**Respond accordingly as Control Room Supervisor to breaker found out of position, inform operator to continue with placing the BP209 RACS pump in service AND securing the AP209 RACS pump.**			
CAUTION	A pump being returned to service that has been isolated and drained may experience air-binding, even after a proper fill and vent. Unusually low pump amps are evidence of air-binding. For the initial pump start, when returning a pump to service that has been isolated and drained, continuous venting of the pump casing, coupled with the slow throttling open of the pump discharge valve is recommended to correct/prevent air binding.	Operator reads and initials Caution.		
5.3.5.	IF returning a pump to service that has been isolated and drained, **PERFORM** the following steps as necessary to correct/prevent air binding, OTHERWISE, **PROCEED** to Step 5.3.6 for a normal start of a standby pump:	Operator determines to proceed to Step 5.3.6, since the Initiating Cue states that the pump was not isolated, and marks the Step as N/A.		

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.3.6.	**PRESS** REACTOR AUXILIARIES COOLING PUMP A(B)(C) START PB (10C651A). START comes on. **OBSERVE** AI-6460 (AI-6461) REACTOR AUXILIARIES COOLING PUMP A(B)(C) MOT AMPS settles at < 180 amps AND is approximately the same as the other I/S RACS pumps' motor amps.	***#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP B BP209 START pushbutton,** observes: • The red BP209 START light illuminates and the green STOP light extinguishes • AI-6461 is <180 amps and settles at approximately the same value as the "A" and "C" RACS pumps' amps and initials Step.		
5.3.7.	**PRESS** REACTOR AUXILIARIES COOLING PUMP B(A)(C) STOP PB. STOP comes on.	***#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A STOP pushbutton,** observes the green STOP light illuminates and the red AP209 START light extinguishes, and initials Step.		
		5 seconds after the 'A' RACS pump has been secured, the Operator observes the following: • OHA A2-E2, "RACS TROUBLE" • CRIDS D5762 RACS PUMP BP209 TRBL • Amber OVLD/PWR FAIL is flashing • Red BP209 START light is extinguished. • Green STOP light is flashing. • AI-6461 reads 0 amps.		

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
HC.OP-AR.ZZ-0002 ATTACHMENT E2 Examiner Note: Operator may proceed directly to HC.OP-AB.COOL-0003.				
	OPERATOR ACTION: 1. **REFER** to HC.OP-AB.COOL-0003(Q); Reactor Auxiliary Cooling System.	Operator refers to HC.OP-AB.COOL-0003, and initials		
CUE:	**Direct the Operator to perform Condition I of HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling**			
HC.OP-AB.COOL-0003				
	CONDITION A. RACS Pump has tripped. Date/Time: _____	Operator enters the current Date/Time in the spaces provided.		
	ACTION A.1 **PRESS** the START P.B. for any available RACS pump in standby.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A, AP209 START pushbutton, and observes: • The red AP209 START light remains extinguished and the green STOP light remains illuminated. • Motor amps continue to indicate 0 amps		
CUE:	**Respond to any reports of the 'A' RACS pump failure to start by directing the operator to continue implementing HC.OP-AB.COOL-0003.**			
	A.2 IF a second RACS Pump CANNOT be placed in service, THEN **ISOLATE** RACS to the out of service Off-Gas Train as follows: • IF the Common Off-Gas Train is in service, THEN **CLOSE** HV-2577. • IF Unit 1 Off-Gas Train is in service, THEN **CLOSE** HV-7712A1.	Operator observes the OFFGAS RECOMB TRAIN SELECT: • COM TRAIN red OPEN light illuminated and green CLOSE light extinguished. • TRAIN 1 red OPEN light extinguished and green CLOSE light illuminated. ***Operator presses the OFF GAS CLR CNDS COOLING, 10E306 UNIT 1, HV-2577, green CLOSE pushbutton,** observes the green CLOSE light illuminates and red HV-2577 OPEN light extinguishes, and initials Step.		

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**If the Operator Closes HV-2577 the JPM may be terminated. If the operator closes the HV-7712A1, allow 1 minute to recognize the mistake and then terminate the JPM.** Examiner Note: Leaving the HV-7712A1 closed and/or causing an isolation of the Common Offgas Train is failure criteria.			
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 swaps RACS pumps and implements Condition A of HC.OP-AB.COOL-0003.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ED003 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ED003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	`0/6/20	New JPM	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ED003 **REV#:** 00
TASK: Respond To A Reactor Auxiliary Cooling 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
T. Hendricks	RO	On File	1/20/21
J. Koskey	RO	On File	1/20/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ED003 **REV#:** 00

INITIAL CONDITIONS:

I.C.	
Initial	

_____ **INITIALIZE** the simulator to any IC with the Main Generator loaded.

_____ **ENSURE** the 'A' & 'C' RACS pumps are in service and the 'B' RACS pump is in STBY.

_____ **ENSURE** the Common Offgas Train is in service and HV-2577 is open.

_____ **ENSURE** NON-1E BKR 52-42011 is OPEN

_____ **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: cwnra209 <= 0.5 Description: RACS Pump AP209 RACS is stopped

MALFUNCTION SCHEDULE:

Initial	**@Time**	**Event**	**Action**	**Description**
	None	None	Insert malfunction CW08B after 5 on event 1	RACS pump BP209 trip

REMOTE SCHEDULE:

Initial	**@Time**	**Event**	**Action**	**Description**

OVERRIDE SCHEDULE:

Initial	**@Time**	**Event**	**Action**	**Description**
	None	None	Insert override 5A33_E_DI to Off	AP209 START-REACTOR AUXILIARIES COOLING PUMP-PUMP A (DI)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The RACS System is in service with the AP209 and CP209 RACS pumps running.
2. AP209 RACS pump is scheduled for an oil change.
3. The Reactor Building EO has been briefed and is stationed at the BP209 RACS pump.
4. The BP209 has NOT been isolated since the last time it was in service and is ready for a start.

INITIATING CUE:

PLACE the BP209 RACS pump in service AND **SECURE** the AP209 RACS pump.

JOB PERFORMANCE MEASURE

Copy _____ of _____

2021 NRC
JPM F

STATION: Hope Creek

SYSTEM: Nuclear Instrumentation

TASK NUMBER: 4000130401

TASK: Enable APRM Backup Stability Protection

JPM NUMBER: 305H-JPM.SE005 **REVISION:** 00

SAP BET: NOH05JPSE05E

K/A NUMBER: 217005 A4.03 **IMPORTANCE FACTOR:** RO: 3.2 SRO: 3.3

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐ RO ☒ STA ☒ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.SE-0001, Rev. 29

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: Nuclear Instrumentation

TASK NUMBER: 4000130401

TASK: Enable APRM Backup Stability Protection

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. OPRM has been declared Inoperable.
3. The CRS has given permission to Enable Automatic Backup Stability Protection.

INITIATING CUE:

ENABLE Automatic Backup Stability Protection for APRM Channel A in accordance with Steps 4.10.1 through 4.10.7 of HC.OP-SO.SE-0001(Q).

Prerequisites, Precautions, and Limitations have been completed SAT

JPM NUMBER: SE005 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue; a copy 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.**			
4.10. **NOTE**	When Automatic Backup Stability Protection is enabled, all OPRM trip functions DIDA and DSS-CD, as well as OPRM Trip Enabled (C3-F1) annunciator outputs are suppressed.	Operator reads and initials NOTE.		
CAUTION	It is possible, depending on the setpoints, for the modified ABSP setpoint to be less conservative than the setpoint would have been if ABSP was not enabled. This situation is more likely to occur when the Single Loop Operation (SLO) is also enabled, concurrently with ABSP.	Operator reads and initials CAUTION.		
4.10.1	**PERFORM** the following to Bypass applicable APRM: 1. **IF** APRM **CANNOT** be placed in BYPASS, **THEN OBTAIN** Control Room Supervision approval to continue with APRM in OPERATE **AND** PROCEED to step 4.8.4.	Operator determines that this Step is not applicable and marks as N/A.		
CUE:	**Respond as CRS, if asked, that the APRM can be bypassed.**			
	2. **DECLARE** APRM INOPERABLE.	Operator requests that APRM A be declared INOPERABLE.		

JPM NUMBER: SE005 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**Respond as CRS that APRM A has been declare IN OPERABLE.**			
	3. **PLACE** APRM BYPASS joystick to APRM Channel position to be Bypassed	***#Operator places the APRM Bypass joystick to APRM A, 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 (BLUE LED LIT) for APRM B at all four VOTERs and 'BYP' is displayed for APRM A on associated NUMAC drawer/ODA.		
CAUTION	WHEN APRM NUMAC key lock selector is taken to INOP, All VOTERs receive a TRIP INPUT. IF two TRIP INPUTs are received, a FULL SCRAM will occur. WHEN bypassed, an APRM's TRIP INPUT is bypassed, but the status of TRIP INPUTs on the VOTERs will continue to display while trip is active.	Operator reads and initials CAUTION.		
4.10.2.	**PLACE** applicable APRM NUMAC INOP/OPER key lock selector switch to INOP.	***#Operator places the APRM A NUMAC INOP/OPER key lock selector switch to INOP,** and initials Step.		
4.10.3	**PERFORM** the following on the APRM Channel for BSP to be ENABLED: 1. **USING** ETC cursor key, **NAVIGATE** to ENTER SET MODE.	***#Operator uses the ETC cursor key to navigate to ENTER SET MODE,** and initials Step.		
NOTE	After pressing ENTER SET MODE, **IF** password is **NOT** entered within ten seconds the screen times out **AND** previous screen is displayed. **IF** this occurs, ENTER SET MODE will need to be selected again.	Operator reads and initials NOTE.		

JPM NUMBER: SE005 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. **SELECT** ENTER SET MODE.	***#Operator selects ENTER SET MODE by pressing the button below ENTER SET MODE,** and initials Step.		
	3. **ENTER** password (1234).	***#Operator enters 1234 as the password,** and initials Step.		
	4. **SELECT** ENT.	***#Operator selects by pressing ENT,** and initials Step.		
	5. **USING** cursor keys, **SELECT** SLO/BSP CONTROL.	***#Operator uses cursor keys to select SLO/BSP CONTROL,** and initials Step.		
	6. **SELECT** SET PARAMETERS.	***#Operator selects SET PARAMETERS,** and initials Step.		
	7. **USING** UP/DOWN cursor keys, SELECT YES on BSP ENABLED.	***#Operator uses UP/DOWN cursor keys to select YES on BSP ENABLED,** and initials Step.		
	8. **SELECT** ACCEPT.	***#Operator selects ACCEPT,** and initials Step.		
	9. **SELECT** EXIT.	***#Operator selects EXIT,** and initials Step.		
	10. **SELECT** EXIT SET MODE.	***#Operator selects EXIT SET MODE,** and initials Step.		
	11. **SELECT** YES.	***#Operator selects YES,** and initials Step.		

JPM NUMBER: SE005 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	12. **VERIFY** BSP in INVERSE VIDEO on APRM Status Bar.	Operator verifies BSP in INVERSE VIDEO on APRM Status Bar, and initials Step.		
4.10.4	**PLACE** applicable APRM NUMAC Channel INOP/OPER key lock selector switch to OPER position. (10C608)	***#Operator places the APRM A NUMAC INOP/OPER key lock selector switch to OPER,** and initials Step.		
4.10.5	PRESS TRIP MEMORY RESET pushbutton at ALL VOTERs: VOTER A: ___ VOTER B: ___ VOTER C: ___ VOTER D: ___	***#Operator presses the TRIP MEMORY RESET pushbutton at ALL VOTERs,** and initials Step. **EXAMINER NOTE**: Order Doesn"t Matter		
4.10.6	**VERIFY** APRM NUMAC is in OPERATE mode **AND** ALL VOTER TRIP/MEMORY indications are clear.	Operator verifies APRM NUMAC is in OPERATE mode AND ALL VOTER TRIP/MEMORY indications are clear, and initials Step. Operator requests Independent Verifier to verify APRM NUMAC is in OPERATE mode AND ALL VOTER TRIP/MEMORY indications are clear, and to initial Step.		
CUE:	**Respond as IV, initial in the IV spot.**			
4.10.7	IF APRM was bypassed in step 4.10.1 **THEN REMOVE** APRM from BYPASS position **AND DECLARE** APRM OPERABLE.	***#Operator removes APRM Bypass joystick from the APRM A position (mid position), and initials Step.**		
CUE:	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 enables Single Loop Operation (SLO) for APRM Channel A in accordance with Steps 4.10.1 through 4.10.7 of HC.OP-SO.SE-0001(Q).				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SE005 **NAME:** _____

REV NUMBER: 00 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SE005

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00		New JPM – NRC comments incorporated.	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SE005 **REV#:** 00
TASK: Enable APRM Backup Stability Protection

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
T. Hendricks	RO	On File	1/20/21
J. Koskey	RO	On File	1/20/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: SE005 **REV#:** 00

INITIAL CONDITIONS:

I.C.	
Initial	

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

_____ **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".

EVENT FILE:		
Initial	ET	
		Event code: Description:

MALFUNCTION SCHEDULE:				
Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:				
Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:				
Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. OPRM has been declared Inoperable.
3. The CRS has given permission to Enable Automatic Backup Stability Protection.

INITIATING CUE:

ENABLE Automatic Backup Stability Protection for APRM Channel A in accordance with Steps 4.10.1 through 4.10.7 of HC.OP-SO.SE-0001(Q).

Prerequisites, Precautions, and Limitations have been completed SAT.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Manual Control

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

NRC NRC JPM G

COPY ____ OF ____

JPM NUMBER: 305H-JPM.SB013 **REVISION:** 08

SAP BET: NOH05JPSB13E

K/A NUMBER: 201002 A1.02 **IMPORTANCE FACTOR:** RO: 3.8 SRO: 3.8

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 11 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____

Signature

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Manual Control

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

INITIAL CONDIITONS:

1. Reactor is shutdown following a scram.
2. The scram initiating signal is clear.
3. ARI/RRCS has not initiated.
4. HC.OP-AB.ZZ-0000, Reactor Scram, is being implemented.

INITIATING CUE:

COMPLETE Section 4.3.3, Resetting RPS Trips, of HC.OP-SO.SB-0001.

JPM NUMBER: SB013 **NAME:** _____

REV NUMBER: 08 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, a marked-up copy of HC.OP-SO.SB-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 reviews prerequisites.	Operator ensures all prerequisites are met, and completes Attachment 1, Section 2.0.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.3.1.		
4.3.1	**ENSURE** all prerequisites of Section 3.3 are satisfied.	Operator ensures that all prerequisites of Section 3.3 are satisfied, including completing Attachment 1, Section 2, and initials Step.		
4.3.2	IF a Half Scram condition exists...	Operator observes that this Step is marked as N/A.	N/A	N/A
NOTE	Manual reset of a Full Scram is inhibited for 10 seconds after initiation to ensure Control Rods drive to FULL IN position.	Operator reads and initials NOTE.		
CAUTION	A Full Scram should be reset as soon as possible to prevent CRD mechanism internal seal damage from excessive drive water flows AND to minimize vessel thermal stratification with the Recirc Pumps out of service.	Operator reads and initials CAUTION.		
4.3.3	IF a Full Scram has occurred, THEN **PERFORM** the following: 1. IF initiated, THEN **RESET** ARI prior to resetting the scram.	Operator determines ARI is reset, and initials or N/As Step.		
	2. **ENSURE** the RPS MODE SWITCH is in SHUT-DOWN OR REFUEL.	Operator observes that the Mode Switch is in SHUT-DOWN, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. **INSERT** Key **AND PLACE** HI LEVEL SCRAM BYPASS in BYPASS **AND OBSERVE** the DISCH VOL HI WTR LVL TRIP BYP annunciator is illuminated.	***#Operator places SCRAM DISCHARGE VOLUME HIGH LEVEL SCRAM BYPASS switch (10C651C) in BYPASS,** observes and acknowledges annunciator C5-C4, DISCH VOL HI WTR LVL TRIP BYP, and initials Step		
	4. **PERFORM** the following to reset the Scram Reset Switches: a. **INSERT** Key **AND TURN** RPS TRIP SYSTEM A TRIP LOGIC A1 to RESET **AND RETURN** to NORM.	***Operator places RPS TRIP SYSTEM A, TRIP LOGIC A1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM).**		
	b. **INSERT** Key **AND TURN** RPS TRIP SYSTEM A TRIP LOGIC A2 to RESET **AND RETURN** to NORM.	***Operator places RPS TRIP SYSTEM A, TRIP LOGIC A2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM.**		
	c. **INSERT** Key **AND TURN** RPS TRIP SYSTEM B TRIP LOGIC B1 to RESET **AND RETURN** to NORM.	***Operator places RPS TRIP SYSTEM B, TRIP LOGIC B1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM.**		
	d. **INSERT** Key **AND TURN** RPS TRIP SYSTEM B TRIP LOGIC B2 to RESET **AND RETURN** to NORM.	***Operator places RPS TRIP SYSTEM B, TRIP LOGIC B2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM.**		
	e. **INITIAL** Attachment 1.	Operator initials Attachment 1.		
	5. **ENSURE** the TRIP LOGIC A1, A2, B1, **AND** B2 NORMAL/RESET lights are illuminated.	Operator verifies the TRIP LOGIC A1, A2, B1, and B2 NORMAL/RESET indicators illuminated, and initials Step.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	6. **ENSURE** the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS A NORMAL **AND** B NORMAL lights are illuminated (Four Control Rod Groups).	Operator verifies the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS "LOGIC A NORMAL" and "LOGIC B NORMAL" indicators are illuminated for group 1, 2, 3, and 4 solenoids, and initials Step.		
NOTE	The ROD DRIFT alarm is reset to detect rods moving beyond notch position "00" once the reactor scram is reset.	Operator reads and initials Note.		
	7. **RESET** the ROD DRIFT alarm.	Operator depresses the Rod Drift Alarm reset push-button, verifies the Rod Drift overhead alarm is clear, and initials Step. Examiner Note: The Rod Drift alarm may not clear at this time.		
	8. **ENSURE** HV-F010/HV-F180 SCRAM DISCHARGE VOLUME PIPING INBD/OUTBD VENT VALVE **AND** HV-F011/HV-F181 INBD/OUTBD DRAIN VALVE OPEN indication is illuminated.	Operator verifies SCRAM DISCHARGE VOLUME INBD/OUTBD VENT VALVES HVF010/HVF180 and INBD/OUTBD DRAIN VALVES HVF011/HVF181 OPEN indicators are illuminated and initials Step.		
	9. **ENSURE** blue SCRAM lights are extinguished for all 185 Control Rods on FULL CORE DISPLAY. (10C650C)	Operator verifies blue SCRAM lights on the FULL CORE DISPLAY (10C650C) ARE EXTINGUISHED (185 CONTROL RODS) and initials Step.		
	10. **ENSURE** the following annunciators are de-energized: • REACTOR SCRAM TRIP LOGIC A1 • REACTOR SCRAM TRIP LOGIC A2 • REACTOR SCRAM TRIP LOGIC B1 • REACTOR SCRAM TRIP LOGIC B2	Operator verifies the following annunciators are not in alarm: • REACTOR SCRAM TRIP LOGIC A1 • REACTOR SCRAM TRIP LOGIC A2 • REACTOR SCRAM TRIP LOGIC B1 • REACTOR SCRAM TRIP LOGIC B2 and initials Steps.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE	The Reactor Protection System is now reset.	Operator reads and initials Note.		
	11. **WHEN** CRD SCRAM DISCH VOL LVL HI annunciator is de-energized, **THEN INSERT** Key **AND PLACE** HI LEVEL SCRAM BYPASS in NORMAL (DISCH VOL HI WTR LVL TRIP BYP annunciator is de-energized) a. **INITIAL** Attachment 1.	Operator observes that the CRD SCRAM DISCH VOL LVL HI annunciator (C5-B4) is de-energized, and places CRD DISCH VOLUME BYP in NORMAL, observes that the DISCH VOL HI WTR LEVEL TRIP BYP (C5-C4) annunciator is de-energized, initials Attachment 1, and the Step. Examiner Note: May have the simulator operator reduce the SDV level such that the time until draining is complete is shortened.		
	12. **AFTER** resetting the Scram **THEN PERFORM** the following as soon as possible: a. **VERIFY** all control rods have settled into notch position "00" using one of the following: • FOUR ROD DISPLAY • Process Plant Computer (PPC) • RWM Shutdown Confirmation Screen. • SPDS ALL RODS INSERTED reads "YES"	***Operator attempts to verify all control rods have settled into notch "00", and identifies that all rods have NOT reseated,** and informs the CRS that rod 38-47 is at position 02.		
CUE:	**Acknowledge the report from the operator, and direct the operator to reseat the Control Rod.**			
NOTE	**IF** Control Rods at overtravel in position **DO NOT** re-seat after applying an insert signal, then a single notch withdrawal may be applied.	Operator reads and initials Note.		

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	b. **RE-SEAT** Control Rods to "00" by applying a rod insert signal.	***Operator applies an insert signal to Control Rod 38-47,** Observes that it seats to position "00", informs the CRS that all rods are seated, and initials Step.		
CUE:	**Acknowledge the report from the operator.**			
	c. **IF** seating at "00" is NOT possible, **THEN ISOLATE** the affected HCU IAW HC.OP-SO.BF-0002(Q), to prevent inadvertent rod motion.	Operator determines Step is not applicable and initials or marks Step N/A.		
	d. Following the resetting of a Full Scram, **NOTIFY** Radiation Protection to survey the Scram Discharge Volumes.	Operator notifies Radiation Protection to survey the Scram Discharge Volumes.		
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 resets RPS, identifies rod 38-47 is at position 02, and reseats rod 38-47, in accordance with HC.OP-SO.SB-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SB013 **NAME:** _____

REV NUMBER: 08 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SB013

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	9/14/11	Converted JPM SB013 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. JPM validation times needed. Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. Validated with 2 operators from "C" Shift. Avg completion time 27 minutes.	Y
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	9/11/2014	Updated Reference procedure revisions. Revised format and standards. Added to provide marked-up copy of procedure. Added the last two non-critical Steps to complete task as stated. Editorial change only. No validation required.	N
05	11/7/2014	Modified to have different Control Rod settle to 02 vice the overtravel position. Validated with 2 ROs. Validation time 11 minutes.	Y
05	1/22/2015	Added guidance for procedure markup into Preparation for Training Setup, and revised Standard to reflect this change. Identified during NRC review	N
06	9/12/2018	Inserted @ and description per IER L1-11-3 Rec. 3b. Editorial change. Revised procedure step numbering and some step terminology due to procedure revision. No changes in operator actions.	N
07	9/6/2019	Revised Reference Procedure Revision Number. Added text for NOTE and CAUTION. Editorial.	N
08	9/27/20	Reference procedure revised. No change to JPM steps. Editorial.	N
08	1/20/21	Revalidated for NRC exam . No changes	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SB013 **REV#:** 08
TASK: Reset A Reactor Scram

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	1/20/21
J. Koskey	RO	ON FILE	1/20/21

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: SB013 **REV#:** 08

INITIAL CONDITIONS:

I.C.

Initial	

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

_____ **SCRAM** the reactor AND **TAKE** Immediate Operator Actions.

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

_____ **ENSURE** associated Events file open.

_____ **ENSURE** Control Rod 38-47 is selected

_____ **ENSURE** S/U Vlv is in AUTO

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

Initial	**Description**
_____	**MARKUP** HC.OP-SO.SB-0001 for completion on Section 4.3 (**ENSURE** 4.3.2 is marked as N/A.)
_____	**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

Initial	ET	
	1	Event code: (rp_k14a & rp_k14c) | (rp_k14b & rp_k14d) Description: ½ RPS Reset
	2	Event code: lcvposb(154) >= 16 Description: Rod 38-47 @ position 01

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CD023847 on event 1	Control Rod 38-47 drift out
	None	None	Insert malfunction CD023847 on event 2 delete in 1	Control Rod 38-47 drift out

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 3A81_Q_LO after 1 to Off on event 1 delete in 3	ROD SELECT - ROD MOTION - INSERT (LO)
	None	None	Insert override 3A81_Q_LO to Off	ROD SELECT - ROD MOTION - INSERT (LO)
	None	None	Insert override 3A81_I_DI to On on event 1 delete in 1	ROD SELECT - CONTINUOUS INSERT (DI)
	None	None	Insert override 3A81_R_LO to Off	ROD SELECT - ROD MOTION CONTROL - WITHDRAW (LO)
	None	None	Insert override 3A81_R_LO to Off on event 2 delete in 1	ROD SELECT - ROD MOTION CONTROL - WITHDRAW (LO)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Reactor is shutdown following a scram.
2. The scram initiating signal is clear.
3. ARI/RRCS has not initiated.
4. HC.OP-AB.ZZ-0000, Reactor Scram, is being implemented.

INITIATING CUE:

COMPLETE Section 4.3.3, Resetting RPS Trips, of HC.OP-SO.SB-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Area Ventilation

2021 NRC JPM H

COPY ____ OF ____

TASK NUMBER: 4880030101

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

JPM NUMBER: 305H-JPM.GK003 **REVISION:** 02

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. 23

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.
3. Instrument Air is in service
4. Demin Water system is available
5. Fire Water system is in service
6. ALL controllers are set within the indicated normal range AND are in AUTO in accordance with Table GK-001A

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.

JPM NUMBER: GK003 **NAME:** _____

REV NUMBER: 02 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue, a marked-up copy of HC.OP-SO.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.**		

JPM NUMBER: GK003 **NAME:** _____

REV NUMBER: 02 **DATE:** _____

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.		

JPM NUMBER: GK003 **NAME:** _____

REV NUMBER: 02 **DATE:** _____

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, including the BVH407 fan, in accordance with Steps 5.8.1 through 5.8.5 of HC.OP-SO.GK-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: GK003 **NAME:** _____
REV NUMBER: 02 **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	10/2/20	Reference procedure revised. No change to JPM steps	N
02	1/22/21	Per NRC comments Added Critical steps for actions involving HD-9598A&B and AV415 &vBV415 fans	Y

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: GK003 **REV#:** 02
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
J. Williams	RO	ON FILE	1/22/21
M. Rooney	SRO	ON FILE	1/22/21

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.
DON'T ACKNOWLEDGE FLASHING BEZEL INDICATIONS

_____ **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

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.
3. Instrument Air is in service
4. Demin Water system is available
5. Fire Water system is in service
6. ALL controllers are set within the indicated normal range AND are in AUTO in accordance with Table GK-001A

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.

JOB PERFORMANCE MEASURE

NRC "I"

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:** 07

SAP BET: NOH05JPSB15E

K/A NUMBER: 212000 A2.01 **IMPORTANCE FACTOR:** RO: 3.7 SRO: 3.9

ALTERNATE PATH: ☒

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

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-SO.SB-0001, Rev 36

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 CONDIITONS:

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.

JPM NUMBER: SB015 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**PROVIDE** the operator the initiating cue AND procedure HC.OP-SO.SB-0001. **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations of HC.OP-SO.SB-0001.	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		
5.5.1	**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.**			

JPM NUMBER: SB015 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

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

JPM NUMBER: SB015 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	**The Red MOTOR ON lamp is illuminated, and the Green MOTOR OFF lamp is extinguished.**			
	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 ...			
	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).		

JPM NUMBER: SB015 **NAME:** _____

REV NUMBER: 07 **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 starts the 1A-G-401, RPS MG SET A, recognizes low output voltage and takes actions in accordance with Section 4.5 of HC.OP-SO.SB-0001 to place RPS MG SET A in service.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SB015 **NAME:** _____

REV NUMBER: 07 **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

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: SB015 **REV#:** 07
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.

JOB PERFORMANCE MEASURE

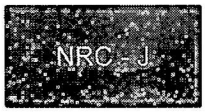
COPY ____ OF ____

STATION: Hope Creek

SYSTEM: Control Rod Drive Hydraulic

TASK NUMBER: 2010080104

TASK: Shift In-Service CRD Flow Control Valves



JPM NUMBER: 305H-JPM.BF001 **REVISION:** 18

SAP BET: NOH05JPBF01E

K/A NUMBER: 201001 A2.07 **IMPORTANCE FACTOR:** RO: 3.2 SRO: 3.1

ALTERNATE PATH: ☐

APPLICABILITY: EO ☒ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-SO.BF-0001, Rev. 35

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 17 Minutes

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

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

ACTUAL COMPLETION TIME: _____ **Minutes**

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

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

JOB PERFORMANCE MEASURE

SYSTEM: Control Rod Drive Hydraulic

TASK NUMBER: 2010080104

TASK: Shift In-Service CRD Flow Control Valves

INITIAL CONDIITONS:

1. The plant is operating at 80% power.
2. The RBEO reports that the in service CRD Hydraulic System Flow Control Valve has developed a packing leak.

INITIATING CUE:

ALTERNATE CRDH System Flow Control Valves from FV-F002A to FV-F002B in accordance with Section 5.2 of HC.OP-SO.BF-0001.

JPM NUMBER: BF001 **NAME:** _____

REV NUMBER: 18 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
CUE:	**PROVIDE** the operator the initiating cue AND procedure HC.OP-SO.BF-0001. **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations of HC.OP-SO.BF-0001.		
CUE:	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**			
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be 5.2.1, and then proceeds to 5.2.6.		
5.2.1	**ENSURE** all prerequisites of Section 2.2 are satisfied.	Operator ensures prerequisites have been satisfied, completes Attachment 1, 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.**			
5.2.4	IF FV-F002B(A), B(A) Flow Control Valve, is to be alternated, THEN **PERFORM** the following: A. Slowly **OPEN** 1-BF-V014(1-BF-V013), CRD Drive Wtr FV-F002B(A) Inlet Vlv.	Operator determines that F002A(B) is to be alternated. ***Operator rotates the 1-BF-V014(1-BF-V013) T-hand wheel in the counterclockwise direction until the handwheel reaches full open,** and initials Step.		
CUE:	**The valve indicated is open.**			
	B. Slowly **OPEN** 1-BF-V018(1-BF-V017), CRD Drive Wtr FV-F002B(A) Outlet Vlv.	***Operator rotates the 1-BF-V018(1-BF-V017) T-handwheel in the counterclockwise direction until the handwheel reaches full open,** and initials Step.		
CUE:	**The valve indicated is open.**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
NOTE	The AUTO demand signal read at 1-BF-PI-D009B(A)C11, B(A) Flow Control Valve A/M Station is common to both FCVs and is indicated by the BLACK indicator regardless of AUTO/ MANUAL switch position. As the FCV (in MANUAL) is opened at 1-BF-PI-D009B(A)C11, B(A) Flow Control Valve A/M Station, total CRD flow will momentarily increase causing the Auto signal (Black indicator) to the A AND B valves to be reduced. The FCV in AUTO should throttle to maintain desired CRD system flow. After Steps 5.2.6.C AND 5.2.6. D are complete, all four signals (Auto AND Manual for both valves) should be approximately the same.	Operator reads and initials NOTE.		
	C. Slowly **ADJUST** the INCREASE knob on valve B(A) UNTIL the Manual signal indicator (Red), is at the same position as the Auto signal indicator (Black). (B(A) Flow Control Valve A/M Station)	Operator rotates the 1BF-PI-D009B(A) controller increase knob in the clockwise direction until the red needle matches the position of the black needle, and initials Step.		
CUE:	**As operator motions rotating knob, provide the following information: "The red needle is rising; the red needle position matches the black needle.**			
	D. As necessary, **ADJUST** the INCREASE knob for valve A(B) UNTIL the Manual signal indicator (Red) is at the same position as the Auto signal indicator (Black). (A(B) Flow Control Valve A/M Station)	Operator rotates the 1BF-PI-D009A(B) controller increase knob until the red needle matches the position of the black needle, and initials Step.		
CUE:	**As operator motions rotating knob, provide the following information: "The red needle position matches the black needle."**			

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT) @
	E. **POSITION** valve B(A) to AUTO (B(A) Flow Control Valve A/M Station)	***Operator rotates the 1-BF-PI-D009B(A) AUTO/MAN knob in the counterclockwise direction to the AUTO position,** and initials Step.		
CUE:	**The switch you indicated is in the position stated.**			
	F. **POSITION** valve A(B) to MAN (A(B) Flow Control Valve A/M Station)	Operator rotates the 1-BF-D009A(B) AUTO/MAN knob in the clockwise direction to the MAN position, and initials Step.		
CUE:	**The switch you indicated is in the position stated.**			
	G. **ADJUST** the INCREASE knob on VALVE A(B) UNTIL Manual signal indicator (Red) indicates 0 (A(B) Flow Control Valve A/M Station)	Operator rotates the 1-BF-PI-D009A(B) controller increase knob in the counterclockwise direction until the red needle indicates 0, and initials Step.		
CUE:	**As operator motions rotating knob, provide the following information: "The red needle is lowering, the red needle indicates 0."**			
	H. **CLOSE** the following valves: 1. 1-BF-V017(1-BF-V018), CRD Drive Wtr FV-F002A(B) Outlet Vlv	***Operator rotates the 1-BF-V017(1-BF-V018) T-handwheel in the clockwise direction until valve handwheel reaches a hard stop,** and initials Step. Examiner Note: It is NOT critical that both 1-BF-V017(18) and V013(14) be closed.		
CUE:	**The valve indicated is closed.**			
	2. 1-BF-V013(1-BF-V014), CRD Drive Wtr FV-F002A(B) Inlet Vlv	***Operator rotates the 1-BF-V013(1-BF-V014) T-handwheel in the clockwise direction until valve handwheel reaches a hard stop,** and initials Step.		
CUE:	**The valve indicated is closed.**			
	I. **PERFORM** valve lineup IAW Attachment 1.	Operator performs lineup on Attachment 1, and initials Step.		

JPM NUMBER: BF001 **NAME:** _____

REV NUMBER: 18 **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 alternates CRDH System Flow Control Valves in accordance with Section 5.2 of HC.OP-SO.BF-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BF001 **NAME:** _____

REV NUMBER: 18 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BF001

REVISION HISTORY

Rev #	Date	Description	Validation Required?
12	8/28/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y
13	9/9/09	Revised due to procedure step numbers and added Note from editorial changes to HC.OP-SO.BF-0001. No validation required.	N
14	5/4/11	Updated reference procedure revision number. Operator actions did not change.	N
15	3/19/13	Added Task Standard to JPM. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only. No validation required. Updated reference procedure revision number. Deleted "and initials Attachment 1" from each step. Editorial change only. No validation required. Revised to have the current in service FCV alternated. No validation required.	N
16	12/4/2014	Revised to new JPM format. Minor revisions to CUEs. Editorial changes only. Validated with 2 ROs. Average Validation Time was 17 minutes.	N
16	1/21/2015	Revised Initiating Cue with valve numbers and letter designations per NRC comments.	N
17	9/2/2015	Revised procedure Revision Number and Sub-Step Number. No changes to performed actions.	N
18	9/6/2018	Added @ and text regarding Operating Fundamentals of SER 3-05 per IER L1-11-3 Rec. 3b. Editorial. Revised Reference Procedure Revision Number. Editorial.	N
18	7/16/20	Reviewed & verified procedure and JPM steps. No changes required.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: BF001 **REV#:** 18
TASK: Shift In-Service CRD Flow Control Valves

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
J. KOSKEY	RO	ON FILE	12/4/2014
D. WHITE	RO	ON FILE	12/4/2014

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 80% power.
2. The RBEO reports that the in-service CRD Hydraulic System Flow Control Valve has developed a packing leak.

INITIATING CUE:

ALTERNATE CRD Hydraulic System Flow Control Valves from FV-F002A to FV-F002B in accordance with Section 5.2 of HC.OP-SO.BF-0001.

JOB PERFORMANCE MEASURE

Copy _____ of _____

STATION: Hope Creek

SYSTEM: Main Steam

TASK NUMBER: 4000210401

TASK: Respond To A Failed Open Safety Relief Valve

JPM NUMBER: 305H-JPM.AB003 **REVISION:** 07

SAP BET: NOH05JPAB03E

K/A NUMBER: 239002 A2.03 **IMPORTANCE FACTOR:** RO: 4.1 SRO: 4.2

ALTERNATE PATH: ☐

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

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-AB.RPV-0006, Rev. 9

TOOLS, AND EQUIPMENT: Fuse Pullers (May be simulated.)

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 Steam

TASK NUMBER: 4000210401

TASK: Respond To A Failed Open Safety Relief Valve

INITIAL CONDIITONS:

1. The Reactor is shutdown due to the PSV-F013D SRV being electrically held open by BOTH logic 'B' AND 'D' solenoids.
2. Action A.3 of HC.OP-AB.RPV-0006, Safety Relief Valve, is being executed.

INITIATING CUE:

PULL BOTH LOGIC 'B' AND 'D' fuses for PSV-F013D SRV IAW Attachment 2 of HC.OP-AB.RPV-0006.

(NOTE: Fuse pullers may be provided, or simulated.)

JPM NUMBER: AB003 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	**PROVIDE** the operator the initiating cue, Fuse Pullers(if providing), AND **ENTER** START TIME AFTER Operator repeats back the Initiating Cue. **START TIME:** _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be Attachment 2 of HC.OP-AB.RPV-0006.		
A.3	IF the SRV solenoid cannot be de-energized from the Control Room, THEN **REMOVE** SRV fuses associated with the energized logic IAW Attachment 2.	Operator reviews Attachment 2 and determines the fuses that need to be pulled at 10C628 and 10C631A. Examiner Note: Fuses may be removed in any order. ***Operator pulls fuse F9 at panel 10C628A, ADS Div. 2.**		
CUE:	**The fuse that you have indicated is pulled.**			
		***Operator pulls fuse F10 at panel 10C628, ADS Div. 2.**		
CUE:	**The fuse that you have indicated is pulled.**			
		***Operator pulls fuse F9 at panel 10C631A, ADS Div. 4.**		
CUE:	**The fuse that you have indicated is pulled.**			
		***Operator pulls fuse F10 at panel 10C631A, ADS Div. 4.**		
CUE:	**The fuse that you have indicated is pulled.**			

JPM NUMBER: AB003 **NAME:** _____

REV NUMBER: 07 **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 removes fuses associated with the energized SRV logic IAW Attachment 2 of HC.OP-AB.RPV-0006.				

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: AB003 **NAME:** _____

REV NUMBER: 07 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AB003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	5/7/09	Updated to new JPM Template. Revised to add both SRV D solenoids. Validated with operators from A Shift. Avg time 13 minutes.	Y
03	3/20/13	Added Task Standard to JPM. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only. No validation required.	N
04	7/21/2015	Revised format and minor editorial changes. Previously used during 2014 LOR Exam.	N
05	6/13/2016	Revised due to procedure revision. No changes to operator actions. Minor editorial changes.	N
06	8/26/2017	Revised due to procedure revision. No changes to operator actions. Minor editorial changes.	N
07	10/3/20	Revised due to reference procedure revision. No changes to operator actions.	N

JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: AB003 **REV#:** 07
TASK: Respond To A Failed Open Safety Relief Valve

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).

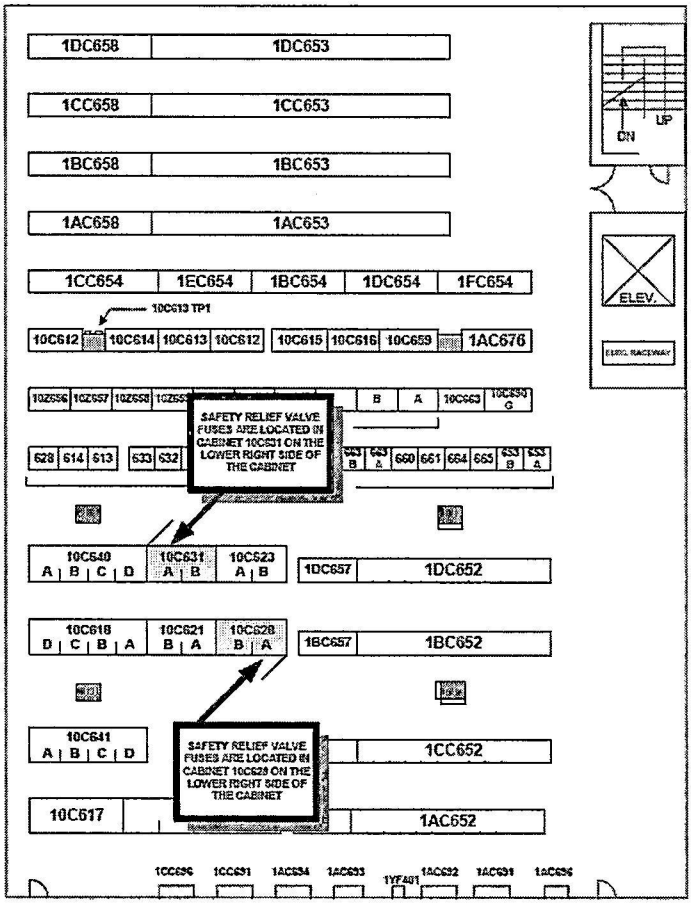
VALIDATED BY:

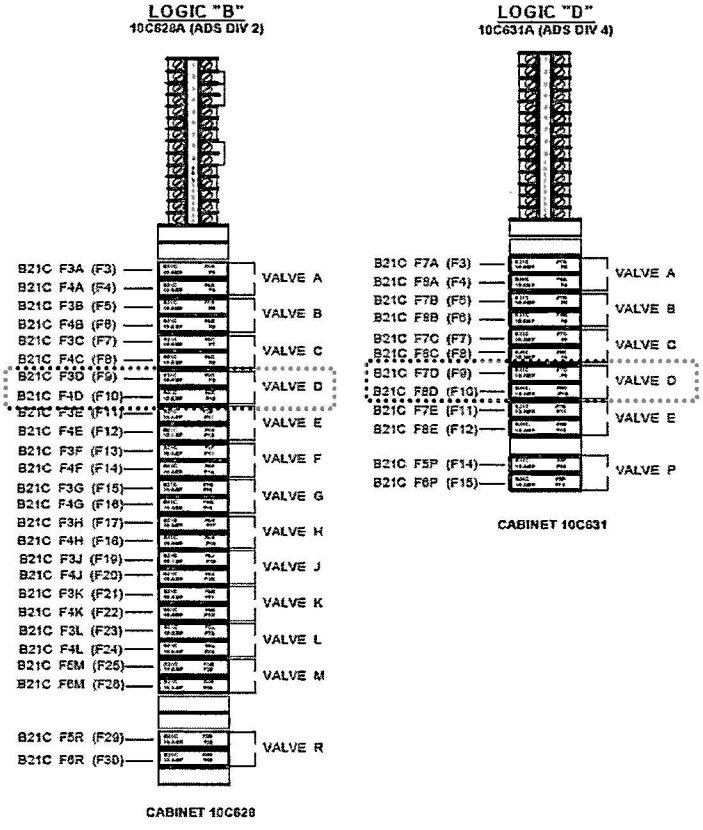
Qualification Level Required: NLO

Name	Qual	Signature	Date
R. HANNA	RO	ON FILE	6/14/2013
S. LOPER	RO	ON FILE	6/14/2013

JOB PERFORMANCE MEASURE

LOWER RELAY ROOM





JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Reactor is shutdown due to the PSV-F013D SRV being electrically held open by BOTH logic 'B' AND 'D' solenoids.
2. Action A.3 of HC.OP-AB.RPV-0006, Safety Relief Valve, is being executed.

INITIATING CUE:

PULL BOTH LOGIC 'B' AND 'D' fuses for PSV-F013D SRV IAW Attachment 2 of HC.OP-AB.RPV-0006.

SIMULATOR

COPY _____ OF _____

***EXAMINATION* SCENARIO GUIDE**

SCENARIO TITLE:	**Earthquake, SSW Pump Trip, Rad Mon Failure, Inst Line Break in Drywell, ATWS, HPCI/RCIC Failure**
SCENARIO NUMBER:	**NRC 1**
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	60 minutes
REVISION NUMBER:	**1**
PROGRAM:	[ ] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

1. Validated with SRO and 2 ROs.
2. NRC comments incorporated.

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Raise Power with Control Rods
B. Earthquake
C. Trip of SSW Pump
D. MSLRMS Channel A Fails upscale
E. Instrument Line Break in Drywell
F. ATWS
G. HPCI Auto Initiation Failure
H. RCIC Auto Initiation Failure

III. SCENARIO SUMMARY:

The scenario begins with the plant at approximately 81% power. The 'B' RFPT has been removed from feeding due a control signal failure. Power is to be raised to approximately 88%. An earthquake that exceeds the OBE will occur. A trip of the operating SSW pump occurs with a failure to auto start of the standby pump, requiring restoration of a SSW pump and Tech Spec entry. After SSW has been restored, 'A' MSLRMS channel fails upscale resulting in a TS LCO. After TS are addressed, 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 inhibits 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. A RCIC auto start failure also occurs. Operator action will be required to restore HPCI/RCIC 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".

IV. INITIAL CONDITIONS:

I.C.

Initial	
_____	**INITIALIZE** the simulator to 100% power, 3840 MWt.
_____	**ENSURE** the 'A' Fuel Pool Cooling pump is in service.
_____	**ENSURE** the 'B' CRD pump is in service.
_____	**ENSURE** HPCI Flow Controller set at 5700
_____	**ENSURE** TACS is being supplied by the 'A' SACS loop.
_____	**ENSURE** 'D' SACS pump is in service.
_____	**ENSURE** BP502 SSW pump is in service.
_____	**ENSURE** 'B' Control Room Ventilation Train is in service.
_____	**REDUCE** Reactor Power to approx.81% in accordance with Standard Power Reduction Instructions. Group (9A B,C,D rods) inserted. **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	Description
_____	**INITIAL HC.OP-SO.AE-0001 Section 4.11 up to 4.11.5**
_____	**INITIAL** IO-6 for power rise.
_____	**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
	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 HP06E	HPCI aux oil pump failure to auto start
	None	None	Insert malfunction CW14D.	Service water pump DP502 fail to auto start
	None	None	Insert malfunction PC07A on event 1	Seismic Event I
	None	None	Insert malfunction QQ09 to short after 120 on event 1	SSW pump BP502 Malfunctions
	None	None	Insert Malfunction RC02	RCIC failure to auto start
	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	None	Insert malfunction RR31A1 to 20 in 300 on event 13	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 EP38 after 180 to Emergency on event 5	EP38 EOP-319, Restoring Instrument Air in an Emergency
	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 480 to INSTALLED on event 6	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper
	None	None	Insert remote EP14 after 480 to INSTALLED on event 6	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Ascension	• CRS directs power ascension in accordance with REMA and IO-6 • RO commences power ascension IAW REMA and HC.OP-SO.BB-0002: ⇒	
Earthquake: After the Crew assumes the watch and at the discretion of the Lead Examiner, • **PLAY** the Earthquake Sound Effect (if available) at medium volume for about 15 seconds OR **ANNOUNCE** "You feel motion then it stops" AND **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.	**INPO Fundamentals:** ☐ MONITORING
IF Crew calls National Earthquake Center, THEN **REPORT** a seismic event of 6.0 on Richter scale centered 12 miles east of Wilmington, DE. IF Crew calls Security, THEN **REPORT** the Security system is intact.	• CRS implements AB.MISC-0001: ⇒ Condition E ⇒ Condition F	

V. 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.	
Trip of BP502 SSW pump/Failure of DP502 to Auto-Start: Trip of the BP502 pump occurs two minutes after 10C673 alarm is received.	• Crew recognizes trip of BP502 SSW pump by: ⇒ OHA A1-B3 "SSWS INTAKE B TROUBLE" ⇒ CRIDS D5520 "SSW PUMP BP502" ⇒ Flashing BP502 STOP light ⇒ Zero pump amps • CRS enters AB.COOL 0001: ⇒ Condition A	**INPO Fundamentals:** ☐ MONITORING

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to BP502 SSW pump, THEN **REPORT** the motor is hot.	• Crew dispatches NEO to inspect BP502 SSW pump.	
IF dispatched to BP502 SSW pump breaker, THEN **REPORT** the breaker tripped on overcurrent.	• Crew dispatches NEO to inspect breaker for BP502 SSW pump.	
	• Crew recognizes failure of DP502 to auto start. CRS directs starting of DP502.	**INPO Fundamentals:** ☐ MONITORING **INPO Fundamentals:** ☐ CONTROL
	• PO starts DP502 IAW HC.OP-SO.EA-0001: ⇒ PRESS LOOP B PUMPS - PUMP DP502 START PB ⇒ VERIFY the following: ▪ HV-2355B, SACS HX. B2 OUT, opens. ▪ HV-2197D, BACKWASH VALVE, opens. ▪ HV-2198D, PUMP DISCHARGE, opens. ▪ AI-6359D, PUMP MOTOR AMPS PUMP D, reads 85 to 110 amps.	**HPI USED:** STAR ☐ PEER CHECK ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognizes the following Tech Specs apply: ⇒ Station Service Water System 3.7.1.2 action a.1, or a.3, if SSW Pump D is also declared inoperable	With one station service water pump inoperable, and if continued plant operation is permitted by LCO 3.7.1.3, restore the inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.** ** Two diesel generators and two SACS pumps associated with the unaffected service water loop must be OPERABLE. **INPO Fundamentals:** ☐ KNOWLEDGE
'A' Main Steam Line RMS channel fails upscale: 5 minutes after Technical Specifications have been addressed for the SSW Pump 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	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew monitors corroborating instrumentation for indication of rising reactor coolant activity.	
	• CRS determines actuation is not valid.	
	• CRS recognizes 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.	
Inst Line Break in Drywell: 5 minutes after the Tech Specs are addressed, OR, 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. • Crew refers to Digital Point D2121	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes 'B' Channel Initiations by: ⇒ A7-B3 "RHR PUMP B AUTO START" ⇒ B3-A3 "CORE SPRAY PUMP B AUTO START" ⇒ C8-A4 "NSSSS MSIV LOGIC B INITIATED" ⇒ Various initiation lights ⇒ B RHR and Core Spray pumps running ⇒ 'B' EDG running ⇒ 'B' SSW running ⇒ Trip of 2VH212 DW Cooler Fans ⇒ Loss of NPV RMS	**INPO Fundamentals:** ☐ MONITORING
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.	
		HPI USED: STAR ☐ PEER CHECK ☐
	• Crew recognizes Reactor Building vacuum is < 0.30 inches water gauge, and enters AB.CONT-0003. • CRS implements AB.CONT-0003 ⇒ Condition A • PO places FRVS in service IAW AB.ZZ-0001.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes loss of RACS to drywell by: ⇒ Indication of valves ED-HV-2553 and 2555 stroking closed on 10C651A and 10C650D ⇒ CRIDS D2424 "RECIRC PMP A SEAL COOLING FLOW LO" ⇒ CRIDS D2425 "RECIRC PMP B SEAL COOLING FLOW LO"	
	• CRS implements AB.COOL-0003: ⇒ Condition B If cooling cannot be restored within 10 minutes OR evidence of recirc pp seal damage then: ⇒ Reduce Recirc Pp speed to minimum ⇒ Lock the Mode Switch in Shutdown ⇒ Trip Both Recirc PPs • Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure	NOTE: Actions IAW AB.COOL-0003 may not be taken depending on when the Crew scrams the plant due to rising drywell pressure. NOTE: ATWS actions taken IAW EOP101A during the next event will require tripping the Recirc PPs

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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	**INPO Fundamentals:** ☐ CONSERVATISM
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 ⇒ Locks the Mode Switch in SHUTDOWN	**HPI USED:** STAR ☐ PEER CHECK ☐
	• 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	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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 • RO performs scram actions IAW AB.ZZ-0001 Att. 1.	**HPI USED:** STAR ☐ HARD CARD ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION • Prioritize the Power Leg to establish SLC injection as soon as possible. • Terminating and Preventing HPCI in a timely manner is critical in order to reduce reactor power by establishing and maintaining a -50" to -100" RPV level band. • Maximize steam loads IAW with the post scram pressure control hard card actions when reactor power exceeds bypass valve capability. • Although Abnormal Operating Procedure HC.OP-AB. BOP-0002 guidance for tripping the turbine should still be followed, the impact of tripping the turbine on RPV pressure control should be evaluated and actions taken ahead of time to minimize the impact of the loss of the turbine (e.g., all other steam demands are maximized, turbine parameters are closely monitored to provide the longest time possible for other reactor shutdown actions to be implemented prior to tripping the turbine). If reactor power is within the capability of the turbine bypass valves, the turbine should be tripped without any additional delay. • After Terminating and Preventing low pressure ECCS, place RHR in suppression pool cooling in order to mitigate reaching 110 degrees F in the Torus with SRVs cycling. • With limited injection sources, if RPV level stabilizes below -185", the decision on whether reactor level can be restored above -185" will be based on the time required to insert sufficient negative reactivity to allow reactor level to stabilized above -185". • As control rods are inserted, reduce injection flow to maintain reactor level low in the assigned band to reduce reactor power.	• CRS implements EOP-101A.	**INPO Fundamentals:** ☐ TEAMWORK

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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.	**INPO Fundamentals:** ☐ TEAMWORK
	• WHEN Drywell Pressure reaches 1.68#, THEN Crew recognizes RFPT trips by: ⇒ OHA B3-E1 "RFP TURBINE TRIP" ⇒ RFPT Control Valve indications on 10C650C ⇒ TRIP status light on RFPT bezels ⇒ RFPT discharge pressure indications on 10C650C ⇒ Feed flow indications	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION For ATWS conditions where reactor power remains>4% RTP, the CRS should direct the PO to remain at feedwater to stabilize RPV level. Under these conditions, the Recirc pumps are already tripped and RWCU has already isolated and the PO should be assigned the action to initiate SLC. The RO, following completion of the post scram hard card ATWS mitigation actions (manual scram and ARI initiation), should be directed to Terminate and Prevent HPCI injection prior to implementing any other EOP-101A actions such as inhibiting ADS or inserting control rods. The basis for this direction is; 1) to facilitate PO control of RPV level; 2) mitigate the reactor power excursion due to the cold water HPCI injection inside the shroud; and 3) ensure that the main turbine remains available to facilitate RPV pressure control by initiating action to prevent reaching RPV Level 8.	• PO stabilizes and maintains RPV level as directed by CRS.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL
	• CRS directs: ⇒ Initiating SLC ⇒ Verifying RWCU Isolates	
	• RO/PO initiates SLC.	**HPI USED:** STAR ☐
		HPI USED: STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs: ⇒ Verifying Recirc runback to minimum ⇒ Tripping reactor Recirc pumps	
	• RO/PO: ⇒ Verify Recirc runback to minimum ⇒ Trip reactor recirc pumps	
	• CRS directs inhibiting ADS.	
	• RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐
	* ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION, OR if actuated, closes ADS valves before Reactor Pressure drops below 550 psig. (ADS Inhibited)***	'D' Channel ADS logic will be satisfied when RPV level is below LVL 3 and 'A' or 'C' RHR or 'A' Core Spray loop is running.

Event / Instructor Activity	Expected Plant/Student Response	Comments
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-319: **ET-5** EOP-320: **ET-6** 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 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.
	• CRS directs terminating and preventing injection to the RPV with the exception of: ⇒ SLC ⇒ CRD ⇒ RCIC	**INPO Fundamentals:** ☐ TEAMWORK
	• RO/PO terminates and prevents injection from HPCI, RHR and Feedwater/Condensate.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew terminates and prevents injection from Core Spray.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL
	• CRS directs maintaining RPV water level between –50" and -185" with SLC, CRD, HPCI.	
	• 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.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
HPCI /RCIC Automatic Initiation Failure: The HPCI Aux Oil pump auto-start failure is already inserted. RCIC auto initiation failure is pre-inserted	• WHEN RPV level reaches –38", OR Drywell Pressure reaches 1.68#, THEN Crew recognizes HPCI/RCIC automatic initiation failure by: ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ HPCI Stop Valve & Control Valve failure to open ⇒ HPCI Aux Oil pump STOPPED indication ⇒ RCIC injection valves not opening	**INPO Fundamentals:** ☐ MONITORING
	• 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. **INPO Fundamentals:** ☐ TEAMWORK
	• IF directed, THEN RO/PO restore 1E breakers IAW AB.ZZ-0001 Att. 12.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs level control with any of the following IAW EOP-101A: ⇒ HPCI ⇒ RCIC	**INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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	**HPI USED:** STAR ☐
	• IF directed, THEN RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9	**HPI USED:** STAR ☐ HARD CARD ☐
	• RO/PO initiates HPCI IAW AB.ZZ-0001 Att. 6 and inject IAW EO.ZZ-0322 to maintain RPV water level as directed by CRS.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL
	* ***CREW maintains or restores adequate core cooling by restoring/maintaining Compensated Reactor water level to >-185" IAW HC.OP-EO.ZZ-0101A, without Emergency Depressurizing.***	
	• IF the MSIVs close, THEN the CRS directs pressure control with the SRVs.	
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Pressure Leg Direct initial pressure control as Stabilize pressure 800 psig to 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and will prevent an unwanted cooldown. The upper limit of 1000 psig is a round number below 1047 psig. Do NOT allow the use of SRVs to interfere with Bypass valves.	• IF directed, THEN RO/PO control pressure with SRVs IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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.	**HPI USED:** STAR ☐ HARD CARD ☐
	• IF necessary, THEN RO/PO align SACS loads to support RHR Hx IAW SO.EG-0001 Section 5.9.	**HPI USED:** STAR ☐
WHEN the Crew has reset RPS, THEN **DELETE** Malfunction **RP06** to allow full rod insertion on the next scram.	• WHEN EOP-320 Section 5.1 and 5.2 are complete, THEN the Crew implements EOP-320 Section 5.3 and resets RPS.	**HPI USED:** STAR ☐
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.	**HPI USED:** STAR ☐ **INPO Fundamentals:** ☐ MONITORING
	• 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.	

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: • RPV Level is being maintained above –185" AND • All rods are fully inserted, or are being manually inserted.	• CRS exits EOP-101A, enters EOP-101.	

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-106-101-1001 Event Response Guidelines
N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
O. OP-HC-108-106-1001 Equipment Operational Control
P. **HC.OP-SO.AE-0001 Feedwater System Operation**
Q. **HC.OP-SO.SF-0001 Reactor Manual Control**
R. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
S. **HC.OP-AB.RPV-0001 Reactor Power**
T. **HC.OP-AB.RPV-0004 Reactor Level Control**
U. **HC.OP-AB.IC-0001 Control Rod**
V. **HC.OP-AB.CONT-0001 Drywell Pressure**
W. **HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling**
X. **HC.OP-AB.MISC-0001 Acts of Nature**
Y. **HC.OP-EO.ZZ-0301 Bypassing MSIV Isolation Interlocks**
Z. **HC.OP-EO.ZZ-0311 Bypassing Primary Containment Instrument Gas Isolation Interlocks**
AA. **HC.OP-EO.ZZ-0319 Restoring Instrument Air in an Emergency**
BB. **HC.OP-EO.ZZ-0320 Defeating ARI and RPS Interlocks**
CC. **HC.OP-EO.ZZ-0322 Core Spray Injection Valve Override**
DD. **HC.OP-EO.ZZ-0101 RPV Control**
EE. **HC.OP-EO.ZZ-0101A ATWS-RPV Control**
FF. **HC.OP-EO.ZZ-0102 Primary Containment Control**
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 For The Hope Creek Generating Station

ESG-NRC 1 / 1

1.

* ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION, OR if actuated, closes ADS valves before Reactor Pressure drops below 550 psig. (Inhibit ADS)***

K/A 218000 Automatic Depressurization System
A4 Ability to manually operate and/or monitor in the control room:
A4.04 ADS inhibit RO 4.1 SRO 4.1

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. EOPs direct this action under the current conditions. This critical task is only applicable if RPV water level goes below –129". 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 550 psig.

2.

* ***CREW maintains or restores adequate core cooling by restoring/maintaining Compensated Reactor water level to >-185" IAW HC.OP-EO.ZZ-0101A without Emergency Depressurizing.***

K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown
EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:
EA2.02 Reactor water level RO 4.1 SRO 4.2

Maintaining adequate Core cooling under ATWS conditions is accomplished by maintaining/restoring level above -185". HPCI and RCIC are capable of maintaining level under the current conditions. AB.ZZ-0001 provides directions on manual initiation of HPCI which will mitigate the automatic initiation failure. An Emergency Depressurization is not warranted and would result in a large injection of cold water and the potential displacement of boron from the core.

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
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.

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

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

ESG-NRC 1

SELF-CHECK

x 1. Total malfunctions inserted: 5-8

x 2. Malfunctions that occur after EOP entry: 1-4

x 3. Abnormal Events: 2-3

x 4. Major Transients: 1-2

x 5. EOPs used beyond primary scram response EOP: 1-3

x 6. EOP Contingency Procedures used: 0-3

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: 2-5

x 10. Technical Specifications are exercised during the scenario.

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST (continued)

Crew Validation **Rev:** 0 **Date Validated:** 6/17/2019
Validated with one SRO and 2 ROs. Runtime 50 minutes.

Validation Comments	Disposition
Modify CT#2 to include if actuated.	Revised.

Crew Validation **Rev:** 0 **Date Validated:** 1-20-21
Validated with one SRO and 2 ROs. Runtime 55 minutes

Validation Comments	Disposition
NRC comments incorporated on CT wording and event description	revised

IX. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

PROTECTED EQUIPMENT

A and C RFPTs

REACTIVITY / Plant Status

≈81% Power. Power was reduced to remove RFPT B from feeding.
Raise power to 88% IAW IO-6 and REMA.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

RFPT B removed from service due to a Control Signal Failure. Maintenance is evaluating.

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____

SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**RRCS Inst Failure, RWCU Leak, High Rx Pressure, LOCA, Downcomer Failure, A/C Channel Failures**
SCENARIO NUMBER:	**NRC 2**
EFFECTIVE DATE:	Effective when approved
EXPECTED DURATION:	60 minutes
REVISION NUMBER:	**1**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

1. Validated with 1 SRO and 2 ROs
2. NRC comments incorporated

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A Transfer 'B' RPS to Alternate Power Supply
B. Reduce power to 95%
C. RRCS Pressure Transmitter Failure
D. RWCU Leak w/Failure to Automatically Isolate
E. High Reactor Pressure/Mode Switch Failure
F. LOCA
G. Downcomer Failure
H. A/C Channel Initiation Failures

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. The 'B' RPS MG set has a noisy bearing and 'B' RPS is to be transferred to its Alternate Supply so that the MG set can be removed from service (Optional). Following the RPS power supply transfer, Reactor Power will be reduced to allow for a control rod swap. The PT-N403A RRCS Pressure Transmitter will fail downscale. After Tech Specs for the failure are identified, RWCU will develop a leak that will require manual isolation of the system. The automatic isolation is failed. After RWCU is isolated, an EHC logic failure will cause reactor pressure to slowly rise. Bypass valves will not respond. Both the RPS and RRCS high pressure scrams will fail and a manual scram will be required to restore reactor pressure to within normal limits. The pressure transient will cause a LOCA and a Downcomer will fail. This will require spraying the drywell to avoid exceeding PSP. The Mode switch will fail such that the Low Main Steam Line Pressure MSIV isolation will NOT be bypassed by taking the Mode Switch out of RUN. The PT-N094E/G will fail to respond to High Drywell Pressure due to inadvertently being left isolated following maintenance. This will result in the failure of A/C Core Spray and RHR logics to initiate, and the failure of HPCI to initiate. All logics can be manually initiated and all logics will respond to lowering RPV water level. The scenario ends when RPV level is being maintained and Drywell Sprays are in service.

IV. INITIAL CONDITIONS:

I.C.	
Initial	

_____ **INITIALIZE** the simulator to 100% power, MOL, TACS supplied by SACS B.

_____ **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

_____ IF the transfer of 'B' RPS to Alternate will be observed, THEN **INITIAL** SO.SB-0001 Section 4.4 up to and including the checking of MSIV Pilot Solenoid lights (Step 4.4.4 of Rev 37).

_____ **ENSURE** all four RPS power supply lights at the RPS transfer switch on H11-P610 are lit.

_____ **ENSURE** Remote Functions PC03ER and PC03GR are RESET.

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

_____ **ENSURE** Data Collection is trending the following parameters:

_____ • Suppression Chamber Pressure

_____ • W/R Reactor Water Level

_____ • W/R Reactor Pressure

_____ • Suppression Pool Water Level

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

EVENT FILE:

Initial	ET #		
	9	Event code: Description:	**crqnmi <= 10** Reactor power <= 10%
	10	Event code: Description:	**mspeh <= 900** Main Steam Line Header Pressure <= 900 psig
	11	Event code: Description:	**mspeh <= 890** Main Steam Line Header Pressure <= 890 psig
	12	Event code: Description:	**mspeh <= 880** Main Steam Line Header Pressure <= 880 psig
	13	Event code: Description:	**mspeh <= 860** Main Steam Line Header Pressure <= 860 psig
	14	Event code: Description:	**pcpdw >= 16.4** Drywell Pressure >= 1.7 psig
	16	Event code: Description:	**tc_trip & rrprv <=905** Main Turbine Trip and RPV press <= 905 psig

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction AD06	Failure of low-low set valves to Arm
	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 RZ03A	RRCS Channel A - Logic A Failure to Auto Initiate
	None	None	Insert malfunction RZ03C	RRCS Channel B - Logic A Failure to Auto Initiate
	None	None	Insert malfunction TC01-10	All turbine bypass valves fail closed
	None	None	Insert malfunction RZ02A to 0 on event 4	RRCS Pressure Transmitter PT-N403A Failure
	None	None	Insert malfunction AN-D1E1 on event 4	CRYWOLF ANN D1E1 RRCS TROUBLE
	None	None	Insert malfunction CU03 from 10 to 100 in 900 on event 5	RWCU system leak
	None	None	Insert malfunction TC02-2 from 70 to 0 in 1200 on event 7	Turbine control valve CV-2 failure
	None	None	Insert malfunction TC02-3 from 70 to 0 in 1200 on event 7	Turbine control valve CV-3 failure
	None	None	Insert malfunction PC03E after 300 from 0.4 to 0.4 on event 9	Drywell pressure transmitter N094E failure
	None	None	Insert malfunction PC03G after 300 from 0.4 to 0.4 on event 9	Drywell pressure transmitter N094G failure
	None	None	Insert malfunction RR31A1 after 300 to 100 in 240 on event 9	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RR31A2 after 480 to 10 in 780 on event 9	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction PC04 after 300 to 100 on event 9	Downcomer break
	None	None	Insert malfunction FW26A on event 14	Feedwater pump turbine AS105 trip
	None	None	Insert malfunction FW26B on event 14	Feedwater pump turbine BS105 trip
	None	None	Insert malfunction FW26C on event 14	Feedwater pump turbine CS105 trip
	None	None	Insert malfunction TC02-3 to 0 on event 11 delete in 1	Turbine control valve CV-3 failure
	None	None	Insert malfunction TC02-2 to 0 on event 12 delete in 1	Turbine control valve CV-2 failure
	None	None	Insert malfunction TC01-10 on event 16 delete in 1	All turbine bypass valves fail closed

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote EP12 to INSTALLED	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper
	None	None	Insert remote EP14 to INSTALLED	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper
	None	None	Insert remote CU11 to RACK_OUT on event 1	CU11 GROUP 7A HV-F004 RWCU Supply Isol
	None	None	Insert remote HV06 to STOP on event 6	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 6	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 6	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 6	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 3 to STOP on event 6	HV02 RBVS Exhaust fan B
	None2	None	Insert remote HV01 after 3 to STOP on event 6	HV01 RBVS Exhaust fan A

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert override 2A4_E_LO to On on event 4	RRCS LOGIC TROUB (LO)
	None	None	Insert override 3S22_A_DI to Off on event 9	RPS MODE SWITCH - SHUTDOWN (DI)
	None	None	Insert override 3S22_B_DI to Off on event 9	RPS MODE SWITCH - REFUEL (DI)
	None	None	Insert override 3S22_D_DI to On on event 9	RPS MODE SWITCH - RUN (DI)

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Transfer RPS Bus: At the discretion of the Lead Examiner, Crew Transfers 'B' RPS to Alternate after assuming the watch.	• CRS directs transferring 'B' RPS bus to Alternate supply IAW SO.SB-0001 Section 4.4.	**INPO Fundamentals:** ☐ CONTROL
	• RO/PO transfer 'B' RPS bus to alternate IAW SO.SB-0001.	**HPI USED:** STAR ☐
	• CRS may direct closing valve BB-SV-4311 IAW Att. 3 of HC.OP-S).SB-0001 • RO/PO closes valve BB-SV-4311 as directed	
IF directed to open the 52-242081, THEN **TRIGGER ET-1**.	• RO/PO directs RBEO to open breaker 52-242081 for BG-HV-F004 prior to transfer.	Should be done to prevent loss of RWCU.
	• RO/PO enters valves in Narrative Logs for Tech Spec 3.6.3.	
IF dispatched to check MSIV pilot solenoid lights on 622/623 panels, THEN **REPORT** all lights are lit.	• PO turns the RPS MG SET TRANSFER SWITCH clockwise to ALT B.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐
	• RO/PO reset ½ scram IAW SO.SB-0001 Section 5.3.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• RO/PO reset NSSSS and PCIS IAW SO.SM-0001 Section 5.3.	**HPI USED:** STAR ☐ PEER CHECK ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO reset high speed PAMS recorders.	**HPI USED:** STAR ☐ PEER CHECK ☐
IF directed to close the 52-242081, THEN **TOGGLE** Remote Function **CU11** to **NORMAL**.	• RO/PO directs RBEO to close breaker 52-242081 for BG-HV-F004.	
IF directed to close the 52-242083, THEN **TOGGLE** Remote Function **MS12** to **UNTAGGED**.	• RO/PO directs RBEO to close breaker 52-242083 for AB-HV-F019.	
SUPPORT requests to place the RWR sample line in and out of service IAW CH-SA.RC-0002 by providing an appropriate delay and then reporting the RWR sample line is in or out of service as requested. This is transparent to the Crew and is not supported by any Remote Functions.	• RO/PO directs Chemistry to remove RWR sample line from service. • RO/PO opens BB-SV-4310/4311. • RO/PO directs Chemistry to place RWR sample line back in service.	**HPI USED:** STAR ☐ PEER CHECK ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to remove 'B' RPS MG set from service, THEN **INSERT Malfunction RP08B.**	• RO/PO directs ABEO to remove 'B' RPS MG set from service.	
Power Reduction	• 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.	
RRCS Transmitter Failure: After the 'B' RPS bus is transferred to Alternate, OR, at the discretion of the Lead Examiner, **TRIGGER ET-4.**	• Crew recognizes RRCS Failure by: ⇒ OHA D1-E1 "RRCS TROUBLE" ⇒ RRCS Channel A Logic A "RRCS LOGIC A TROUBLE" light ⇒ SPDS point A3541 reading 0 psig	**INPO Fundamentals:** ☐ MONITORING

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to RRCS, THEN **REPORT** there is an "ATM CAL/GROSS FAILURE" light lit on 10C601 and PT-N403A is reading 0 psig. IF dispatched to RRCS to perform DL-26 Attach 1b Form 1, THEN **PROVIDE** DL-26 Attach 1b Form 1, filled out as provided on attached sheet. IF dispatched to transmitter at instrument rack C004, THEN **REPORT** no visible problem at instrument rack.	• Crew dispatches ABEO and/or Maintenance to RRCS cabinets 10C601/602.	
	• CRS recognizes the following Tech Spec action applies: ⇒ ATWS Recirculation Pump Trip System Instrumentation 3.3.4.1 action b OR action d (IF action b. is not completed).	Place the inoperable channel in a tripped condition within one hour, OR Declare one system inop and restore to operable status within 72 hours. [Ops accepted interpretation.] **INPO Fundamentals:** ☐ KNOWLEDGE

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
RWCU Leak: After Tech Spec actions for the PT-N403A have been identified, OR, at the discretion of the Lead Examiner, **TRIGGER ET-5** (RWCU leak with Auto Isolation failure).	• Crew recognizes leak from RWCU by: ⇒ Rising differential flows on NUMAC and CRIDS page 61 ⇒ OHA D3-A3 "MN STM/RWCU ⇒ AREA LEAK TEMP HI ⇒ CRIDS D5866 "RWCU/MAIN ST LEAK TMP CH W ⇒ CRIDS D5868 "RWCU/MAIN ST LEAK TMP CH Z ⇒ OHA D3-B3 "RWCU STM LK ISLN TIMER INITIATED" ⇒ CRIDS D5871 "RWCU ISLN TIMER INITIATED CH D" ⇒ CRIDS D5873 "RWCU ISLN TIMER INITIATED CH A"	**INPO Fundamentals:** ☐ MONITORING Room temperatures will not provide conclusive evidence of leak. RWCU differential flow will reach the alarm setpoint about 7.5 minutes after leak starts. If RWCU is isolated before differential flow setpoint is reached, alarms will not be received.
Insight Items: • RWCU Diff Flow **cufdelta** IF dispatched to the Reactor Building to look for leaks AND after RWCU Isolation has been initiated, THEN **REPORT** B RWCU Pump Room viewing window is obscured by condensation.	• CRS implements AB.CONT-002: ⇒ Condition A	**INPO Fundamentals:** ☐ TEAMWORK
Insight Items: • 'A' Channel Isolation **cu_k6a09** • 'D' Channel Isolation **cu_k6d11**	• Crew recognizes failure of RWCU to isolate by: ⇒ OHA C1-A2 "RWCU DIFF FLOW HI" ⇒ CRIDS D5870 "RWCU DIFF FLOW CH D" ⇒ CRIDS D5872 "RWCU DIFF FLOW CH A"	If RWCU is isolated before differential flow setpoint is reached, isolation will not be received.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO closes RWCU HV-F001 and HV-F004. (May also close HV-F039)	Immediate Operator action IAW AB.CONT-0002. **HPI USED:** STAR ☐ PEER CHECK ☐ **INPO Fundamentals:** ☐ CONTROL
Insight Items: • HV-F001 **cuvf001** • HV-F004 **cuvf004**	* ***Crew initiates isolation of RWCU (e.g., closure of RWCU HV-F001 OR HV-F004) BEFORE differential flow exceeds 65 gpm.***	**RECORD** time between C1-A2 and initiating closure. TIME: _____ Closing the RWCU HV-F001 OR HV-F004 prior to receiving OHA C1-A2 satisfies this Critical Task. **RECORD** closure time of time **HV-F001 OR HV-F004** TIME: _____
	• Crew implements SO.BG-0001 for removing RWCU from service.	
	• CRS implements AB.CONT-002: ⇒ Condition B ⇒ Condition A (conditional)	If crew isolated RWCU prior to isolation signal, Condition A will not be performed.
	• CRS may direct placing FRVS in service.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to remove RBVS from service, THEN **REFER** to SO.GU-0001 AND **TRIGGER ET-6**.	• RO/PO place FRVS in service IAW SO.GU-0001 Section 5.3; or AB.ZZ-0001.	**HPI USED:** STAR ☐ PEER CHECK ☐
IF contacted as Shift Chem Tech, THEN **REPORT** RWR is the alternate monitoring point and **REQUEST** status of the RWR sample line.	• CRS recognizes primary Continuous Conductivity Monitoring is lost, contact Shift Chem Tech to ensure compliance with UFSAR section 5.2.3.2.2.2 • CRS may refer to EOP-103 NOTE 9 for entry applicability	References to UFSAR section 5.2.3.2.2.2 can be found in: • ARP for OHA C1-F2 • SO.BG-0001 **INPO Fundamentals:** ☐ KNOWLEDGE
	• IF the leak was not isolated before the isolation signal was received, THEN CRS/STA/IA recognize the following Tech Spec action applies: ⇒ Isolation Actuation Instrumentation 3.3.2	Need to restore valves to OPERABLE or deactivate the HV-F001 or HV-F004 in the next four hours. May also refer to T/S 3.3.2, although both trip systems would already be tripped and the valves already shut.
	• Crew contacts Operations Management to initiate a Prompt Investigation and ERT callout.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Reactor High Pressure: After RWCU has been isolated and FRVS is in service, OR, at the discretion of the Lead Examiner, **TRIGGER ET-7** (High Reactor Pressure with mode switch failure).	• Crew recognizes rising reactor pressure by: ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ OHA B3-E5 "RPV PRESSURE HI" ⇒ OHA C5-A5 "RPV PRESSURE HI" ⇒ DEHC Bypass Valve Positioning Error alarms ⇒ CRIDS D5557, EHC TROUBLE ⇒ CRIDS D3372, MN TURB LOAD LIMIT LIMITING ⇒ Various Reactor Pressure indicators	Some alarms may not be received if the pressure excursion is terminated before their setpoint. **INPO Fundamentals:** ☐ MONITORING
	• RO reduces reactor power to maintain the RPV PRESSURE HI overhead alarm clear.	Immediate Operator Action IAW AB.RPV-0005. **HPI USED:** STAR ☐ **INPO Fundamentals:** ☐ CONTROL
	• CRS implements AB.RPV-0005: ⇒ Condition A ⇒ Condition D	

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.	• WHEN reactor pressure cannot be maintained <1030 psig, THEN Crew locks the Mode Switch in SHUTDOWN.	**HPI USED:** STAR ☐
	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• 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	May also have High Reactor Pressure entry condition.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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. • Crew performs the following: ⇒ Verifies Rx shutdown ⇒ Trends critical plant parameters ⇒ Monitors EOP implementation • PO maintains reactor water level as directed by CRS IAW AB.ZZ-0001 Att. 14.	**INPO Fundamentals:** ☐ TEAMWORK **HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes partial loss of Mode Switch functions by loss/absence of: ⇒ OHA C5-A3 "MANUAL SCRAM" ⇒ OHA C5-C1 "MODE SWITCH SHUTDOWN SCRAM BYP" ⇒ OHA C5-C3 "MSIV CLOSURE TRIP BYP" ⇒ Absence of SRM/IRM status lights and alarms	**HPI USED:** STAR ☐ Observation of the Mode Switch failure may go unnoticed since, the switch initially functions properly during a manual scram.
LOCA / Downcomer Break: The LOCA is automatically inserted five minutes after the reactor is scrammed.	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO" ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO" ⇒ Rising Drywell Pressure	**INPO Fundamentals:** ☐ MONITORING
	• CRS implements AB.CONT-001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	**HPI USED:** STAR ☐
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV temperatures	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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.	**INPO Fundamentals:** ☐ TEAMWORK
	• RO/PO verifies automatic actions.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
A/C Logic Failures: The failure of Drywell Pressure transmitters N094E/G is already inserted.	• Crew recognizes failure of the A/C Core Spray logics to initiate by: ⇒ A/C INIT AND SEALED IN lights extinguished ⇒ Pump STOPPED indication ⇒ A/C channel breaker status on 10C650E NON CLASS 1E LOAD ISLN CIRCUIT BREAKER STATUS AND CONTROL ⇒ A/C EDGs not running ⇒ Various valve failures to isolate	Core Spray WILL auto initiate if RPV water level reaches –129". PCIS isolations will occur due to the availability of NSSSS and the PT-N094A/C. Only the Core Spray logic fanout (EDG, sequencer, etc) will be affected. Also, no drywell pressure indicators are affected by the failures. **INPO Fundamentals:** ☐ MONITORING
	• RO/PO initiates A/C Core Spray logic.	**HPI USED:** STAR ☐
	• Crew recognizes failure of the A/C RHR logics to initiate by: ⇒ A/C INIT AND SEALED IN lights extinguished ⇒ Pump STOPPED indication	RHR WILL auto initiate if RPV water level reaches –129".
	• RO/PO initiates A/C RHR logic.	**HPI USED:** STAR ☐
	• Crew recognizes failure of HPCI to initiate by: ⇒ HPCI INIT AND SEALED IN light extinguished ⇒ HV-F001 CLSD indication ⇒ FV-4880 CLOSED indication ⇒ FV-4879 CLOSED indication ⇒ SI-4919 Turbine Speed indicates zero rpm ⇒ FIC-R600 Pump Flow indicates zero gpm	HPCI WILL auto initiate if RPV water level reaches –38" and is capable of maintaining RPV water level by itself.

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO manually initiates HPCI IAW AB.ZZ-0001 Att. 6.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs maintaining RPV level 12.5" to 54" with any combination of: ⇒ HPCI ⇒ RCIC ⇒ Feedwater/Condensate	RFPTs will trip and when drywell pressure reaches 1.7 psig and cannot be restored. IF MSIVs are closed, level band is +30 to -30 inches.
	• RO/PO maintain RPV level as directed by CRS with: ⇒ HPCI IAW AB.ZZ-0001 Att. 6 ⇒ RCIC IAW AB.ZZ-0001 Att. 6	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL
	• CRS implements AB.COOL-003: ⇒ Condition B	
	• RO/PO trips recirc pumps.	**HPI USED:** STAR ☐ RRCS RPT trips are failed. Pumps must be tripped manually. May also be tripped IAW EOP-102 guidance for spraying the drywell.
	• STA/IA verifies isolations and monitors containment performance.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Downcomer Failure: The Downcomer fails approximately 5 minutes into the Scram Actions.	• STA/IA 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	**INPO Fundamentals:** ☐ MONITORING
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION EOP-102 Primary Containment Control. Primary Containment Pressure Leg When controlling Primary Containment Pressure and it becomes apparent that the PSP curve is going to be exceeded and Torus level is in the normal band, the Control Room Supervisor should pick 15 psig Torus Pressure to determine if the pressure can be maintained below the PSP limit. The 15 psig limit is below the PSP limit and will allow sufficient time to evaluate further actions needed such as EOP-202 RPV blowdown. If no systems are available to restore and maintain Torus Pressure, it is expected that you would enter EOP-202 and blowdown prior to exceeding PSP.	• <u>WHEN</u> Suppression Chamber pressure exceeds 9.5 psig, <u>THEN</u> CRS directs initiating drywell spray.	Recirc pumps should be tripped prior to initiating drywell spray. **INPO Fundamentals:** ☐ MONITORING
	• RO/PO place one loop of RHR in drywell spray IAW AB.ZZ-0001 Att. 2.	**HPI USED:** STAR ☐ HARD CARD ☐ <u>IF</u> 'A' RHR logic was <u>NOT</u> manually initiated, <u>THEN</u> 'A' RHR cannot spray the drywell. **INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***Crew maintains Suppression Chamber Pressure below the Action Required region of the PSP.***	PSP will be reached approximately 9 minutes after the LOCA starts with no mitigating action.
	• CRS directs placing RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.	
	• RO/PO place RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL
	• CRS directs restoring PCIG to SRVs.	
	• RO/PO restores PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	**HPI USED:** STAR ☐ HARD CARD ☐

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: 1. RPV level is being maintained above –129" 2. Suppression Chamber pressure is being maintained below the Action Required region of the PSP curve.	• If necessary, Crew prevents injection from Low Pressure ECCS not required for adequate core cooling.	**HPI USED:** STAR ☐ HARD CARD ☐

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-101-111-1003 Use of Procedures
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-101-111-1004 Operations Standards
O. OP-AA-101-112-1002 On-Line Risk Assessment
P. OP-AA-106-101-1001 Event Response Guidelines
Q. OP-HC-108-106-1001 Equipment Operational Control
R. OP-AA-108-114 Post Transient Review
S. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
T. **HC.OP-DL.ZZ-0026 Surveillance Log**
U. **HC.OP-SO.BC-0001 Residual Heat Removal System Operation**
V. **HC.OP-SO.BE-0001 Core Spray System Operation**
W. **HC.OP-SO.GU-0001 Filtration, Recirculation, and Ventilation System Operation**
X. **HC.OP-SO.SB-0001 Reactor Protection System Operation**
Y. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
Z. **HC.OP-AB.RPV-0005 Reactor Pressure**
AA. **HC.OP-AB.CONT-0001 Drywell Pressure**
BB. **HC.OP-AB.CONT-0002 Primary Containment**
CC. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
DD. **HC.OP-AB.ZZ-000 Reactor Scram**
EE. **HC.OP-EO.ZZ-0101 RPV Control**
FF. **HC.OP-EO.ZZ-0102 Primary Containment Control**
GG. HC.CH-TI.ZZ-0012 Chemistry Sampling Frequencies, Specifications, and Surveillances
HH. Strategies For Successful Transient Mitigation For The Hope Creek Generating Station Industry Events
II. LER 397-07001 RHR Pressure Switch Found Isolated (3/21/2007)
JJ. LER 354-02001 RHR Min Flow Line Found Isolated (3/20/2002)
KK. Event #249-000324-1 RHR Pressure Switch Found Isolated (6/13/2000)

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC 2 / 1

1.

* ***Crew initiates isolation of RWCU (e.g., closure of RWCU HV-F001 OR HV-F004) BEFORE differential flow exceeds 65 gpm.***

K/A 223002 Primary Containment Isolation System / Nuclear Steam Supply Shut-Off
A4 Ability to operate and/or monitor in the Control Room
A4.01 Valve Closures RO 3.6 SRO 3.5
A4.06 Confirm initiation to completion RO 3.6 SRO 3.7

The RWCU System has failed to isolate automatically. Failure of the Crew to manually isolate the system will result in a bypass of the Reactor Coolant and Primary Containment boundaries and release of radioactive materials to the Reactor Building.

* ***Crew maintains Suppression Chamber Pressure below the Action Required region of the PSP curve.***

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

If suppression chamber pressure cannot be maintained below the pressure suppression pressure, EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure curve, could cause design containment limits to be exceeded. Based upon the rate of pressure increase in this scenario, the Crew has over ten minutes to initiate Drywell Sprays and prevent entry into the Action Required region of the PSP curve. This will prevent an unnecessary Emergency Depressurization, which is a significant challenge to the Suppression Pool and would cause the Cooldown Limit for the Reactor Coolant system to be unnecessarily exceeded. Reducing reactor pressure within the cooldown limit may also delay/prevent entry into the action required region.

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
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
____	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
____	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.

ESG-NRC 2

SELF-CHECK

x 1. Total malfunctions inserted: 5-8

x 2. Malfunctions that occur after EOP entry: 1-4

x 3. Abnormal Events: 2-3

x 4. Major Transients: 1-2

x 5. EOPs used beyond primary scram response EOP: 1-3

x 6. EOP Contingency Procedures used: 0-3

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: 2-5

x 10. Technical Specifications are exercised during the scenario.

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST (continued)

Crew Validation **Rev:** 0 **Date Validated:** 6/17/2019

Validated with 1 SRO and 2 ROs. Validation time of 70 minutes.

Validation Comments	Disposition
Revise CT 1 to include leak rate.	Revised.
Delete failure of HV-5147 failure to isolate. No safety significance.	Removed.

Crew Validation **Rev:** 0 **Date Validated:** 1-20-21

Validated with 1 SRO and 2 ROs. Validation time of 61 minutes.

Validation Comments	Disposition
1. Incorporated additional event responses based on NRC comments	Revised
2. shortened time to LOCA from 7 to 5 minutes based on NRC comments	Revised

ATTACHMENT 1b
FORM 1
ATWS-RPT Channel Check (For Surveillance Log Item 6)

Operational Condition **Date** ***Today's Date***

SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT	DAY	EVE	MID
RPV LEVEL	1	-38	—	—	B21-LT-N402A			
		-38	—	—	B21-LT-N402B			
		-38	—	—	B21-LT-N402E			
		-38	—	—	B21-LT-N402F			
		—	NO	—	INST TRIPPED 10C601			
			NO		INST TRIPPED 10C602			
		—	—	10	INST DEVIATION			
RPV PRESSURE	1	—	—	1071	B21-PT-N403A	0		
		—	—	1071	B21-PT-N403B	1005		
		—	—	1071	B21-PT-N403E	1005		
		—	—	1071	B21-PT-N403F	1005		
		—	NO	—	INST TRIPPED 10C601	NO		
			NO		INST TRIPPED 10C602	NO		
		—	—	53	INST DEVIATION	1005		

COMMENTS:

IX. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: B

PROTECTED EQUIPMENT

RPS MG Set 1AG401

REACTIVITY / Plant Status

1. RPS MG Set 1BG401 has a noisy bearing. Transfer RPS Bus B Power to its Alternate Supply in accordance with HC.OP-SO.SB-0001.

2. Currently at 100% Power. REs have requested a power reduction to 95% for a control rod swap using SPRI guidance.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

RPS MG Set 1BG401 has a noisy bearing.

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____

SIMULATOR

COPY _____ OF _____

***EXAMINATION* SCENARIO GUIDE**

SCENARIO TITLE:	**FWH Leak, SBLC Initiation, Loss of 10D410, LOP, RCIC Trip, SACS Pump Trip**
SCENARIO NUMBER:	**NRC 3**
EFFECTIVE DATE:	Effective When Approved
EXPECTED DURATION:	60 Minutes
REVISION NUMBER:	1
PROGRAM:	☒ **LICENSED OPERATOR REQUALIFICATION** ☐ **INITIAL LICENSE** ☐ **OTHER:** _____

REVISION SUMMARY:

- Validated with 1 SRO and 2 ROs
- NRC comments incorporated

I. OBJECTIVE(S):

Enabling Objectives:

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

II. MAJOR EVENTS:

A. FWH Leak
B. Inadvertent SBLC System Actuation
C. Loss of 10D410
D. Loss of Offsite Power
E. Auto Start Failure of EDGs
F. RCIC Trip on Overspeed
G. SACS Pump Trip

II. SCENARIO SUMMARY:

Plant is operating at 100% power. A leak in a Feedwater Heater (FWH) will require action to reduce power and isolate the FWH. After actions are complete for the FWH loss, an inadvertent SBLC System Actuation will occur and requires operator action to shut down the running SBLC pump. Based on whether SBLC was injected into the vessel, actions may be required to commence reducing power to less than 24% within six hours. After the stopping of the SBLC pump, a loss of 125 VDC Class 1E Bus 10D410 will occur. HPCI will be unavailable due to the bus loss. Additionally, Technical Specifications are required to be entered. A Loss of Offsite power and Emergency Diesel Generator (EDG) failures will occur and require manual starting of an EDG to restore power to the vital AC busses that power containment and reactor cooling. Reactor Core Isolation Cooling (RCIC) will trip on an overspeed upon initiation. RCIC will not be available due to an oversp d on any subsequent operation. During operation of the EDGs a SACS pump will trip, requiring starting a failed to auto-start SACS pump, or cross connecting of SACS to support continued EDG operation to prevent damaging the EDG. The scenario may be terminated after the reactor has been depressurized, and adequate core cooling has been restored.

V. INITIAL CONDITIONS:

I.C.	
Initial	

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

_____ **ENSURE** CRD F002A is in service.

_____ **ENSURE** TACS is being supplied by SACS Loop B

_____ **ENSURE** 'A' SSW PP in service

_____ **ENSURE** associated Schedule file is open and running IF required.

_____ **ENSURE** associated Events file is open IF required.

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

_____ 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	*Event*		
	6	Event Code: Description:	et_array(4) & zlcwzpds LOP Inserted AND SACS Pump D Running
	7	Event Code: Description:	monvar(174) <= -129 RPV Water Level < Level 1-Initiate CRD Filter Clogging

MALFUNCTION SCHEDULE:				
Initial	*@Time*	*Event*	*Action*	*Description*
	None	None	Insert malfunction DG07B	Diesel Generator B emergency start signal failure
	None	None	Insert malfunction DG03B	LOCA sequencer chan B failure
	None	None	Insert malfunction DG04B	LOP sequencer chan B failure
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	None	None	Insert malfunction RC01	RCIC turbine overspeed
	None	None	Insert malfunction FW12B to 80.00000 in 240 on event 1	High pressure heater BE106 tube leak
	None	None	Insert malfunction SL03A on event 2 delete in 3	Inadvertent SBLC system A initiation
	None	None	Insert malfunction ED11A on event 3	LOSS OF 125 VDC CLASS 1E BUS 10D410
	None	None	Insert malfunction EG12 on event 4	Loss of all off site power
	None	None	Insert malfunction QQ15 after 10 to SEIZE on event 6	SACS pump DP210 trip
	None	None	Insert malfunction CD09A to 0 on event 7	Drive water flow control valve F002A failure
	None	None	Insert malfunction CD08A on event 7	CRD suction filter AF201 clogging
	None	None	Insert malfunction CD08B on event 7	CRD suction filter BF201 clogging

REMOTE SCHEDULE:				
Initial	*@Time*	*Event*	*Action*	*Description*
	None	None	Insert remote RM05A to 15.00000	RM05 WS - 33
	None	None	Insert remote RM05B to 16.00000	RM05 WS - 150
	None	None	Insert remote RM05C to 26.00000	RM05 WS - 300
	None	None	Insert remote RM05D to 22.00000	RM05 WS - 33
	None	None	Insert remote RM05E to 23.00000	RM05 WS - 150
	None	None	Insert remote RM05F to 21.00000	RM05 WS - 300
	None	None	Insert remote RM05G to 15.00000	RM05 BACKUP WIND SPEED
	None	None	Insert remote RM05H to 22.0000	RM05 BACKUP WIND DIRECTION
	None	None	Insert remote FF185 to ALARM on event 4	FF185 00P521 DSL FIRE PMP AUTO START
	None	None	Insert remote FF188 to ALARM on event 4	FF188 00P521 DIESEL FIRE PMP RUNNING
	None	None	Insert remote FF189 to ALARM on event 4	FF189 00P520 ELE FIREPMP PWR NOT AVAIL
	None	None	Insert remote FF195 to ALARM on event 4	FF195 00P520 ELE FIRE PMP FAIL TO STRT
	None	None	Insert remote FF196 after 300 to ALARM on event 4	FF196 TANK 0AT508 WTR STOR TNK LO LVL
	None	None	Insert remote FF198 after 301 to ALARM on event 4	FF198 TANK 0BT508 WTR STOR TNK LO LVL

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

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
6B FWH Tube Rupture: After the Crew assumes the shift, OR, at the discretion of the Lead Examiner, **TRIGGER ET-1** (6B FWH Tube Rupture).	• Crew recognizes leak in 6B FWH by: ⇒ RFPTs speed increasing ⇒ RFP discharge flows rising with lowering feed flow to reactor vessel ⇒ Total Condensate flow rising ⇒ 3/4/5B FWH drain flow rising ⇒ 6B FWH level rising	The tube leak will cause a small vessel level transient (≈2 inches). **INPO Fundamentals:** ☐ MONITORING
Insight Items: • FW Line Temp A c91a1744 FW Line Temp B c91a1746	• Crew recognizes trip of 6B FWH and loss of Feedwater heating by: ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ 6B FWH Flashing HTR TRIP light ⇒ CRIDS D2997 "Feedwater Heater BE106" ⇒ 6B FWH Extraction Steam valve HV-1365B closing ⇒ Lowering feed water line temperatures	The 6B FWH dump valve will not open until after the Feedwater heater trip setpoint is reached.
IF asked about PCRCAT, INFORM as RE that PCRAT is as expected	• Crew announces trip of the 6B FWH on the plant page.	
	• RO reduces and maintains reactor power to Pre-Feedwater Heater Trip or Isolation Value IAW the SPRI.	**HPI USED:** STAR ☐ Immediate Operator Action IAW AB.BOP-0001. **INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***Crew restores/maintains APRM Power to ≤100% within five minutes of the Core Thermal Power 5 Minute Average exceeding 3910 MWth.***	This Critical Task is considered met if operator actions prevent Core Thermal Power 5 Minute Average from exceeding 3910 MWth and APRM power is ≤100%.
IF dispatched to BC102, THEN REPORT: • 6B FWH level is high on all indicators • There is a 100% air signal on the drain valve • There is a 0% air signal on the dump valve	• Crew dispatched TBEO to BC102 panel.	
	• CRS implements AB.BOP-0001: ⇒ Condition A ⇒ Condition B	Crew may refer to AB.RPV-004 for level control actions.
	• Crew ensures automatic actions occur: ⇒ HV-1365B extraction steam isolation closes ⇒ HV-1366B/1367B/1359B drains open	
	• PO performs the following to isolate the heater per Condition B: ⇒ Closes HV-1753B ⇒ Closes HV-1768B ⇒ Ensures extraction steam isolated to 6B FWH IAW SO.AF-0001 Section 5.6	**HPI USED:** STAR ☐ PEER CHECK ☐
	•	**INPO Fundamentals:** ☐ CONTROL ☐ MONITORING

Event / Instructor Activity	Expected Plant/Student Response	Comments
If asked about PCRAT, **REPORT** that PCRAT is AS EXPECTED	• IF directed, THEN RO reduces reactor power.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• IF reactor power was reduced by ≥15%, THEN CRS/STA/IA recognize the following actions apply: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
	• Crew contacts ESOC and Trading Floor.	
	• Crew contacts Operations Management to initiate Prompt Investigation and ERT callout.	
Inadvertent SLC Initiation: After actions for the loss of FW Heating are complete, or at the discretion of the Lead Examiner, **TRIGGER ET-2**.	• Crew recognizes Inadvertent SLC Initiation by: ⇒ OHA C1-C1 SLC SQUIB VLV LOSS OF CONTINUITY ⇒ OHA B3-B5 CORE SPRAY LINE BREAK ⇒ OHA C1-C2 RWCU SYSTEM TROUBLE	**INPO Fundamentals:** ☐ MONITORING

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ CRIDS D3020 SLC SQUIB XV-F004A CONTINUITY in alarm ⇒ SBLC Pump AP208 indicates running	
	• CRS implements AB.RPV-0001: ⇒ Condition G	**INPO Fundamentals:** ☐ CONTROL
	• Crew verifies Reactor Level >-38" and Reactor Pressure remained <1071 psig.	
	• RO stops the running A SLC Pump by depressing Standby Liquid Control, Injection Pump A, STOP push button.	
	• Crew verifies RWCU isolated.	
If requested to open breaker, **INSERT Remote ET72** to TAGGED and report that the breaker is open.	• Crew directs opening SLC Pump A breaker 52-212063.	
SLC Tank level can be observed on CRIDS Page A097 point A7052. (Per Note 3, <15 gallon change indicates no injection reached the vessel.)	• CRS determines SLC operability based on SLC Pump AP208 breaker open and Storage Tank level using HC.OP-DL.ZZ-0026, and declares inoperable SLC Pump AP208.	
	• Crew determines if SLC solution entered the Reactor.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS/STA/IA 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. **INPO Fundamentals:** ☐ KNOWLEDGE
	• If SLC entered the Reactor, the CRS initiates action within 15 minutes to reduce power to less than 24% within six hours.	
	• CRS may refer to AB.CONT-0002 for actions to restore RWCU, Attachment 3.	
Loss of 10D410: After the SBLC pump is secured, OR at the discretion of the Lead Examiner, **TRIGGER ET-3** (Loss of 10D410 bus).	• Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable.	**INPO Fundamentals:** ☐ MONITORING

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes loss of 10D410 by: ⇒ Flashing INOP lights on all 10A401 bus breakers ⇒ 'A' Channel ECCS "LOGIC PWR FAILURE" lights ⇒ Flashing "OVLD/PWR FAIL" lights on HPCI valves w/loss of position indication ⇒ Charger and bus voltage indication on 10C650D ⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE" ⇒ CRIDS Page 166	
	• CRS implements AB.ZZ-0150.	
IF dispatched to investigate loss of 10D410, THEN **REPORT**: • Bus indicates 0 volts • Both battery charger output breakers are tripped • There is an acrid odor and indication of flash damage at the battery transfer switch • There is no indication of fire	• Crew dispatches ABEO and Maintenance to investigate loss of 10D410 bus.	E-0009-1 Sheet 2
	• Crew recognizes A SSW PP Backwash Valve EG-HV-2197A closed.	
	• CRS direct re-opening EG-HV-2197A	
REPORT that Maintenance has determined tagging will be required	• PO re-opens EG-HV- 2197A	
	• Crew contacts Operations Management to initiate ERT callout.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS/STA/IA recognize the following Tech Specs actions apply: ⇒ Distribution – Operating 3.8.3.1 Action b	Need to restore the 1AD411 battery, 10D410 bus, and one charger in two hours, or be in Hot S/D in next 12 hours. **INPO Fundamentals:** ☐ KNOWLEDGE
Loss of Offsite Power: After Tech Specs have been addressed for the loss of 10D410 bus, OR at the discretion of the Lead Examiner, **TRIGGER ET-4** (Loss of Offsite Power).	• Crew recognizes Loss of Offsite Power by: ⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers ⇒ TRIP indication for all 500 KV breakers ⇒ Flashing TRIP lights for all previously closed bus infeeds. ⇒ Numerous OVLD/PWR FAIL lights.	

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 performs scram actions IAW AB.ZZ-0001 Att. 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• Crew recognizes RPV Level Below 12.5" EOP entry condition by: ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators	
	• Crew recognizes Reactor Pressure Above 1037# EOP entry condition by: ⇒ OHA C1-E5 "SRV LO-LO SET ARMED" ⇒ Various RPV pressure indicators	Due to the loss of both RPS buses, the C5-A5 OHA will not be useful in diagnosing peak pressure during the transient.

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION **EOP 101 RPV Control.** Level Leg Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level cannot 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.	**INPO Fundamentals:** ☐ TEAMWORK
	• Crew recognizes failure of the 'B' EDG to start and load by: ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'B' Channel components	**INPO Fundamentals:** MONITORING ☐
IF directed to locally start the 'B' EDG, THEN **REMOVE** Malfunction **DG07B.**	• RO/PO starts the 'B' EDG and ensures it loads auto start.	**HPI USED:** STAR ☐ Immediate Operator Action IAW AB.ZZ-0135 **RECORD** Time of B EDG start_____

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
LOP and LOCA Sequencer Failure: Pre-inserted	• Crew recognizes failure of Channel B loads to automatically start. • CRS directs the start of Channel B loads. • RO/PO manually start the following Channel B loads: ⇒ SSW Pump B ⇒ SACS Pump B * ***Within 10 minutes of the B EDG running with no SACs flow, the crew starts SACS Pump B to provide cooling to EDG B, OR cross-connects to SACS Loop A, to prevent a EDG B emergency trip from cooling related problems.*** • PO maintains level and pressure as directed by CRS. •	This Critical Task is valid only if EDG B has been started. **RECORD** Time of B EDG start_____ **RECORD** time of SACs restored to B eEDG _____ **HPI USED:** STAR ☐ HARD CARD ☐ **INPO Fundamentals:** ☐ CONTROL

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN RPV water level drops below LVL 2, THEN Crew recognizes RPV LVL 2 by: ⇒ OHA D1-A1 "RRCS POTENTIAL ATWS" ⇒ OHA C1-D3 "REACTOR RECIRC PUMPS TRIP" ⇒ E3-E3 "USS FEEDER BRKR TRBL" ⇒ RPV LVL 2 Load Sheds ⇒ Various RPV level indications	Due to the LOP and loss of power to both RPS buses, the RPV LVL 2 and NSSSS ISLN SIG – RPV LEVEL LO are no longer valid indicators of LVL 2.
WHEN RCIC initiates, it will overspeed. IF dispatched to RCIC Room, THEN **REPORT** the trip of RCIC appears to be an overspeed trip.	• WHEN RCIC initiates, THEN the Crew recognizes a the RCIC trip by: ⇒ OHA B1-A1 "RCIC TURBINE TRIP" ⇒ CRIDS D2400 in alarm ⇒ RCIC TURB TRIP SOLENOID ENRGZ light illuminated	May be initiated manually before LVL 2 if Crew scrammed promptly on loss of Feedwater. **INPO Fundamentals:** ☐ MONITORING
DO NOT reset RCIC until decision to Emergency Depressurize has been discussed/made. IF dispatched to RCIC Room to reset RCIC, INSERT Remote RC02 to RESET, THEN **REPORT** the RCIC overspeed trip is reset.	• RO/PO may direct an equipment operator to reset the overspeed trip of RCIC by: ⇒ Pressing the CLOSE push button for Turbine Trip Throttle Valve HV-4282 ⇒ Requesting the equipment operator to reset the overspeed device ⇒ Reopen HV-4282 and attempt to inject with RCIC • RO/PO recognizes RCIC trips again on start. • CRS directs manual pressure control to maintain RPV pressure below 1037 psig.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO cycle SRVs to maintain pressure as directed by the CRS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ FLAGGING ☐ **INPO Fundamentals:** ☐ CONTROL
As ESOC, **REPORT** it will take at least 10 hours to restore Offsite power to Artificial Island.	• Crew contacts ESOC for estimated time to restoration of Offsite power. • CRS implements AB.ZZ-0135. • IF Suppression Pool temperature reaches 95 degrees, THEN Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833 alarm ⇒ Various Suppression Pool temperature indicators	
	• WHEN Suppression Pool temperature reaches 95 degrees, THEN the CRS implements EOP-102.	Due to RPV water level concerns, may not immediately place 'B' RHR in Supp Pool Clg.
	• WHEN directed by the CRS, THEN RO/PO place 'B' RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF Drywell temperature reaches 135 degrees, THEN Crew recognizes Drywell Temp Above 135°F EOP entry condition by: ⇒ Flashing 135 alarm on CRIDS ⇒ Various Drywell temperature indicators • WHEN Drywell temperature reaches 135 degrees, THEN the CRS implements EOP-102. • CRS may direct actions to implement EOP-309 and 310.	
After 1st CRD pump is running, **TRIGGER ET-7** (Suction filter). IF directed to align for two CRD pump injection, THEN **PERFORM** the following: **REFER** to SO.BF-0001 Sect 5.4. **SET** Remote Function for Stby CRD pump discharge valve to 0% (**CD01/CD02**). **REPORT** Stby CRD pump ready for start. WHEN Stby CRD is running, THEN **RAMP** discharge valve to 100% open (**CD01/CD02**). WHEN directed to locally open the HV-F003, THEN **SET** Monitor Item **lcvp003 = 1.0**	• CRS directs injection with two CRD pumps. • RO/PO aligns CRD for Emergency Two CRD pump injection IAW SO.BF-0001 Sect 5.4. • CRS directs injection with the 'B' SLC pump. • RO/PO starts the 'B' SLC pump.	The HV-F003 Pressure Control Valve has no power. **HPI USED:** STAR ☐ PEER CHECK ☐ At –129", the CRD Suction filters will clog and shortly thereafter the CRD pumps will trip on Low Suction pressure, if they have not been tripped prior to -129".

Event / Instructor Activity	Expected Plant/Student Response	Comments
Do NOT restore 10D410 bus.	• Crew pursues restoration of 10D410 bus.	
	• Crew recognizes loss of AD481/482 inverters by: ⇒ Loss of 'A' Channel PAMS indications ⇒ Loss of power to 'A' Channel electrical indications on 10C650D	Inverters are lost during LOP due to loss of 10D410. **INPO Fundamentals:** ☐ MONITORING
	• As time and resources permit, CRS implements AB.ZZ-0136.	
	• Crew recognizes loss of Fuel Pool Cooling by: ⇒ OHA D1-D5 "FUEL POOL COOLING SYS TROUBLE" ⇒ Loss of valve position indication on demin isolation valves HV-4676B/4678 ⇒ Pump discharge pressure and flow on CRIDS Page 116	Crew may enter AB.COOL-0004, but no conditions apply.
	• CRS directs placing the 'B' FPC pump I/S bypassing the filter demins IAW SO.EC-0001.	Due to the continuing loss of RPV water level, this action may not be complete by the end of the scenario.
	• As time and resources permit, CRS implements AB.ZZ-0171.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Emergency Depressurization Level Response And Control The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.	• Crew ensures available EOP-101 Table 1 systems are running and aligned for injection.	
	• Crew recognizes RPV LVL 1 by: ⇒ A7-F5 "RPV LEVEL 1" ⇒ C1-F3 "ADS DRYWELL PRESS BYP TIMER INIT" ⇒ A/C/D ECCS initiations ⇒ Various RPV level indicators	
	• WHEN RPV level reaches LVL 1, THEN CRS directs inhibiting ADS.	
	• RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ 'B' Channel ADS logic has no power.
	• RO/PO ensures available ECCS pumps start.	
Emergency Depressurization due to Low RPV Level:	• WHEN RPV water level is below –129", but before –185", THEN the CRS implements EOP-202 to Emergency Depressurize.	**INPO Fundamentals:** ☐ TEAMWORK

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO opens five ADS valves IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐
	• WHEN Emergency Depressurization is required, THEN SM determines an Alert is required IAW ECG Section: **RB4.L** Emergency RPV Depressurization is required (5 pts)	
	[NOTE: If the scenario does not run for a full 15 minutes after ADS is required, the Alert Classification may not be declared]	
	* ***BEFORE Compensated RPV water level lowers below -185": Crew determines entry to EOP-202 is required and initiates actions to Emergency Depressurize the reactor. Then restores RPV water level to above -185".***	**RECORD** RPV water level at which five SRVs are opened. RPV Level: _____
	• RO/PO injects with low pressure ECCS IAW AB.ZZ-0001 Att. 4 and/or 5 to restore level as directed by the CRS.	**HPI USED:** STAR ☐ HARD CARD ☐ Crew may implement EOP-206, due to only one channel of Fuel Zone level indication, or if indicated level goes below fuel zone. **INPO Fundamentals:** ☐ CONTROL

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner after the reactor has been depressurized, and adequate core cooling has been restored.		

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Hope Creek Event Classification Guide (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-106-101-1001 Event Response Guidelines
N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
O. OP-HC-108-106-1001 Equipment Operational Control
P. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
Q. **HC.OP-AB.CONT-0002 Primary Containment**
R. **HC.OP-AB.COOL-0002 Safety/Turbine Auxiliaries Cooling System**
S. **HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**
T. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**
U. **HC.OP-AB.ZZ-0150 125 VDC Malfunction**
V. **HC.OP-AB.ZZ-0170 Loss of 4.16 KV Bus 10A401 A Channel**
W. **HC.OP-AB.ZZ-0000 Reactor Scram**
X. **HC.OP-EO.ZZ-0101 RPV Control**
Y. **HC.OP-EO.ZZ-0102 Primary Containment Control**
Z. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
AA. **HC.OP-SO.BF-0001 CRD Hydraulic System Operation**
BB. Strategies For Successful Transient Mitigation

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-3 / 1

1.

* **Crew restores/maintains APRM Power to ≤100% within five minutes of the Core Thermal Power 5 Minute Average exceeding 3910 MWth.**

K/A 295001 Reactor Feedwater System
A2 Ability to (a) predict the impacts of the following on the Reactor Feedwater System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:
A2.04 Loss of Extraction Steam RO 3.3 SRO 3.4

K/A 2.2 Equipment Control
2.2.22 Knowledge of limiting conditions for operations and safety limits RO.3.4 SRO 4.1

The loss of Feedwater heating due to the trip of the FWH will drive reactor power to above the licensed limit. Peak power in this transient with no operator action is just over 102% power. This would constitute a violation of our Operating License. HC.OP-IO.ZZ-0006 defines a 5 minute average of 3904 MWth during steady state operations as exceeding the Licensed Power Limit. Taking the Immediate Operator Actions IAW either AB.BOP-0001 or AB.RPV-0001 will prevent this violation.

2.

* **Within 10 minutes of the B EDG running with no SACs flow, the crew starts SACS Pump B to provide cooling to EDG B, OR cross-connects to SACS Loop A, to prevent a EDG B emergency trip from cooling related problems..**

K/A 295003
AA1.03 Systems necessary to assure safe plant shutdown RO 4.4 SRO 4.4

The continued availability of EDG B is required to maintain the capability to place the plant in a cold shutdown condition. If EDG B becomes inoperable: (with EDG A currently inoperable), both loops of shutdown cooling will be inoperable and will: prevent placing and maintaining the plant in a cold shutdown condition; and the inability to cool the Suppression Pool to maintain temperatures less than 212F. Starting of this pump, or cross-connecting to SACS Loop A is required due to the failure of SACS Pump D.
This Critical Task is valid only if EDG B has been started.

3.

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

K/A 295031 Reactor Low Water Level

EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:

EA1.01 Low Pressure Coolant Injection RO: 4.4 SRO 4.4

EA1.06 Automatic depressurization system RO 4.4 SRO 4.4

EA2 Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL:

EA2.04 Adequate core cooling RO 4.6 SRO 4.8

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

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

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

TRANSIENTS:

	Turbine Trip
	Loss of Condenser Vacuum
	Loss of Feedwater
	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
Y	A/B SACS Loop
	1E 4.16KV Bus
	1E 480 VAC Bus
	120VAC 481 Inverter
Y	1E 125VDC
	Hard Torus Vent

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST:

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

ESG-NRC-3

SELF-CHECK
(number noted is minimum IAW NRC IP71111.11)

Y 1. Total malfunctions inserted: 5

Y 2. Malfunctions that occur after EOP entry: 1

Y 3. Abnormal Events: 2

Y 4. Major Transients: 1

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

Y 6. EOP Contingency Procedures used: 0

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

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

Y 9. Crew Critical Tasks: 2

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

Comments:

IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (CONTINUED)

Crew Validation **Rev:** 0 **Date Validated:** 1/20/21
Validated with 1 SRO and 2 ROs

Validation Comments	Disposition
Minor NRC comments incorporated regarding event and plant response descriptions	revised

X. TURNOVER SHEET:

ONLINE RISK: GREEN	WORK WEEK CHANNEL: A

PROTECTED EQUIPMENT

None
PRA software is out of service.

REACTIVITY / Plant Status

Operating at 100% power.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY _____ OF _____