

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
RO A1

Copy ____ of ____

SYSTEM: Administrative

TASK NUMBER: 4010270301

TASK: Complete A Control Console Log For Conditions 4 And 5

JPM NUMBER: 305H-JPM.ZZ058

REVISION: 00

SAP BET: NOH05JPZZ57E

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.8

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

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-DL.ZZ-0002, Rev. 44

TOOLS, AND EQUIPMENT: Black pen and Red Pen

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: _____

Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4010270301

TASK: Complete A Control Console Log For Conditions 4 And 5

INITIAL CONDIITONS:

1. The Plant is in a Forced Outage.
2. HC.OP-IO.ZZ-0004, Shutdown From Rated Power To Cold Shutdown, is being implemented.
3. Current RPV temperature is approximately 150F.

INITIATING CUE:

COMPLETE the daily 0600 – 1800 Logs of Attachment 1, Log 2 Control Console Log Condition 4 and 5, in accordance with HC.OP-DL.ZZ-0026, LOG 2 CONTROL CONSOLE LOG CONDITION 4 and 5.

JPM NUMBER: ZZ058
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue; copy of Attachment 1 of HC.OP-DL.ZZ-0002; AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	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.		
3.1	Attachments 1, 2, and 3 are completed daily WHEN the plant is in Operational Condition 4 or 5.			
3.2	Parameter values are recorded in the appropriate spaces for each shift.	*Operator records the parameter values in the appropriate spaces.		
	7.2 KV Bus 10A110 Voltage A3455 KV	*Operator records 7.2 KV Bus 10A110 Voltage [7.08 – 7.32 KV].		
	7.2 KV Bus 10A120 Voltage A3458 KV	*Operator records 7.2 KV Bus 10A120 Voltage [7.08 – 7.32 KV].		
	4.16 KV Bus 10A103 Voltage A3325 KV	*Operator records 7.2 KV Bus 10A103 Voltage [4.10 – 4.30 KV].		
	4.16 KV Bus 10A104 Voltage A3324 KV	*Operator records 4.16 KV Bus 10A104 Voltage [4.10 – 4.30 KV].		
	4.16 KV Bus 10A501 Voltage A3472 KV	Operator determines that the 4.16 KV Bus 10A501 Voltage is below the MIN value of 4.10 KV.		
3.3	The CRS shall be notified when an entry is out-of-specification.	Operator notifies CRS of the out-of-specification.		
CUE:	ACKNOWLEDGE as necessary as the Control Room Supervisor when informed of the out of range value.			
CUE:	ACKNOWLEDGE IF necessary as the Yard Operator, that there are no abnormal conditions evident locally at the transformer.			

JPM NUMBER: ZZ058
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
NOTE 4	Voltage outside MIN/MAX may be indicative of a malfunctioning Transformer Load Tap Changer when in automatic. COMPARE Bus Voltage with Station Service Transformer Sec. Voltage. IF Bus Voltage is outside the MIN/MAX take manual control of Load Tap Changer AND ADJUST until voltage is within range. Voltage > MAX with Load Tap Changer on 1 position is normal during certain conditions (i.e., HI grid voltage and/or no loads on bus.) (REFER TO the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]	<p>*Operator implements NOTE 4 by taking manual control of transformer AX503 TAP Changer and adjusting voltage until within range (4.10-4.30).</p> <p>NOTE: Operator may make a NOTE of the value being outside of the MIN/MAX and the actions taken. Operator may continue with readings and then return to this step.</p>		
		*Operator records 4.16 KV Bus 10A501 Voltage		
		Operator notifies CRS of the actions taken for the out-of-specification reading and the current status.		
CUE:	ACKNOWLEDGE as necessary as the Control Room Supervisor.			
4.16 KV Bus 10A502 Voltage	A3475 KV	*Operator records 4.16 KV Bus 10A502 Voltage [4.10 – 4.30 KV].		
4.16 KV Bus 10A101 Voltage	A3484 KV	*Operator records 4.16 KV Bus 10A101 Voltage [4.05 – 4.40 KV].		
4.16 KV Bus 10A102 Voltage	A3487 KV	*Operator records 4.16 KV Bus 10A102 Voltage [4.05 – 4.40 KV]		
Reactor Coolant Temperature	A2942 °F	*Operator records Reactor Coolant Temperature [149 ±1 F].		
SACS A Temperature	TI-2535A or A2106 °F	*Operator records SACS A Temperature [32 – 87 F].		
SACS B Temperature	TI-2535B or A2107 °F	*Operator records SACS B Temperature [32 – 87 F].		
OBTAIN RACS Temp from Rx Bldg Operator or	A2539 °F	*Operator records RACS Temp [45 – 90 F]		

JPM NUMBER: ZZ058
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	If asked, respond as Reactor Building Operator that you are not available.			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator completes the daily 0600 – 1800 Logs of Attachment 1, Log 2 Control Console Log Condition 4 and 5, in accordance with 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: ZZ058
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ058

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	9/29/2017	New JPM.	Y
	1/10/2018	Added editorial comments from NRC.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ058

REV#: 00

TASK: Complete A Control Console Log For Conditions 4 And 5

- | | |
|--|---|
| <u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>

<u> X </u>

<u> X </u> | 1. Task description and number, JPM description and number are identified.
2. Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.

3. License level identified. (SRO,RO,STA,NLO)
4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
5. Initial setup conditions are identified.
6. Initiating and terminating cues are properly identified.
7. Task standards for successful completion are identified.
8. Critical Steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

9. JPM has multiple Critical Steps, or justification of the basis for a single Critical Step.
10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
11. Cues both verbal and visual are complete and correct.
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.

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

14. Validation time is included.
15. JPM is identified as Time Critical and includes Critical Time (if required). |
|--|---|

VALIDATED BY:

Qualification Level Required: RO

<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date
 <u>ON FILE</u> Name	 <u>SRO</u> Qual	 <u>ON FILE</u> Signature	 <u>9/29/2017</u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ058

REV#: 00

INITIAL CONDITIONS:

I.C.

Initial

INITIALIZE the simulator to an IC with Shutdown Cooling established, Mode 4.

ADJUST RPV temperature to approximately 150F.

SHIFT AX503 Tap Changer controls to MAN and lower CRIDS A3472 to ≤ 4.09 KV.

INSERT Overrides

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

Initial

Description

ENSURE Event file is open.

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

EVENT FILE:

Initial

ET

1

Event code: ZDEDTTC1(1)

Description: AX503 MAN PB

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert override 1A3_C_LO to Off	MAN TAP CHANGER 1AX503 (LO)
	None	None	Insert override 1A3_D_LO to On	AUTO TAP CHANGER 1AX503 (LO)
	None	None	Insert override 1A3_E_DI to Off	RAISE TAP CHANGER 1AX503 (DI)
	None	None	Insert override 1A3_F_DI to Off	LOWER TAP CHANGER 1AX503 (DI)
	None	None	Insert override 1A3_C_LO to On on event 1 delete in 1	MAN TAP CHANGER 1AX503 (LO)
	None	None	Insert override 1A3_D_LO to Off on event 1 delete in 1	AUTO TAP CHANGER 1AX503 (LO)
	None	None	Insert override 1A3_F_DI to Off on event 1 delete in 1	LOWER TAP CHANGER 1AX503 (DI)
	None	None	Insert override 1A3_E_DI to Off on event 1 delete in 1	RAISE TAP CHANGER 1AX503 (DI)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Plant is in a Forced Outage.
2. HC.OP-IO.ZZ-0004, Shutdown From Rated Power To Cold Shutdown, is being implemented.
3. Current RPV temperature is approximately 150F.

INITIATING CUE:

COMPLETE the daily 0600 – 1800 Logs of Attachment 1, Log 2 Control Console Log Condition 4 and 5, in accordance with HC.OP-DL.ZZ-0026, LOG 2 CONTROL CONSOLE LOG CONDITION 4 and 5.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
RO A2

Copy ____ of ____

SYSTEM: Reactor Recirculation

TASK NUMBER: 2020140401

TASK: Conduct Reactor Recirculation Single Loop Operation

JPM NUMBER: 305H-JPM.ZZ013

REVISION: 02

SAP BET: NOH05JPZZ13E

K/A NUMBER: 2.1.25

IMPORTANCE FACTOR: RO: 3.9 SRO: 4.2

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

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-DL.ZZ-0026, Rev. 155

HC.OP-ST.BB-0007, Rev. 17

TOOLS, AND EQUIPMENT: Pens (Black and Red), Straightedge

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: _____

Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Recirculation

TASK NUMBER: 2020140401

TASK: Conduct Reactor Recirculation Single Loop Operation

INITIAL CONDIITONS:

1. Reactor entered Single Loop Operations in accordance with HC.OP-IO.ZZ-0006 due to a trip of Reactor Recirculation Pump BP201.
2. Logs are being taken in accordance with HC.OP-DL.ZZ-0026.

INITIATING CUE:

PERFORM HC.OP-ST.BB-0007, Section 5.2, APRM % Flow to Total Core Flow Comparison.

JPM NUMBER: ZZ013
 REV NUMBER: 02

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue, marked-up HC.OP-ST.BB-0007, <u>AND</u> ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations, and initials that each is complete.		
CUE:	IF excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.		
5.2 APRM % Flow to Total Core Flow Comparison				
5.2.1	IF this is the first subsection of the procedure to be performed <u>THEN LOG</u> test start time in the Control Room log(s).	Operator ensures that the test start time is logged in the Control Room log.		
CUE:	Control Room log entry has been made.			
5.2.2.	ENSURE that all prerequisites have been satisfied IAW Section 2.2.	Operator ensures that all prerequisites are satisfied and initials each one.		
5.2.3.	ENSURE Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed <u>AND</u> Regular Surveillance <u>OR</u> 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 is indicated.		
5.2.4.	At APRM panel 10C608, at each APRM channel, PLACE the Meter Function Switch to Flow.	*#Operator places EACH Meter Function Switch to flow, APRM F; APRM D; APRM B; APRM A; APRM C; APRM E Examiner Note: Refer to attached copy of Attachment 2 for values. Order of switch placement is NOT critical.		
5.2.5.	RECORD the value indicated for each APRM's flow on Attachment 2.	*#Operator records the value indicated for each APRM flow on Attachment 2, and initials Step.		

JPM NUMBER: ZZ013
 REV NUMBER: 02

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.2.6.	RETURN the Meter Function Switch to the Average position.	Operator returns all of the Meter Function Switches to the Average position, and initials Step.		
5.2.7	ENTER the Total Core Flow obtained in Step 5.1.4.G on Attachment 2.	*#Operator enters the Total Core Flow obtained in Step 5.1.4.G on Attachment 2, and initials Step.		
5.2.8	For the HIGHEST and LOWEST APRM values, PLOT the point for APRM % Flow vs. Total Core Flow on Attachment 10 or 11.	Operator plots the highest and lowest APRM values on Attachment 11, and initials Step.		
5.2.9	<u>IF BOTH</u> points are ON or ABOVE Line A (-5.0%), <u>THEN ENTER SAT</u> on Attachment 2. [T/S Table 4.3.1.1-1 Item 2.b Footnote (g)]	*#Operator determines that one point is NOT above Line A,		
5.2.10	<u>IF EITHER</u> point is BELOW Line A (-5.0%), ENTER UNSAT on Attachment 2 <u>AND DECLARE INOPERABLE</u> any APRM Flow Unit with a reading BELOW Line A.	*#Operator enters UNSAT on Attachment 2,		
3.1.1.	<u>IF</u> at any time during the performance of this test, a step can <u>NOT</u> be completed <u>OR</u> is observed to be unsatisfactory; IMMEDIATELY NOTIFY the NCO and SM/CRS. [CD-927E]	Notifies the Control Room Supervisor (CRS).		
CUE:	Acknowledge as CRS.			
5.2.11	<u>IF EITHER</u> point is ABOVE Line B (+5.0%) <u>THEN INITIATE</u> a Notification to Reactor Engineering to investigate the condition.	Operator determines that this Step is not applicable, and marks Step N/A.		
5.2.12	<u>IF</u> this is the final subsection of the procedure <u>THEN LOG</u> test end time in the Control Room log(s).	Operator requests that this test end time be logged in the Control Room log, and initials Step.		
CUE:	Control Room log entry has been made.			

JPM NUMBER: ZZ013
 REV NUMBER: 02

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.2.13	IF this is the final subsection of the procedure to be performed THEN SUBMIT this procedure to the SM/CRS for review AND completion of Attachment 1.	Operator submits this procedure to the SM/CRS for review AND completion of Attachment 1, and initials Step.		
CUE:	<p>WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator performs APRM % Flow to Total Core Flow Comparison in accordance with HC.OP-ST.BB-0007, Section 5.2.</p>				

@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: ZZ013
REV NUMBER: 02

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ013

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	9/29/2017	Significantly modified Initial Conditions, outcome, and JPM format.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ013

REV#: 02

TASK: Conduct Reactor Recirculation Single Loop Operation

- | | |
|--|---|
| <u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>

<u> X </u>

<u> X </u> | 1. Task description and number, JPM description and number are identified.
2. Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.

3. License level identified. (SRO,RO,STA,NLO)
4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
5. Initial setup conditions are identified.
6. Initiating and terminating cues are properly identified.
7. Task standards for successful completion are identified.
8. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
11. Cues both verbal and visual are complete and correct.
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.

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

14. Validation time is included.
15. JPM is identified as Time Critical and includes Critical Time (if required). |
|--|---|

VALIDATED BY:

Qualification Level Required: RO

<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date
<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ013

REV#: 02

INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power IC, MOL.
	TRIP Reactor Recirculation Pump BP201.
	TAKE ACTIONS IAW HC.OP-AB.RPV-0003 (re-open disch valve).
	ENTER Single Loop Operations IAW HC.OP-IO.ZZ-0006.
	REDUCE AP201 Pump Speed to 78%.
	INSERT Group 10A, 10B, and 10C control rods.
	ENSURE the simulator is in RUN.
	ADJUST Malfunction severity to ensure values for APRM A, C, AND E are below LINE A of Attachment 10.

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

Initial	Description
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".
	COMPLETE Section 5.1 AND Attachment 2, Page 1, of HC.OP-ST.BB-0007.

EVENT FILE:

Initial	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction NM12A to 34.00000	Flow summer K607A failure
	None	None	Insert malfunction NM12C to 34.00000	Flow summer K607C failure

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

HC.OP-ST.BB-0007(Q)

ATTACHMENT 2 CONTROL ROOM DATA SHEET RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY Page 2 of 2

2.0 APRM % Flow To Total Core Flow Comparison

STEP	NOMENCLATURE	VALUE
5.2.5	APRM F % FLOW	46 \pm 1%
	APRM D % FLOW	46 \pm 1%
	APRM B % FLOW	46 \pm 1%
	APRM A % FLOW	54 \pm 1%
	APRM C % FLOW	54 \pm 1%
	APRM E % FLOW	53 \pm 1%
5.2.7	TOTAL (CALCULATED) CORE FLOW	52 \pm 1%

STEP	NOMENCLATURE	SAT/UNSAT	PERF
5.2.9	TOTAL CORE FLOW (5.2.7) IS GREATER THAN <u>OR</u> EQUAL TO ESTABLISHED TOTAL CORE FLOW (Attachment 10 or 11)	<u>UNSAT</u>	<u>Initials</u> *

* Acceptance Criterion - the SAT/UNSAT block must be marked SAT.

EXAMINER'S COPY

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Reactor entered Single Loop Operations in accordance with HC.OP-IO.ZZ-0006 due to a trip of Reactor Recirculation Pump BP201.
2. Logs are being taken in accordance with HC.OP-DL.ZZ-0026.

INITIATING CUE:

PERFORM HC.OP-ST.BB-0007, Section 5.2, APRM % Flow to Total Core Flow Comparison.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
RO A3

Copy ____ of ____

SYSTEM: Administrative

TASK NUMBER: 2990020301

TASK: Perform A Manual Tagout With SAP System Inoperable

JPM NUMBER: 305H-JPM.ZZ055

REVISION: 01

SAP BET: NOH05JPZZ55E

K/A NUMBER: 2.2.41

IMPORTANCE FACTOR: RO: 3.5 SRO: 3.9

Ability to obtain and interpret station electrical and mechanical drawings.

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐ RO ☒ STA ☐ SRO ☐

EVALUATION SETTING/METHOD: Simulator(Classroom)/Perform

REFERENCES: M-51-1 Sheets 1 and 2, Rev. 50/45 OP-AA-109-115, Rev. 12

TOOLS, AND EQUIPMENT: Highlighters; M-51-1 Sheets 1 and 2 [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 SAP System Inoperable

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. The Residual Heat Removal (RHR) System is in its normal standby lineup.
3. HV-F007C, RHR Pump C Min Flow Valve, is scheduled for in-body repair work.

INITIATING CUE:

HV-F007C, RHR Pump C Min Flow Valve, and its associated piping and electrical components need to be **ISOLATED, VENTED, AND DRAINED** to perform the repairs. Using controlled station drawing M-51-1, sheets 1 and 2 (provided):

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

NOTE: The following are NOT required to be identified:

- Electrical Breaker number(s)
- Control switches
- Type of tag (Red blocking Tag, Worker Blocking Tag, etc)
- Current position
- Tag Sequence

JPM NUMBER: ZZ055
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator: the initiating cue; [Large Size] M-51-1, Sheets 1 and 2; AND 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: e. Controlled Documents and Drawings from the TDR or DCRMS. If...	Operator reviews provided M-51-1, Sheets 1 and 2.		
	2. Perform the following: e. Select blocking points and tag types.	Operator determines the blocking points AND required positions by reviewing the controlled drawing.		
		Applicant identifies the following mechanical isolation valves:		
		Applicant identifies the following mechanical isolation valves AND the required positions: • *V132, SHUT • *V317, SHUT • *HV-F024A (V124), SHUT • *HV-F010A (V125), SHUT • *HV-F011A (V126), SHUT • *V205, SHUT • *HV-F007A (V128), SHUT		
		Applicant identifies the following mechanical VENT AND the required positions: • *V372, OPEN • *V373, OPEN Examiner Note: V338 and V339 would satisfy this vent path.		

JPM NUMBER: ZZ055
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		<p>Applicant identifies the following mechanical DRAIN valves AND the required positions:</p> <ul style="list-style-type: none"> • *V554, OPEN • *V555, OPEN 		
		<p>Applicant identifies the following ELECTRICAL components AND the required positions:</p> <ul style="list-style-type: none"> • *HV-F007C (V131) MOV breaker, OPEN • *HV-F024A (V124) MOV breaker, OPEN • *HV-F010A (V125) MOV breaker, OPEN • *HV-F007A (V128) MOV breaker, OPEN <p>Examiner Note: Breaker numbers are not required.</p>		
		<p>Examiner Note: The Applicant may identify the following additional components as part of the tagout for equipment protection or safety precaution (not considered critical):</p> <ul style="list-style-type: none"> • HV-F007C (V131), OPEN (to allow proper draining on both upstream/downstream sides of valve) • CP202 RHR Pump 4kV Breaker, OPEN/PTL • AP202 RHR Pump 4kV Breaker, OPEN/PTL • V338 AND/OR V339, CLOSED (test connection). Unless opened as vent path. • V9988 AND V9989, CLOSED (flow ports for FE4436C) • AP202 and CP202 control room hand switches 		

JPM NUMBER: ZZ055
REV NUMBER: 01

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator IDENTIFIES the mechanical and electrical components, and their required positions, to ISOLATE, VENT, AND DRAIN the affected pipe using controlled station Mechanical Drawings as noted.</p>				

@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: ZZ055
REV NUMBER: 01

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ055

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	7/25/2016	New JPM. Incorporated comments from NRC validation.	Y
01	9/27/2017	Modified due to process change to new procedure OP-HC-109-115.	Y
01	1/10/2018	Incorporated comments from NRC validation. Editorial.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ055

REV#: 01

TASK: Perform A Manual Tagout With SAP 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

ON FILE	RO	ON FILE	9/27/2017
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	9/27/2017
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. The Residual Heat Removal (RHR) System is in its normal standby lineup.
3. HV-F007C, RHR Pump C Min Flow Valve, is scheduled for in-body repair work.

INITIATING CUE:

HV-F007C, RHR Pump C Min Flow Valve, and its associated piping and electrical components need to be **ISOLATED, VENTED, AND DRAINED** to perform the repairs. Using Drawing M-51-1, sheets 1 and 2 (provided):

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

NOTE: The following are NOT required to be identified:

- Electrical Breaker number(s)
- Control switches
- Type of tag (Red blocking Tag, Worker Blocking Tag, etc.)
- Current position
- Tag Sequence

JOB PERFORMANCE MEASURE

OP-AA-109-115-F4
Revision 1
Page 1 of 1

TAG HANG / REMOVAL LIST

☒ REQUEST

☐ RELEASE TYPE (circle one) FULL TEMPORARY

DISCIPLINE REVIEWS:

TAGOUT NUMBER: [REDACTED] This Worksheet: Page ____ of ____

[illegible]

TAGGED BY:

DATE/TIME:

VERIFIED BY:

DATE/TIME:

JOB PERFORMANCE MEASURE

OP-AA-109-115-F4

Revision 1

Page 1 of 1

TAG HANG / REMOVAL LIST

☒ REQUEST

☐ RELEASE TYPE (circle one) FULL TEMPORARY

DISCIPLINE REVIEWS:

TAGOUT NUMBER: [REDACTED] This Worksheet: Page ____ of ____

[illegible]

TAGGED BY:

DATE/TIME:

VERIFIED BY:

DATE/TIME:

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
RO A5

COPY ____ OF ____

SYSTEM: Emergency/ECG/E-Plan/Fire & Medical

TASK NUMBER:

TASK: Perform the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form

JPM NUMBER: 305H-JPM.ZZ060

REVISION: 03

SAP BET: NOH05JPZZ60E

K/A NUMBER: 2.4.39

IMPORTANCE FACTOR: RO: 3.9 SRO: 3.8

Knowledge of RO responsibilities in emergency plan implementation.

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: EP-HC-111-F8, Rev. 3

TOOLS, AND EQUIPMENT: Black pen

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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Emergency/ECG/E-Plan/Fire & Medical

TASK NUMBER:

TASK: Perform the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form

INITIAL CONDIITONS:

1. You are the On-Shift Reactor Operator.
2. The plant has experienced a Loss of Offsite Power (LOP).
3. 10B440 was subsequently lost when breaker 52-40410 tripped on over current.
4. An Alert has been declared.
5. The Secondary Communicator has submitted the Major Equipment and Electrical Status (MEES) Form for your review.

INITIATING CUE:

PERFORM the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form.

JPM NUMBER: ZZ060
 REV NUMBER: 03

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
B.1.a.	OBTAIN Licensed Operator review.	Examiner Note: See attached completed form. Examiner Note: PCIG Compressor A may be marked as OUT OF SERVICE(N) or as IN SERVICE(Y). RHR B & D and CS B & D may be marked as OUT OF SERVICE(N) or UNAVAILABLE(X) due to the loss of DP228. Operator reviews the provided Major Equipment and Electrical Status (MEES) Form, while walking-down the control room boards.		
CUE:	IF the operator asks for the status of BC663, B Hydrogen Recombiner, state that "it is not in service, but is available." [Equipment is Not available in the simulator.]			
		*Operator observes that Control Area Chilled Water Circ Pump B is not available based on indications of pump not running and/or inoperable breaker, and corrects the Form [X].		
		*Operator observes that PCIG Compressor B is not available based on bezel indications and listed power supply is powered from 10B440, and corrects the Form [X]. Note: PCIG Compressor A may be changed to N if it is currently not running (compressor cycles on pressure).		
		*Operator observes that 10K100 is not available based on 1E breaker is open, and corrects the Form [N or X]. Note: Can be marked as N or X as there are procedures that will close the breaker.		

JPM NUMBER: ZZ060
REV NUMBER: 03

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		*Operator initials the Major Equipment and Electrical Status (MEES) Form.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP: _____</p>			
Task Standard: Operator performs the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: ZZ060
REV NUMBER: 03

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ060

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	10/31/2014	Revised format. Updated Simulator Initial Conditions. Validated with 2 ROs. Validation Time 7 minutes. Incorporated comments on RHR pump and CRD pump status.	Y
03	9/29/2017	Significantly modified ZZ014.	Y
	1/12/2018	Incorporated comments from NRC validation. Editorial.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ060

REV#: 03

TASK: Perform the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.
- _____ 3. License level identified. (SRO,RO,STA,NLO)
- _____ 4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
- _____ 5. Initial setup conditions are identified.
- _____ 6. Initiating and terminating cues are properly identified.
- _____ 7. Task standards for successful completion are identified.
- _____ 8. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).
- _____ 9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
- _____ 10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
- _____ 11. Cues both verbal and visual are complete and correct.
- _____ 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.
- _____ 13. Statements describing important actions or observations that should be made by the operator are included (if required.)
- _____ 14. Validation time is included.
- _____ 15. JPM is identified as Time Critical and includes Critical Time (if required).

VALIDATED BY:

Qualification Level Required: RO

<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date
<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: ZZ060

REV#: 03

INITIAL CONDITIONS:

I.C.

Initial

RESET to 100% power IC.

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

Initial

Description

INSERT Malfunctions

TAKE Scram Actions

RESTORE 1E Breakers

ALLOW conditions to stabilize, acknowledge flashing PBs, and **PLACE** Simulator in FREEZE

MARKUP MEES: Control Area Circ Pump B and PCIG B as "Y", and 10K100 as "Y"

EVENT FILE:

Initial

ET

Event code:

Description:

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction EG12 after 120	Loss of all off site power
	None	None	Insert malfunction ED13D1 after 130	Loss of 480 VAC essential bus D 10B440

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

EP-HC-111-F8

ATT 8

Page 9 of 17

HOPE CREEK						DATE: <u>TODAY</u>											
MAJOR EQUIPMENT AND ELECTRICAL STATUS (MEES)						UPDATE TIME: <u>Now</u>											
Instructions: Y = IN SERVICE N = OUT OF SERVICE ("X" OUT UNAVAILABLE EQUIPMENT)			REACTIVITY CONTROL		ELECT. FEED	Y/N	CONTAINMENT CONTROL	ELECT. FEED	Y/N								
			SLC PUMPS		A	B212	N	FRVS RECIRC FANS	A	B410	Y						
					B	B222	N		E	B450	Y						
			RWCU PUMPS		A	B254	X		B	B420	Y						
					B	B264	X		F	B460	Y						
			REACTOR RECIRC PUMPS		A	A110	X	C	B430	Y							
		B	A120	X	D	B440	X										
WATER COOLING SYSTEMS			ELECT. FEED	Y/N	CRD PUMPS	A	B430	N	FRVS VENT	A	B212	Y					
					B	B440	X	FANS	B	B222	N						
SW PUMPS			A	A401	Y	ELECTRICAL STATUS			Y/N	H2 RECOMBINERS	A	B410	N				
			C	A403	Y					B	B480	N					
			B	A402	Y	OFFSITE AC POWER AVAILABLE			X	PCIG	A	B232	Y				
			D	A404	Y	EMERGENCY DIESELS			RUN	LOADED	B	B242	X				
SACS PUMPS			A	A401	Y	EDG			A	Y	Y	SERVICE AIR COMPRESSORS		ELECT. FEED	Y/N		
			C	A403	Y				B	Y	Y						
			B	A402	Y				C	Y	Y	00K107		A120	X		
			D	A404	Y				D	Y	Y	10K107		A110	X		
ACS PUMPS			A	B415	Y	HVAC			ELECT. FEED	Y/N	EMER. INST. AIR COMPRESSOR		ELECT. FEED	Y/N			
			B	B426	Y						10K100		NOR X	Y			
			C	B250	X	TURBINE BLDG			A	A110	X	ECCS		ELECT. FEED	Y/N		
CIRC WATER PUMPS			A	A501	X	CHILLED WATER CHILLERS			B	A120	X						
			B	A502	X				C	A101	X	RHR PUMPS		A	A401	N	
			C	A501	X				D	A110	X			C	A403	N	
			D	A502	X	TURBINE BLDG			A	B130	X			B	A402	N	
CONDENSATE/FEEDWATER			ELECT. FEED	Y/N	CHILLED WATER CIRC PUMPS			B	B120	X			D	A404	N		
								C	B110	X							
PRIMARY CONDENSATE PUMPS			A	A110	X	CONTROL AREA			A	B431	Y	RCIC PUMPS		STEAM	Y		
			B	A120	X	CHILLED WATER						HPCI PUMPS		STEAM	Y		
			C	A102	X	CIRC PUMPS			B	B44	X	Y	CORE SPRAY PUMPS		A	A401	N
SECONDARY CONDENSATE PUMPS			A	A110	X	CONTROL AREA			A	A403	Y			C	A403	N	
			B	A120	X	CHILLED WATER CHILLERS			B	A404	X			B	A402	N	
			C	A104	X									D	A404	N	
FEED WATER PUMPS			A	STEAM	X	TSC			A	B451	Y						
			B	STEAM	X	CHILLED WATER											
			C	STEAM	X	CIRC PUMPS			B	B461	Y						
						TSC			A	A401	Y						
						CHILLED WATER CHILLERS			B	A402	Y						

 LICENSED OPERATOR REVIEW: Initials
 INITIALS

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. You are the On-Shift Reactor Operator.
2. The plant has experienced a Loss of Offsite Power (LOP).
3. 10B440 was subsequently lost when breaker 52-40410 tripped on over current.
4. An Alert has been declared.
5. The Secondary Communicator has submitted the Major Equipment and Electrical Status (MEES) Form for your review.

INITIATING CUE:

PERFORM the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form.

JOB PERFORMANCE MEASURE

EP-HC-111-F8

ATT 8

Page 9 of 17

HOPE CREEK						DATE: <u>TODAY</u>	
MAJOR EQUIPMENT AND ELECTRICAL STATUS (MEES)						UPDATE TIME: <u>Now</u>	
Instructions: Y = IN SERVICE N = OUT OF SERVICE ("X" OUT UNAVAILABLE EQUIPMENT)			REACTIVITY CONTROL		ELECT. FEED	Y/N	
			SLC PUMPS		A B212	N	
					B B222	N	
			RWCU PUMPS		A B254	X	
					B B264	X	
			REACTOR RECIRC PUMPS		A A110	X	
					A120	X	
			CONTAINMENT CONTROL		ELECT. FEED	Y/N	
			FRVS RECIRC FANS		A B410	Y	
					E B450	Y	
					B B420	Y	
					F B460	Y	
					C B430	Y	
					D B440	Y	
WATER COOLING SYSTEMS			ELECT. FEED	Y/N			
CRD PUMPS			A B430	N			
			B B440	X			
SW PUMPS			A A401	Y			
			C A403	Y			
			B A402	Y			
			D A404	Y			
			ELECTRICAL STATUS			Y/N	
			OFFSITE AC POWER AVAILABLE			X	
			EMERGENCY DIESELS				
				RUN	LOADED		
SACS PUMPS			A A401	Y			
			C A403	Y			
			B A402	Y			
			D A404	Y			
			EDG				
			A Y	Y			
			B Y	Y			
			C Y	Y			
			D Y	Y			
ACS PUMPS			A B415	Y			
			B B426	Y			
			C B250	X			
			HVAC			ELECT. FEED	
						Y/N	
CIRC WATER PUMPS			A A501	X			
			B A502	X			
			C A501	X			
			D A502	X			
			TURBINE BLDG				
			A B130	X			
			CHILLED WATER CHILLERS				
			B B120	X			
			C B110	X			
CONDENSATE/FEEDWATER			ELECT. FEED	Y/N			
PRIMARY CONDENSATE PUMPS			A A110	X			
			B A120	X			
			C A102	X			
SECONDARY CONDENSATE PUMPS			A A110	X			
			B A120	X			
			C A104	X			
			CONTROL AREA				
			A B431	Y			
			CHILLED WATER CIRC PUMPS				
			B B441	Y			
			CONTROL AREA				
			A A403	Y			
			CHILLED WATER CHILLERS				
			B A404	X			
FEED WATER PUMPS			A STEAM	X			
			B STEAM	X			
			C STEAM	X			
			TSC				
			A B451	Y			
			CHILLED WATER CIRC PUMPS				
			B B461	Y			
			TSC				
			A A401	Y			
			CHILLED WATER CHILLERS				
			B A402	Y			
			FRVS VENT FANS				
			A B212	Y			
			B B222	N			
			H2 RECOMBINERS				
			A B410	N			
			B B480	N			
			PCIG COMPRESSORS				
			A B232	Y			
			B B242	Y			
			SERVICE AIR COMPRESSORS			ELECT. FEED	
						Y/N	
			00K107			A120 X	
			10K107			A110 X	
			EMER. INST. AIR COMPRESSOR			ELECT. FEED	
						Y/N	
			10K100			B450 Y	
			ECCS			ELECT. FEED	
						Y/N	
			RHR PUMPS			A A401 N	
						C A403 N	
						B A402 N	
						D A404 N	
			RCIC PUMPS			STEAM Y	
			HPCI PUMPS			STEAM Y	
			CORE SPRAY PUMPS			A A401 N	
						C A403 N	
						B A402 N	
						D A404 N	

 LICENSED OPERATOR REVIEW: _____
 INITIALS

JOB PERFORMANCE MEASURE

STATION: Hope Creek

**2018 NRC EXAM
SRO-A1**

Copy _____ of _____

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ017

REVISION: 05

SAP BET: NOH05JPZZ17E

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.8

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

ALTERNATE PATH: ☐

APPLICABILITY: RO ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev. 156 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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete the Daily Surveillance Logs

INITIAL CONDIITONS:

1. The Plant is in OPGON 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
 REV NUMBER: 05

NAME: _____
 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; <u>AND</u> ENTER START TIME <u>AFTER</u> 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 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.		
		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.		

JPM NUMBER: ZZ017
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		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.		
		Operator checks Attachment 5 on Attachment 1 Section A Log Initiation. Examiner Note: Although not specifically required by the current conditions, Attachment 5 is typically used each day to track surveillance procedures and would be needed the first time a surveillance procedure with an action time is actually logged on.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator implements the log at the beginning of the day by completing Attachment 1, Section A, of HC.OP-DL.ZZ-0026.</p>				

@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
REV NUMBER: 05

NAME: _____
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

JOB PERFORMANCE MEASURE

VALIDATION CHECKLIST

JPM NUMBER: ZZ017

REV#: 05

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

<u> ON FILE </u>	<u> SRO </u>	<u> ON FILE </u>	<u> 9/27/2017 </u>
Name	Qual	Signature	Date
<u> ON FILE </u>	<u> SRO </u>	<u> ON FILE </u>	<u> 9/27/2017 </u>
Name	Qual	Signature	Date

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

ATTACHMENT 1

Surveillance Log

Page 1 of 1

Date **TODAY'S DATE**1. Operational Condition **1**

2. Check (✓) Attachments to be performed

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

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.

Control Room

Auxiliary Bldg

Reactor Bldg

Attachment 1d

Turbine Bldg

Attachment 1e

Yard

NA

NA

NA

NA

DAY

EVE (See Note 3.1)

MID (See Note 3.1)

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

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.

JOB PERFORMANCE MEASURE

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

ATTACHMENT 1 Surveillance Log

Page 1 of 1

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.

Attachment 1a

Control Room

Attachment 1b

Auxiliary Bldg

Attachment 1c

Reactor Bldg

Attachment 1d

Turbine Bldg

Attachment 1e

Yard

N/A

NA

NA

NA

NA

DAY

EVE (See Note 3.1)

MID (See Note 3.1)

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	_____		
		3e	_____	3j	_____	3q	_____	3u	_____	3y	_____	4b	_____		

N/A

JOB PERFORMANCE MEASURE

STATION: Hope Creek

**2018 NRC EXAM
SRO-A2**

Copy ____ of ____

SYSTEM: Administrative

TASK NUMBER: 2990110302

TASK: Assist with Completion of A Post SCRAM/ECCS Actuation Review

JPM NUMBER: 305H-JPM.ZZ052

REVISION: 01

SAP BET: NOH05JPZZ52E

K/A NUMBER: 2.1.23

IMPORTANCE FACTOR: RO: 4.3 SRO: 4.4

Ability to perform specific system and integrated plant procedures during all modes of plant operation.

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-114-1001, Rev. 9

Rec. Transmittal No: HOP150067
ACN: JCD0427150021

TOOLS, AND EQUIPMENT: Calculator; Straight-edge(ruler)

ESTIMATED COMPLETION TIME: 22 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990110302

TASK: Assist with Completion of A Post SCRAM/ECCS Actuation Review

INITIAL CONDIITONS:

1. Plant is being shutdown for a refueling outage in accordance with HC.OP-IO.ZZ-0004.
2. A Post Scram Review is being performed in accordance with OP-HC-108-114-1001,
3. Attachment 2, Post Reactor Scram/ECCS Actuation Review, is in progress and shows the following Part B.1.b,data:
 - The plant was scrammed Yesterday at 2000.
 - The cause of the scram was Mode Switch in startup with APRMs $\geq 14\%$ (APRMs-Setpoint Setdown).
 - The SOE Computer Printout Start Time is Yesterday at 19:55:00.
4. Attachment 4, Initiating Parameter Sequence Of Events Checklist, is complete.

INITIATING CUE:

COMPLETE OP-HC-108-114-1001 ATTACHMENT 3, Reactor Scram Initiation And Completion/Interval Times Checklist, Page 2 of 3 ONLY, using the Sequence of Events printout and Attachment 4 provided.

JPM NUMBER: ZZ052
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue; SOE Printout; completed OP-HC-108-114-1001 Attachment 4; blank OP-HC-108-114-1001 Attachment 3; AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	The Reactor Scram Initiation and Completion/Interval Times Checklist is used to verify that the Scram initiation signal recorded in Attachment 2, Part B.1.b, was, in fact, the initiating signal and that the trip of the Reactor Protective System (RPS) equipment was carried to completion. The information to be recorded on the Reactor Scram Initiation and Completion/Interval Times Checklist (page 2) is a direct transfer of information from the Sequence of Events (SOE) Computer printout. If the SOE is unavailable, the information may be	Operator reads the introduction to Attachment 3. Examiner Note: Refer to the Examiner's Copy of Attachment 3, Page 2 of 3.		
To complete the checklist (page 2), use the following guideline:				
1)	RECORD a) the event date and time, b) from Attachment 2, Part B.1.b, the Scram Initiating Signal, and c) the SOE Computer Printout Start Time.	Operator records the event date and time; Scram Initiating Signal; and the SOE Printout Start time in the appropriate locations on Attachment 3.		
2)	From the SOE printout, RECORD the CRIDS POINT ID and time for each channel trip of the initiating parameter in the boxes provided for Initiating Parameter W, X, Y and Z (T1). Include milliseconds (from Attachment 4). From the SOE or Alarm Chronolog printouts, RECORD the time for each of the subsequent alarms (T2). Include milliseconds as available.	*Operator records the CRIDS POINT ID and time for each channel trip of the initiating parameter in the boxes provided for Initiating Parameter W, X, Y and Z (T1). Include milliseconds (from Attachment 4); and from the SOE or Alarm Chronolog printouts, records the time for each of the subsequent alarms (T2). Include milliseconds as available.		

JPM NUMBER: ZZ052
REV NUMBER: 01

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@																																	
3)	RECORD the times for the first-in of W or Y and the first-in of X or Z in the boxes provided. INCLUDE milliseconds.	*Operator records the times for the first-in of W or Y and the first-in of X or Z in the boxes provided. INCLUDE milliseconds. Examiner Note: Placing only W(Y) OR X(Z) in the boxes provided satisfies this Critical.																																			
4)	RECORD the later-in sequence of the two times from 3) above in the space labeled RPS Initiation Time (T3). The following is a list of the Scram signals and CRIDS Point IDs available from the SOE printout <table border="1"> <thead> <tr> <th>EVENT</th><th>DESCRIPTION</th><th>DIGITAL POINTS</th></tr> </thead> <tbody> <tr> <td>1</td><td>TB STOP VLV CLS SCRAM</td><td>02133-02136</td></tr> <tr> <td>2</td><td>TB CTRL VLV CLS SCRAM</td><td>02137-02140</td></tr> <tr> <td>3</td><td>SCRAM DRCH VOL LVL</td><td>02181-02184</td></tr> <tr> <td>4</td><td>MSV NOT OPEN SCRAM</td><td>02105-02106</td></tr> <tr> <td>5</td><td>DRYVL HI PRESS SCRAM</td><td>02109-02112</td></tr> <tr> <td>6</td><td>REAC HI PRESS SCRAM</td><td>02113-02116</td></tr> <tr> <td>7</td><td>REAC LO WFM LVL SCRAM</td><td>02117-02120</td></tr> <tr> <td>8 + 9</td><td>NEUTRON MON SYS SCRAM</td><td>02126-02128</td></tr> <tr> <td>10</td><td>MANUAL SCRAM</td><td>02129, 02130, 02172, 02173</td></tr> <tr> <td>11</td><td>REDUNDANT REACTIVITY CONTROL SYSTEM</td><td>02189, 02207</td></tr> </tbody> </table>	EVENT	DESCRIPTION	DIGITAL POINTS	1	TB STOP VLV CLS SCRAM	02133-02136	2	TB CTRL VLV CLS SCRAM	02137-02140	3	SCRAM DRCH VOL LVL	02181-02184	4	MSV NOT OPEN SCRAM	02105-02106	5	DRYVL HI PRESS SCRAM	02109-02112	6	REAC HI PRESS SCRAM	02113-02116	7	REAC LO WFM LVL SCRAM	02117-02120	8 + 9	NEUTRON MON SYS SCRAM	02126-02128	10	MANUAL SCRAM	02129, 02130, 02172, 02173	11	REDUNDANT REACTIVITY CONTROL SYSTEM	02189, 02207	*Operator records the later-in sequence of the two times from 3) above in the space labeled RPS Initiation Time (T3). The following is a list of the Scram signals and CRIDS Point IDs available from the SOE printout.		
EVENT	DESCRIPTION	DIGITAL POINTS																																			
1	TB STOP VLV CLS SCRAM	02133-02136																																			
2	TB CTRL VLV CLS SCRAM	02137-02140																																			
3	SCRAM DRCH VOL LVL	02181-02184																																			
4	MSV NOT OPEN SCRAM	02105-02106																																			
5	DRYVL HI PRESS SCRAM	02109-02112																																			
6	REAC HI PRESS SCRAM	02113-02116																																			
7	REAC LO WFM LVL SCRAM	02117-02120																																			
8 + 9	NEUTRON MON SYS SCRAM	02126-02128																																			
10	MANUAL SCRAM	02129, 02130, 02172, 02173																																			
11	REDUNDANT REACTIVITY CONTROL SYSTEM	02189, 02207																																			
Page 3 NOTE	² Interval time (D) = Alarm SOE/Chronolog time (C) - Initiating Parameter SOE/Chronolog Time (A) [W, X, Y, Z above]	*Operator determines the INTERVAL TIMES and records the times in the appropriate boxes.																																			
5)	COMPLETE the Attachment 4 Check Sheet (IF not already completed) for the initiating event recorded as Scram Initiating Signal above.	Per Initiating Cue Attachment 4 has been completed.																																			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>																																				
Task Standard: Operator completes OP-HC-108-114-1001, Attachment 3, Page 2 of 3 <u>ONLY</u> .																																					

@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: ZZ052
REV NUMBER: 01

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ052

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	6/17/2016	New JPM. Validated with 2 SROs.	Y
01	9/27/2017	Revised to delete specific scam date.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ052

REV#: 01

TASK: Assist with Completion of A Post SCRAM/ECCS Actuation Review

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

VALIDATED BY:

Qualification Level Required: SRO

<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/27/2017</u> Date
<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/27/2017</u> Date

JOB PERFORMANCE MEASURE

ATTACHMENT 3 REACTOR SCRAM INITIATION AND COMPLETION/INTERVAL TIMES CHECKLIST Page 2 of 3

EVENT DATE: Yesterday TIME: 20:00 SCRAM INITIATED BY: APRM-Upscale-Setdown SOE Computer Printout Start Time: Yesterday 20:35:11

INITIATING PARAMETER SCRAM (from Attachment 4)	CRIDS POINT ID	SOE/CHRONOLOG TIME(A)	FIRST - IN W or Y [X or Z]	RPS INITIATION TIME(B)
INITIATING PARAMETER SCRAM W (A1)	D2125	20:00:50.454	(Y)	20:00:50.451
INITIATING PARAMETER SCRAM Y (A2)	D2127	20:00:50.451	20:00:50.451	
INITIATING PARAMETER SCRAM X (B1)	D2126	20:00:50.448	(X)	
INITIATING PARAMETER SCRAM Z (B2)	D2128	20:00:50.450	20:00:50.448	

SUBSEQUENT ALARMS	CRIDS POINT ID	SOE/CHRONOLOG TIME (C)	INTERVAL TIME (D) ² (D=C - A)	EXPECTED INTERVAL
Reactor SCRAM W	D2131	20:00:50.482	28 msec	<50 msec
Reactor SCRAM Y	D2132	20:00:50.474	23 msec	<50 msec
Reactor SCRAM X	D2174	20:00:50.470	22 msec	<50 msec
Reactor SCRAM Z	D2175	20:00:50.469	19 msec	<50 msec

EXAMINER'S COPY

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Plant is being shutdown for a refueling outage in accordance with HC.OP-IO.ZZ-0004.
2. A Post Scram Review is being performed in accordance with OP-HC-108-114-1001,
3. Attachment 2, Post Reactor Scram/ECCS Actuation Review, is in progress and shows the following Part B.1.b,data:
 - The plant was scrammed Yesterday at 2000.
 - The cause of the scram was Mode Switch in startup with APRMs $\geq 14\%$ (APRMs-Setpoint Setdown).
 - The SOE Computer Printout Start Time is Yesterday at 20:35:11.
4. Attachment 4, Initiating Parameter Sequence Of Events Checklist, is complete.

INITIATING CUE:

COMPLETE OP-HC-108-114-1001 ATTACHMENT 3, Reactor Scram Initiation And Completion/Interval Times Checklist,

Page 2 of 3 ONLY,

using the Sequence of Events printout and Attachment 4 provided.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC EXAM
SRO-A3

Copy _____ of _____

SYSTEM: Administrative

TASK NUMBER: 2990060302

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

JPM NUMBER: 305H-JPM.ZZ027

REVISION: 05

SAP BET: NOH05JPZZ27E

K/A NUMBER: 2.2.12

IMPORTANCE FACTOR: RO: 3.7 SRO: 4.1

Knowledge of surveillance procedures.

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-IS.BC-0003, Rev. 49

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

ESTIMATED COMPLETION TIME: 26 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990060302

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

INITIAL CONDITONS:

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

INITIATING CUE:

1. **PERFORM** the SM/CRS review of the completed HC.OP-IS.BC-0003.
2. **CORRECT** discrepancies, IF any.
3. **DOCUMENT** applicable Technical Specifications and required actions, IF any in 2.1.4 Remarks.

JPM NUMBER: ZZ027
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue; the marked up RECORDS copy (refer to 8.1) of HC.OP-IS.BC-0003; a clean copy of HC.OP-IS.BC-0003; Technical Specifications; <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
5.42	SUBMIT the procedure to the SM/CRS for review <u>AND</u> completion of Attachment 1.			
		Operator commences the review. Operator determines that the Suppression Pool Cooling Flow recorded on Attachment 2, Steps 5.25.3, for the pump is less than required (10,452 < 10,462).		
CUE:	If the operator reports the error, STATE "Make the necessary corrections and continue with the review."			
		*Operator changes the SAT to UNSAT.		
		Operator determines that the Discharge Pressure recorded on Attachment 3, Steps 5.21.4.A, for the pump is incorrect: The PUMP SUCTION PRESSURE should have been added to the PUMP DISCHARGE PRESSURE. GAGE DIFFERENTIAL PRESSURE should be 142.2 psid.		
CUE:	If the operator reports the error, STATE "Make the necessary corrections and continue with the review."			
		*Operator corrects error.		
		Operator determines that the TEST DIFFERENTIAL PRESS recorded on Attachment 3, Steps 5.21.5, for the pump is incorrect: A math error was made. It should be 140.0 psid.		
CUE:	If the operator reports the error, STATE "Make the necessary corrections and continue with the review."			
		*Operator corrects error.		

JPM NUMBER: ZZ027
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		Operator determines that the differential pressure is within the REQUIRED ACTION range.		
CUE:	If the operator reports the error, STATE "Make the necessary corrections and continue with the review."			
		*Operator changes the SAT to UNSAT.		
2.0 POST TEST INFORMATION				
2.1	The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 6.8.4.i, 4.5.1.b.2, 4.6.2.3.b, 4.6.2.2.b, and 4.3.7.4 and the test is considered	Operator reviews the data entered for completeness and compliance with Technical Specifications.		
	2.1.1. SATISFACTORY (All acceptance criteria is marked SAT and/or ALERT. <u>IF</u> in ALERT, GENERATE a Notification for evaluation.)	Operator determines test does not meet these criteria.		
	2.1.2. UNSATISFACTORY (Any test evaluations are marked UNSAT). TAKE action IAW Technical Specifications and GENERATE a Notification.	Operator notes that data flagged as ACCEPTANCE CRITERIA was marked UNSAT. *Operator determines B RHR Pump is INOPERABLE for Technical Specifications, AND the most limiting Tech Spec is 3.6.2.3 Action a (Suppression Pool Cooling 72 hours) Examiner Note: Technical Specifications 3.5.1 and 3.6.2.2 may also be identified.		
		Operator notes/requests that a Notification is required to be generated.		
CUE:	Notification 12345678 has been written by another operator.			

JPM NUMBER: ZZ027
REV NUMBER: 05

NAME: _____
DATE: _____

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

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: ZZ027
REV NUMBER: 05

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ027

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	9/27/2017	Revised due to procedure revision. Updated handouts based on submitted copy in DCRMS.	Y
05	1/10/2018	Incorporated comments from NRC validation. Editorial.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ027

REV#: 05

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

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

VALIDATED BY:

Qualification Level Required: SRO

<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/27/2017</u> Date
 <u>ON FILE</u> Name	 <u>SRO</u> Qual	 <u>ON FILE</u> Signature	 <u>9/27/2017</u> Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

1. **PERFORM** the SM/CRS review of the completed HC.OP-IS.BC-0003.
2. **CORRECT** discrepancies, IF any.
3. **DOCUMENT** applicable Technical Specifications and required actions, IF any in 2.1.4 Remarks.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

**2018 NRC EXAM
SRO-A4**

Copy ____ of ____

SYSTEM: Radiation Control

TASK NUMBER: 2990420302

TASK: Verify Compliance with Gaseous Release Permit

JPM NUMBER: 305H-JPM.ZZ059

REVISION: 00

SAP BET: NOH05JPZZ03E

K/A NUMBER: 2.3.6

IMPORTANCE FACTOR: RO: 2.0 SRO: 3.8

Ability to approve release permits.

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator (Classroom)/Perform

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

TOOLS, AND EQUIPMENT: Prepared OP-HC-103-105; Calculator

ESTIMATED COMPLETION TIME: 8 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐ UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Radiation Control

TASK NUMBER: 2990420302

TASK: Verify Compliance with Gaseous Release Permit

INITIAL CONDIITONS:

1. A plant shutdown is in progress for a Refueling outage.
2. The Reactor is shutdown.
3. At 0138 today Purging of the Primary Containment commenced.
4. At 0242, the Purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation, due to a damper problem.
5. At 0414, Purging of Primary Containment re-commenced.
6. At 1604 the Purge lineup was secured.
7. At 1614 today Operational Condition 4 was entered.
8. At 1620 Purging of the Primary Containment re-commenced.
9. At 1950 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

VERIFY AND CLOSE OUT today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.

JPM NUMBER: ZZ059
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue, partially completed OP-HC-103-105, 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 4.4.6.		
4.4.6	The SM/CRS should verify the calculations, sign in the appropriate space for verification and close out and enter the time and date.	Operator reviews Forms 1 & 2. IAW Step 4.4.3 of OP-HC-103-105 during calculation of valve open time the number must be rounded up. The Operator recognizes NCO incorrectly rounded down the 0138 to 0242 entry from 1.1 to 1.0 instead of rounding up to 1.5 in Section C of Form 2.		
CUE:	IF the operator requests the NCO to make changes, THEN DIRECT the operator to make any required changes.			
		*Operator corrects 1.0 to 1.5 for the 0138 to 0242 entry in Section C of Form 2.		
		In Section C of Form 2, Operator recognizes NCO incorrectly used entry into OPCON 4 time for end time of second purge period instead of using securing of purge lineup IAW step 4.4.2. Stop Time should be 1604 vice 1614.		
CUE:	IF the operator requests the NCO to make changes, THEN DIRECT the operator to make any required changes.			
		*Operator corrects STOP TIME from 1614 to 1604 for the 0414 to 1614 entry, and determines the open time is still 12.0 in Section C of Form 2.		
		*Operator deletes the 1620 to 1920 entry completely.		
		*Operator corrects the TOTAL HOURS for all the entries from 16.5 to 13.5.		

JPM NUMBER: ZZ059
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		*Operator signs and enters the current date and time in the SM/CRS Closing permit line.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator performs the SM/CRS verification and close out of a Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.</p>				

@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: ZZ059
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ059

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	9/27/2017	Modified Initiating Cue to change calculated values. Modified from ZZ003; different than ZZ001.	Y
00	1/10/2018	Incorporated comments from NRC validation. Editorial.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ059

REV#: 00

TASK: Verify Compliance with Gaseous Release Permit

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

VALIDATED BY:

Qualification Level Required: SRO

<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date
<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

OP-HC-103-105

Revision 1

Page 9 of 9

EXAMINER'S COPY**FORM 2****CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT****SECTION A**Date: Today**NOTE:** This permit is valid only until 2400 of this dateGaseous Effluent Permit #: 020160003**SECTION B****HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)**Calculate Total Hours Open
During Previous Year (**NOTE 1**)

<u>DATE</u>	<u>NUMBER OF HOURS</u>
3/3/17	5.5
6/25/17	3.5
8/30/17	24.0
8/31/17	2.5

(1) Max. allowed for 365 days (Admin Limit)	452 hrs
(2) Total previous year (NOTE 1)	(-) 35.5
(3) Hours available this date (line 1 minus line 2)	(=) 416.5
Hours authorized this date (24 hours or Line (3), the hours available this date whichever is less)	24

NCO performing calculation

Date/Time

John Smith

Today/0030

SM/CRS verification and authorization

Date/Time

Andrew Jones

Today/0045

SECTION C**VALVE/LINE OPEN TIME (Note 2)****START TIME**Time at which valve/line was open or
Condition 1, 2, or 3 was entered with
valve/line open

0138
0414
1620

STOP TIMETime at which valve/line was closed
or Condition 4 or 5 was entered with
valve/line opened

0242
1614 1604
1950

TOTAL HOURSTotal number of hours
valve/line opened this
cycle**(NOTE 3)**

1.0 1.5
12.0
3.5

Total number of hours valves/line open this permit:

16.5 13.5

NCO performing calculations

John Smith

Date/Time

Today/Now

SM/CRS Closing permit

Operator's Signature

Date/Time

Date/Time**NOTE 1:** The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.**NOTE 2:** Completed Form 2 should be filed in the AP-104 binder in the Control Room.**NOTE 3:** When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)**EXAMINER'S COPY**

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A plant shutdown is in progress for a Refueling outage.
2. The Reactor is shutdown.
3. At 0138 today Purging of the Primary Containment commenced.
4. At 0242, the Purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation, due to a damper problem.
5. At 0414, Purging of Primary Containment re-commenced.
6. At 1604 the Purge lineup was secured.
7. At 1614 today Operational Condition 4 was entered.
8. At 1620 Purging of the Primary Containment re-commenced.
9. At 1950 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

INITIATING CUE:

VERIFY AND CLOSE OUT today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit in accordance with OP-HC-103-105.

JOB PERFORMANCE MEASURE

OP-HC-103-105

Revision 1

Page 9 of 9

TRAINING ONLY**FORM 2****CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT****SECTION A**Date: Today**NOTE:** This permit is valid only until 2400 of this dateGaseous Effluent Permit #: 020160003**SECTION B****HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)**

Calculate Total Hours Open During Previous Year (NOTE 1)			
DATE	NUMBER OF HOURS		
3/3/17	5.5	(1) Max. allowed for 365 days (Admin Limit)	452 hrs
6/25/17	3.5	(2) Total previous year (NOTE 1)	(-) 35.5
8/30/17	24.0	(3) Hours available this date (line 1 minus line 2)	(=) 416.5
8/31/17	2.5	Hours authorized this date (24 hours or Line (3), the hours available this date whichever is less)	24
		NCO performing calculation	Date/Time
		<i>John Smith</i>	Today/0030
		SM/CRS verification and authorization	Date/Time
		<i>Andrew Jones</i>	Today/0045

SECTION C**VALVE/LINE OPEN TIME (Note 2)**

START TIME	STOP TIME	TOTAL HOURS
Time at which valve/line was open or Condition 1, 2, or 3 was entered with valve/line open	Time at which valve/line was closed or Condition 4 or 5 was entered with valve/line opened	Total number of hours valve/line opened this cycle
0138	0242	1.0
0414	1614	12.0
1620	1950	3.5
Total number of hours valves/line open this permit:		16.5
NCO performing calculations	<i>John Smith</i>	Date/Time Today/Now
SM/CRS Closing permit		Date/Time

NOTE 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.**NOTE 2:** Completed Form 2 should be filed in the AP-104 binder in the Control Room.**NOTE 3:** When computing the total hours (round up to the nearest 0.5 hr or to the nearest 1.0 hr)**TRAINING ONLY**

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
SRO A5

Copy ____ of ____

SYSTEM: System

TASK NUMBER: 2000500302/2000020505

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

JPM NUMBER: 305H-JPM.ECG016

REVISION: 00

SAP BET: NOH05JPCL16E

K/A NUMBER: 2.4.38

IMPORTANCE FACTOR: RO: 2.4 SRO: 4.4

Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: EP-HC-111-100 Rev. 24

EP-HC-111-101 Rev. 1

EAL Flowcharts and EAL Wallcharts HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-111-F*[1-5,24]; EP-HC-111-101; EAL Flowcharts and EAL Wallcharts: HCGS ECG – EAL Technical Basis

ESTIMATED COMPLETION TIME: 11/5 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: ____ / ____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: System

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 is shut down for a refueling outage.
2. Preparations for Reactor Pressure Vessel Head de-tensioning were in progress in accordance with HC.OP-IO.ZZ-0005. All Head Studs are still fully tensioned.
3. RHR Loop B was in Shutdown Cooling at 10,000 gpm. RCS temperature was 130F.
4. The Drywell is de-inerted, and open.
5. Secondary Containment is established.
6. Reactor Water level was +200 inches.
7. Plant Effluent activity was:
 - 1.17E+00 μ Ci/sec Noble Gas
 - 1.17E-03 μ Ci/sec I-131

A lightning strike in the switchyard has caused the following to occur:

- Offsite power to Hope Creek has been lost.
- EDG AG400, BG400, and DG400 have started and are powering their respective 4kv buses.
- An inadvertent CO2 System initiation has occurred in Room 5306, EDG CG400 room. No indications of a fire.

Current Plant Conditions (2 minute after the lightning strike):

1. Offsite power is expected to be returned to Hope Creek in 2 hours.
2. Reactor Coolant temperature is 131F and rising.
3. Shutdown Cooling is expected to be restored in 20 minutes.
4. Reactor Water Level is +200 inches.
5. Plant Effluent activity is:
 - 1.17E+00 μ Ci/sec Noble Gas
 - 1.17E-03 μ Ci/sec I-131
6. Meteorological conditions:
 - Wind direction 33 ft elev. is from 332 degrees
 - Wind speed 33 ft elev. is 27 mph
7. DAPA monitors indicate:
 - 0.042E+00 R/HR DAPA A
 - 0.061E+00 R/HR DAPA B

INITIATING CUE:

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

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

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

JPM NUMBER: ECG016
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	EP-HC-111-101			
8.4	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.		
	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.		
	1. ASSESS the event and/or plant conditions and DETERMINE which ECG - EAL Group/Section is most appropriate.	Operator assesses the initial conditions, and determines that EALs that are applicable under any plant Operational Conditions (OPCONs), AND EALs applicable only under cold conditions apply to this classification.		
	2. REVIEW EAL categories and subcategories on the appropriate flowcharts/wallcharts.	Operator assesses the initial conditions, and determines that H and C are appropriate ECG categories; and H3, C1, and C4, are appropriate subcategories.		

JPM NUMBER: ECG016
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	<p>3. If using the ECG – EAL flowcharts, for each applicable subcategory, REVIEW EALs in the subcategory beginning with the lowest emergency classification level to the highest classification level (left to right). ENSURE all pages of a particular subcategory being considered are reviewed.</p> <p>4. If using the ECG – EAL Wallcharts, for each applicable subcategory, REVIEW EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).</p>	<p>Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in H3, C1, and C4.</p> <p>Operator determines that HU3.1 and HA3.1 apply to the event.</p>		
	<p>5. If in OPCON 1, 2 or 3, also REVIEW the Fission Product Barrier (FPB) Table:</p> <p>a. EXAMINE the FPB categories in the left column of the table.</p> <p>b. SELECT the category that most likely coincides with event conditions.</p> <p>c. REVIEW all thresholds in this category for each fission product barrier.</p> <p>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).</p>	<p>Operator refers to FPB Table and identifies that the Initial Conditions (Operational Condition 4/5) and the FPB Table is not applicable.</p>		

JPM NUMBER: ECG016
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	<p>6. REVIEW the associated EALs as compared to the event and SELECT the <u>highest</u> appropriate emergency. If identification of an EAL is questionable refer to paragraph 8.1 above.</p> <p>If there is any doubt with regard to assessment of a particular EAL, the <u>ECG EAL Technical Bases Document</u> 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 bases for the particular EAL or in ECG – EAL Technical Basis Document, Attachment 3, EP-HC-111-232, EAL Definitions. Words or numbers contained in an EAL that are in bold print but not uppercase are EAL threshold values (e.g., ≥ 15 minutes).</p>	Operator reviews the EALs identified in Step 8.4.3 and 4, and selects EAL HA3.1 as the highest emergency action level met or exceeded (ALERT).		
	<p>7. If an EAL has been exceeded, equal level EALs or lower level EALs are not required to be separately reported as long as the applicable information is communicated to the NRC using ECG Attachment 5, EP-HC-111-F5, NRC Data Sheet & Completion Reference.</p>	Examiner Note: Filling out the NRC Data Sheet is beyond the scope of this JPM.	N/A	

JPM NUMBER: ECG016
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	8. When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.	Operator requests STA/IA verification of classification. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request verification.		
CUE:	IF the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN</u> INFORM the Operator the STA/IA is not available.			
	9. IDENTIFY and IMPLEMENT the referenced ECG form based on the Emergency Classification Level. <ul style="list-style-type: none"> • Unusual Event Implement EP-HC-111-F1 • Alert Implement EP-HC-111-F2 • Site Area Emergency Implement EP-HC-111-F3 • General Emergency Implement EP-HC-111-F4 • Unusual Event (Common Site) Implement EP-HC-111-F24 REFER to EP-HC-111-102, Hope Creek Emergency Classification Description Table, as a guide for correct description wording for entry on the Initial Contact Message Form (ICMF) for all EALs.	Operator identifies and implements EP-HC-111-F2, and refers to EP-HC-111-102 as a guide for correct description wording for entry on the ICMF for all EALs.		
EP-HC-111-F2 ATTACHMENT 3 ALERT				
A.	<u>CLASSIFICATION</u>			
	1. CALL communicators to the Control Room.	Operator calls communicators to the Control Room and initials Step.		
CUE:	After 2 minutes, report as the CM1 and CM2 communicators.			

JPM NUMBER: ECG016
 REV NUMBER: 00

NAME: _____
 DATE: _____

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

JPM NUMBER: ECG016
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	<ul style="list-style-type: none"> COMPLETE / APPROVE the ICMF 	<p>*Operator places the EAL #HA3.1, a description of the event, checks there is NO Release in progress, enters the wind direction and speed, and initials as EC in the appropriate spots in the ICMF,</p> <p>and initials the step as the EC.</p> <p>Examiners Note: See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EAL HA3.1. The operator may place the Examiner's name as the Communicator, or tell the Examiner to place his/her name as the Communicator.</p>		
	5. If time allows, OBTAIN an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF and initials Step.		
CUE:	IF the Operator requests a peer check to verify the EAL Classification, THEN INFORM the Operator that no one is available.			
	<p>6. Continue with <u>NOTIFICATION AND ACTIVATION</u> as follows:</p> <ul style="list-style-type: none"> If desired, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003) 	<p>Operator activates/directs activation of the ERO per posted instructions titled Training Use Emergency Callout Activation and initials Step.</p> <p>Examiner Note: ENSURE the operator is using the Simulator Training Activation instructions.</p>		
CUE:	<u>IF</u> asked/requested to activate, <u>OR</u> the Operator attempts to activate the ERO Emergency Callout, <u>THEN</u> STATE "Activation of the ERO Emergency Callout is complete."			

JPM NUMBER: ECG016
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	<ul style="list-style-type: none">DIRECT the Primary Communicator to implement ECG Attachment 6	<p>*Operator provides the ICMF to CM1 and directs implementation of Att.6,</p> <p>and initials Step.</p> <p>Examiner Note: The difference between the "DECLARED AT" TIME and this LOG TIME is the second critical time (13 min.).</p> <p>TIME: _____</p>		
	<ul style="list-style-type: none">DIRECT the Secondary Communicator to implement ECG Attachment 8 for an ALERT	<p>*Operator directs CM2 to implement Att. 8 for an ALERT,</p> <p>and initials Step.</p>		
CUE:	Role-play as Secondary Communicator and repeat back the directions given. Provide Terminating Cue.			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator declares an ALERT [ECG HA3.1], and makes notifications within identified Critical Times in accordance with EP-HC-111-101.				

@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: ECG016
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ECG016

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	9/27/2017	New JPM.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ECG016

REV#: 00

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

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

VALIDATED BY:

Qualification Level Required: SRO

<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date

<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

EP-HC-111-F2
ATT 2
Pg. 2 of 5

INITIAL CONTACT MESSAGE FORM

- I. THIS IS _____, COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC

AT THE HOPE CREEK NUCLEAR GENERATING STATION.

- II. THIS IS NOTIFICATION OF AN ALERT WHICH WAS

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

EAL # HA3.1 DESCRIPTION OF EVENT _____
Toxic / Flammable Gas Release in a Vital Area Restricting Access to Safety Systems

- III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
☒ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

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

- IV. 33 FT. LEVEL WIND DIRECTION (From): 332 WIND SPEED: 27
(From MET Computer /SPDS) (DEGREES) (MPH)

- V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

INITIALS

EC Initials
(Approval to Transmit ICMF)

HCGS

EXAMINER'S COPY

Rev. 02

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is shut down for a refueling outage.
2. Preparations for Reactor Pressure Vessel Head de-tensioning were in progress in accordance with HC.OP-IO.ZZ-0005. All Head Studs are still fully tensioned.
3. RHR Loop B was in Shutdown Cooling at 10,000 gpm. RCS temperature was 130F.
4. The Drywell is de-inerted, and open.
5. Secondary Containment is established.
6. Reactor Water level was +200 inches.
7. Plant Effluent activity was:
 - 1.17E+00 μ Ci/sec Noble Gas
 - 1.17E-03 μ Ci/sec I-131

A lightning strike in the switchyard has caused the following to occur:

- Offsite power to Hope Creek has been lost.
- EDG AG400, BG400, and DG400 have started and are powering their respective 4kv buses.
- An inadvertent CO2 System initiation has occurred in Room 5306, EDG CG400 room. No indications of a fire.

Current Plant Conditions (2 minutes after the lightning strike):

1. Offsite power is expected to be returned to Hope Creek in 2 hours.
2. Reactor Coolant temperature is 131F and rising.
3. Shutdown Cooling is expected to be restored in 20 minutes.
4. Reactor Water Level is +200 inches.
5. Plant Effluent activity is:
 - 1.17E+00 μ Ci/sec Noble Gas
 - 1.17E-03 μ Ci/sec I-131
6. Meteorological conditions:
 - Wind direction 33 ft elev. is from 332 degrees
 - Wind speed 33 ft elev. is 27 mph
7. Current DAPA monitors indicate:
 - 0.042E+00 R/HR DAPA A
 - 0.061E+00 R/HR DAPA B

INITIATING CUE:

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

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

Time zero for the event is NOW.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - A

COPY ____ OF ____

SYSTEM: Reactor Protection System

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

JPM NUMBER: 305H-JPM.SB013

REVISION: 06

SAP BET: NOH05JPSB13E

K/A NUMBER: 212000 A4. Ability To Manually Operate And/Or Monitor In The Control Room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.14 Reset System Following System Activation

IMPORTANCE FACTOR: RO: 3.8 SRO: 3.8

ALTERNATE PATH: ☒

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.SB-0001 Rev. 34

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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Protection System

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

INITIAL CONDITONS:

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 5.3.3, Resetting RPS Trips, of HC.OP-SO.SB-0001.

JPM NUMBER: SB013
 REV NUMBER: 06

NAME: _____
 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, <u>AND</u> 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 5.3.1.		
5.3.1	ENSURE all prerequisites of Section 2.3 are satisfied.	Operator ensures that all prerequisites of Section 2.3 are satisfied, including completing Attachment 1, Section 2.0, and initials Step.		
5.3.2	<u>IF</u> a Half Scram condition exists...	Operator observes that this Step is marked as N/A.	N/A	N/A
<u>NOTE</u>	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.		
<u>CAUTION</u>	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.		
5.3.3	<u>IF</u> a Full Scram has occurred, <u>THEN PERFORM</u> the following: A. <u>IF</u> initiated, <u>THEN RESET</u> ARI prior to resetting the scram.	Operator determines ARI is reset, and initials or N/As Step.		
	B. ENSURE the RPS MODE SWITCH is in SHUT-DOWN <u>OR</u> REFUEL.	Operator observes that the Mode Switch is in SHUT-DOWN, and initials Step.		

JPM NUMBER: SB013
REV NUMBER: 06

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. 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		
	D. PERFORM the following to reset the Scram Reset Switches: 1. INSERT Key AND TURN RPS TRIP SYSTEM A TRIP LOGIC A1 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM A, TRIP LOGIC A1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	2. INSERT Key AND TURN RPS TRIP SYSTEM A TRIP LOGIC A2 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM A, TRIP LOGIC A2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	3. INSERT Key AND TURN RPS TRIP SYSTEM B TRIP LOGIC B1 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM B, TRIP LOGIC B1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	4. INSERT Key AND TURN RPS TRIP SYSTEM B TRIP LOGIC B2 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM B, TRIP LOGIC B2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	E. 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.		

JPM NUMBER: SB013
 REV NUMBER: 06

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	F. 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.		
	G. 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.		
	H. 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.		
	I. 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.		
	J. ENSURE the following annunciators are de-energized: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • REACTOR SCRAM TRIP LOGIC A1 • REACTOR SCRAM TRIP LOGIC A2 • REACTOR SCRAM TRIP LOGIC B1 • REACTOR SCRAM TRIP LOGIC B2 and initials Steps.		

JPM NUMBER: SB013
 REV NUMBER: 06

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
<u>NOTE</u>	The Reactor Protection System is now reset.	Operator reads and initials Note.		
	K. <u>WHEN</u> CRD SCRAM DISCH VOL LVL HI annunciator is de-energized, <u>THEN INSERT</u> Key <u>AND PLACE</u> HI LEVEL SCRAM BYPASS in NORMAL (DISCH VOL HI WTR LVL TRIP BYP annunciator is de-energized) <u>AND INITIAL</u> Attachment 1.	Operator observes that the CRD SCRAM DISCH VOL LVL HI annunciator is de-energized, and places CRD DISCH VOLUME BYP in NORMAL, observes that the DISCH VOL HI WTR LEVEL TRIP BYP 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.		
	L. <u>AFTER</u> resetting the Scram <u>THEN PERFORM</u> the following as soon as possible: 1. VERIFY all control rods have settled into notch position "00" using one of the following: <ul style="list-style-type: none"> 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 resealed, 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.			
<u>NOTE</u>	<u>IF</u> 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.		
	2. 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.			

JPM NUMBER: SB013
 REV NUMBER: 06

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	3. <u>IF</u> seating at "00" is NOT possible, <u>THEN</u> 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.		
	4. 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:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____			
Task Standard: Operator resets RPS, identifies rod 38-47 is at position 02, and reseats rod 38-47, in accordance with HC.OP-SO.SB-0001.				

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

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: SB013
REV NUMBER: 06

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SB013

REVISION HISTORY

Rev #	Date	Description	Validation Required?
06	9/29/2017	Inserted @ and description per IER L1-11-3 Rec. 3b. Editorial change.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: SB013

REV#: 06

TASK: Reset A Reactor Scram

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

VALIDATED BY:

Qualification Level Required: RO

<u> ON FILE </u> Name	<u> RO </u> Qual	<u> ON FILE </u> Signature	<u> 11/7/2014 </u> Date
<u> ON FILE </u> Name	<u> RO </u> Qual	<u> ON FILE </u> Signature	<u> 11/7/2014 </u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: SB013

REV#: 06

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.

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

Initial

Description

MARKUP HC.OP-SO.SB-0001 for completion on Section 5.3 (**ENSURE** 5.3.2 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
	None	None	Insert malfunction CD16	RMCS fails to de-select
	None	None	Insert malfunction CD16 on event 1 delete in 1	RMCS fails to de-select

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>

OVERRIDE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	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 5.3.3, Resetting RPS Trips, of HC.OP-SO.SB-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - B

Copy ____ of ____

SYSTEM: Primary Containment

TASK NUMBER: 2000230501

TASK: Suppression Chamber Makeup From Service Water Loop B

JPM NUMBER: 305H-JPM.EA005

REVISION: 05

SAP BET: NOH05JPEA05E

K/A NUMBER: 223001 A2.11

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-EO.ZZ-0314, Rev. 6

TOOLS, AND EQUIPMENT: None

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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Primary Containment

TASK NUMBER: 2000230501

TASK: Suppression Chamber Makeup From Service Water Loop B

INITIAL CONDIITONS:

1. The plant was operating at 100% power when an Earthquake occurred.
2. Significant breaks in the following systems occurred:
 - Condensate
 - Fire Protection
 - Suppression Pool
3. The leak in the Condensate System caused a loss of Feedwater, Main Condenser Vacuum, and a Reactor scram.
4. HC.OP-EO.ZZ-0101, Reactor Pressure Vessel Control, is being implemented.
5. HPCI and RCIC were started and are controlling RPV water level.
6. Low Condensate Storage Tank (CST) level caused a suction swap on HPCI and RCIC.
7. Suppression Chamber level is ~70 inches and lowering. Normal means of make-up are unavailable.
 - Fire Water is unavailable.
 - Core Spray Loop B is unavailable.
 - The Torus Room is not accessible.
8. RHR Pump BP202 is shut down and is not required to assure adequate core cooling.
9. HC.OP-EO.ZZ-0102, Primary Containment Control, is being implemented.

INITIATING CUE:

COMMENCE suppression chamber make-up using Suppression Chamber Make-up from Service Water Loop B in accordance with HC.OP-EO.ZZ-0314.

JPM NUMBER: EA005
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains and locates procedure HC.OP-EO.ZZ-0314.	Operator obtains procedure HC.OP EO.ZZ-0314.		
	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 5.2.1.		
5.2.1	ENSURE that all prerequisites have been satisfied IAW Section 2.2 of this procedure.	Operator ensures that all prerequisites have been satisfied IAW Section 2.2 and initials each one.		
5.2.2	CLOSE BC-HV-F003B //RHR HX SHELL SIDE OUTLET MOV//.	*#Operator presses the CLOSE push button for BC-HV-F003B, and initials Step.		
5.2.3	VERIFY CLOSED BC-HV-F048B //B RHR HX SHELL SIDE BYP MOV//.	Operator verifies that BC-HV-F048B is closed, and initials Step.		
5.2.4	OPEN EA-HV-2238 SERVICE WATER LOOP B EMERG M/U OUTBD ISLN (10C651).	*#Operator inserts key, rotates keylock to 'ON', and depresses the open pushbutton for EA-HV-2238, and initials Step.		
5.2.5	ENSURE breaker 52-222082 is CLOSED, (to allow 1EAHV-F073 to be opened).	Operator contacts Equipment Operator to ensure breaker 52-222082 is CLOSED, and after Cue, initials Step. Examiner Note: Operator may decide that the breaker is already closed due to the valve indications that imply breaker is already closed.		
CUE:	If necessary, report that breaker 52-222082 is CLOSED.			

JPM NUMBER: EA005
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.2.6	OPEN EA-HV-F073 SERVICE WATER LOOP B EMERG M/U INBD ISLN (10C651).	*#Operator inserts key into keylock, rotates to 'ON', and depresses the open pushbutton for EA-HV-F073, and initials Step.		
5.2.7	OPEN BC-HV-F075 //SSWS TO RHR LOOP B SUP MOV//.	*#Operator inserts BC-HC-F075 key, rotates to OPEN, and initials Step.		
5.2.8	<u>WHILE</u> diverting the Service Water flow to the Suppression Chamber, MONITOR temperatures of all on-service, SACS and RACS cooling loads.	Operator monitors temperatures of all on-service, SACS and RACS cooling loads, and initials Step.		
CAUTION	The performance of this step will result in the injection of low quality water into the Suppression Chamber.	Operator reads and initials CAUTION.		
5.2.9	THROTTLE OPEN BC-HV-F024B //RHR LOOP B TEST RET MOV// to control suppression chamber fill rate.	*#Operator presses the OPEN push button for BC-HV-F024B, and initials Step.		
5.2.10	MONITOR Service Water Pump BP502 and/or DP502 Motor Amps and Vibration for indications of pump run-out due to increased system flow.	Operator monitors motor amps and vibration, and initials Step. Examiner Note: JPM may be terminated when level rise is observed.		
5.2.11	<u>WHEN</u> suppression chamber level returns to the desired band, RESTORE the RHR and Service Water systems to normal using Attachment 2.	Operator determines that suppression chamber level is in the 74.5"-78.5" target band.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> 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 Suppression Chamber Makeup From Service Water Loop B in accordance with HC.OP-EO.ZZ-0314.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: EA005
REV NUMBER: 05

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EA005

REVISION HISTORY

Rev #	Date	Description	Validation Required?
05	1/4/2018	Updated Reference Procedure Revision Number. Editorial change only.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: EA005

REV#: 05

TASK: Suppression Chamber Makeup From Service Water Loop B

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

VALIDATED BY:

Qualification Level Required: RO

<u> ON FILE </u>	<u> RO </u>	<u> ON FILE </u>	<u> 12/15/2014 </u>
Name	Qual	Signature	Date
<u> ON FILE </u>	<u> RO </u>	<u> ON FILE </u>	<u> 12/15/2014 </u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: EA005

REV#: 05

INITIAL CONDITIONS:

I.C.

<i>Initial</i>	
----------------	--

- _____ **INITIALIZE** the simulator to any 100% power IC.
- _____ **CLOSE** Core Spray Loop B, BC-F001B and F001D
- _____ **INSERT** Malfunctions
- _____ **PERFORM** Scram actions
- _____ **PLACE** RHR Loop A in Suppression Pool Cooling
- _____ **TRIP** Primary Condensate Pumps after MSIV closure and Main Condenser level is <0".
- _____ **LOWER** Reactor pressure to approximately 400 psig. Allow time for decay heat to lower to point where RCIC and one SRV maintain approximately 400 psig. Secure HPCI.
- _____ **ESTABLISH** Suppression chamber level at approximately 70" and lowering slowly.
- _____ **CLOSE** BC-HV-F048B
- _____ **PLACE** the simulator in FREEZE.

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

<i>Initial</i>	Description
----------------	-------------

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

EVENT FILE:

<i>Initial</i>	ET	
		Event code:
		Description:

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction FW21	Condensate storage tank low level
	None	None	Insert malfunction FW31 to 100.00000 in 120	Condensate line break between PCPs and condensate prefilter inlet
	None	None	Insert malfunction PC07B	Seismic Event II
	None	None	Insert malfunction AN-A2A5	CRYWOLF ANN A2A5-FIRE PROT PANEL 10C671
	None	None	Insert malfunction PC06 to 1.00000	Suppression pool break

**JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)**

REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>

OVERRIDE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was operating at 100% power when an Earthquake occurred.
2. Significant breaks in the following systems occurred:
 - Condensate
 - Fire Protection
 - Suppression Pool
3. The leak in the Condensate System caused a loss of Feedwater, Main Condenser Vacuum, and a Reactor scram.
4. HC.OP-EO.ZZ-0101, Reactor Pressure Vessel Control, is being implemented.
5. HPCI and RCIC were started and are controlling RPV water level.
6. Low Condensate Storage Tank (CST) level caused a suction swap on HPCI and RCIC.
7. Suppression Chamber level is ~70 inches and lowering. Normal means of make-up are unavailable.
 - Fire Water is unavailable.
 - Core Spray Loop B is unavailable.
 - The Torus Room is not accessible.
8. RHR Pump BP202 is shut down and is not required to assure adequate core cooling.
9. HC.OP-EO.ZZ-0102, Primary Containment Control, is being implemented.

INITIATING CUE:

COMMENCE suppression chamber make-up using Suppression Chamber Make-up from Service Water Loop B in accordance with HC.OP-EO.ZZ-0314.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - C

Copy ____ of ____

SYSTEM: High Pressure Coolant Injection

TASK NUMBER: 2060180201

TASK: Place HPCI in Full Flow Test Operation

JPM NUMBER: 305H-JPM.BJ014

REVISION: 05

SAP BET: NOH05JPBJ14E

K/A NUMBER: 206000 A4. Ability To Manually Operate And/Or Monitor In The Control Room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.06 Reactor Pressure: BWR-2,3,4

IMPORTANCE FACTOR: RO: 4.3 SRO: 4.3

ALTERNATE PATH: ☒

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001, Rev 34

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: _____
Signature

DATE: _____

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
 REV NUMBER: 05

NAME: _____
 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 <u>AFTER</u> Operator repeats back the Initiating Cue <u>AND</u> states ready to begin. START TIME: _____			
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.		
<u>NOTE</u>	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, <u>THEN</u> 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. <u>WHEN</u> FLOW indicates zero gpm <u>THEN</u> 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,		

JPM NUMBER: BJ014
 REV NUMBER: 05

NAME: _____
 DATE: _____

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.				
	J. THROTTLE HV-F008 <u>AND</u> 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.		

JPM NUMBER: BJ014
REV NUMBER: 05

NAME: _____
DATE: _____

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 and take the required actions from that section.				
CUE:	<u>IF</u> 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.			
<u>NOTE</u>	Loss of 1AD481 may affect controls and indication.	Operator reads and initials NOTE.		
1.0	<u>IF</u> a HPCI Suction Transfer has occurred while in Full Flow Test, <u>OR</u> HPCI is in Full Flow Test <u>AND</u> a Suction Swap is anticipated, <u>THEN</u> 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. <u>IF</u> 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. <u>WHEN</u> Suction Swap to Suppression Pool is completed, (HV-F042 OPEN, HV-F004 and AP-HV-F011 are CLOSED) <u>THEN</u> 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
 REV NUMBER: 05

NAME: _____
 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
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	C. <u>WHEN</u> 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 <u>AND</u> 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:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state " This JPM is complete ". STOP TIME: _____			
Task Standard: Operator places HPCI in Full Flow Test mode and returns to Full Flow Test mode after HPCI Suction Transfer to CST in accordance with HC.OP-AB.ZZ-0001.				

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

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: BJ014
REV NUMBER: 05

NAME: _____
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
	1/12/2018	Incorporated comments from NRC.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: BJ014

REV#: 05

TASK: Place HPCI in Full Flow Test Operation

- | | |
|--|---|
| <u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>

<u> X </u>

<u> X </u> | 1. Task description and number, JPM description and number are identified.
2. Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.

3. License level identified. (SRO,RO,STA,NLO)
4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
5. Initial setup conditions are identified.
6. Initiating and terminating cues are properly identified.
7. Task standards for successful completion are identified.
8. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
11. Cues both verbal and visual are complete and correct.
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.

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

14. Validation time is included.
15. JPM is identified as Time Critical and includes Critical Time (if required). |
|--|---|

VALIDATED BY:

Qualification Level Required: RO

<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9-26-2012</u> Date
<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9-26-2012</u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: BJ014

REV#: 05

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:

<i>Initial</i>	ET	
	2	Event code: ZDHPF110 Description: APHV-F011 open pushbutton pressed
	3	Event code: ZDHPCSTO Description: HV-F042 AUTO OPEN OVRD pushbutton pressed

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction MS15	Spurious Group 1 isolation

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert remote CS01 to OPEN on event 2	CST to core spray pump A valve V049
	None	None	Insert remote CS01 to CLOSE on event 3	CST to core spray pump A valve V049

OVERRIDE SCHEDULE:

<i>Initial</i>	@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

STATION: Hope Creek

2018 NRC
JPM - D

COPY ____ OF ____

SYSTEM: Main Turbine

TASK NUMBER: 2450100101

TASK: Roll the Main Turbine to Rated Speed

JPM NUMBER: 305H-JPM.AC004

REVISION: 01

SAP BET: NOH05JPAC04E

K/A NUMBER: 241000 A3. Ability To Monitor Automatic Operations Of The REACTOR/TURBINE
PRESSURE REGULATING SYSTEM Including: (CFR: 41.7 / 45.7)
A3.18 Turbine Startup: Plant-Specific

IMPORTANCE FACTOR: RO: 3.0 SRO: 3.0

ALTERNATE PATH: ☒

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AC-0001, Rev. 73

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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Main Turbine

TASK NUMBER: 2450100101

TASK: Roll the Main Turbine to Rated Speed

INITIAL CONDIITONS:

1. A Reactor Startup is in progress.
2. HC.OP-IO.ZZ-0003 is complete through Step 5.4.2.
3. Preparations to roll the Main Turbine are complete. HC.OP-SO.AC-0001 is complete through Step 5.3.7.
4. The TBEO has been briefed and is standing by at the Front Standard.
5. No checks of the turbine are required at 800, OR 1500 rpm.

INITIATING CUE:

ROLL the Main Turbine IAW HC.OP-SO.AC-0001(Q), Main Turbine Operation.

JPM NUMBER: AC004
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue, HC.OP-SO.AC-0001 (marked up), AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator reviews Prerequisites, Precautions, and Limitations.	Operator reviews and initials Prerequisites, Precautions, and Limitations.		
5.3.8.	MONITOR Turbine Bearing temperatures and vibration during Turbine roll by referring to CRIDS page display #40 TURB/GEN BRG & LUBE OIL, which should be displayed on one CRT Screen. [CD-053B]	Operator ensures CRIDS page #40 is displayed on at least one CRT and initials Step.		
5.3.9.	WHILE rolling the Main Turbine from turning gear to 1800 rpm in the following steps CLOSELY MONITOR all Main Turbine parameters in the CR AND DIRECT field operator(s) to listen for rubbing or unusual noises, and check for steam leaks and bearing oil flows.	Operator reads and initials Step.		
CUE:	Respond as the field operator(s) if directed to monitor Main Turbine roll.			
	A. CYCLE HV-1065, EXHAUST HOOD SUPPLY BYPASS to maintain CRIDS points A3169, A3170 and A3171 less than 140°F.	Operator reads and initials Step.		
CAUTION	Vibration should be closely monitored as the Turbine passes through the range where critical speeds occur (800 - 1550 rpm). There is no automatic trip of the Turbine on vibration.	Operator reads and initials Caution.		
5.3.10.	AFTER observing the parameters and operational requirements listed in Attachment 1, ROLL the Main Turbine as follows: A. SELECT <u>Control</u> , <u>Valve Limiters</u>	Operator reviews Attachment 1 and, selects <u>Control</u> , <u>Valve Limiters</u> on DEHC HMI and initials Step.		

JPM NUMBER: AC004
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	B. VERIFY the following: <ul style="list-style-type: none"> All CV's, IV's and MSV's are CLOSED 	Operator verifies that all CV's, IV's and MSV's are closed, and initials Step.		
	<ul style="list-style-type: none"> Valves are properly positioned per Attachment 7. 	Operator verifies the valves listed in Attachment 7 are positioned properly for a TURB RESET, and initials Step.		
	<ul style="list-style-type: none"> Valve Position Limiter - NOT LIMITING is displayed. 	Operator verifies Valve Position Limiter - NOT LIMITING is displayed, and initials Step.		
	<ul style="list-style-type: none"> Annunciator D3-D5, EHC Panel 10C363 is extinguished. 	Operator verifies Annunciator D3-D5, EHC Panel 10C363 is extinguished, and initials Step.		
	C. IF EITHER of the following occur during the performance of the following step, THEN IMMEDIATELY TRIP the turbine: <ul style="list-style-type: none"> Turbine speed increases rapidly beyond the 100 rpm hold point CV's open before the IV's 	Operator reads and initials Step.		
	D. SELECT <u>Control</u> , <u>Speed-Load</u>	*Operator selects <u>Control</u> , <u>Speed-Load</u> on DEHC HMI, and initials Step.		
	E. SELECT Speed Cmd RPM Low (100), AND OBSERVE the following: <ul style="list-style-type: none"> MSV #2 opens immediately AND WHEN MSV #2 is full open, MSV #1, #3 and #4 open slowly. 	*Operator selects Speed Cmd RPM <u>Low (100)</u> , AND observes the following: <ul style="list-style-type: none"> MSV #2 opens immediately AND WHEN MSV #2 is full open, MSV #1, #3 and #4 open slowly, and initials Step. 		
	<ul style="list-style-type: none"> IV #1, #3, and #5 open slowly AND WHEN IV #1, #3 and #5 are full open, IV #4, #2 and #6 (respectively) open. 	<ul style="list-style-type: none"> IV #1, #3, and #5 opens slowly AND WHEN IV #1, #3 and #5 are full open, IV #4, #2 and #6 (respectively) open, and initials Step. 		

JPM NUMBER: AC004
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<ul style="list-style-type: none"> Turbine Speed (RPM) is increasing as the Turbine accelerates. 	<ul style="list-style-type: none"> SPEED INCREASING is ON as the Turbine accelerates, and initials Step. 		
	<ul style="list-style-type: none"> Turbine rolls off of turning gear (TURNING GEAR - DISENGAGED). 	<ul style="list-style-type: none"> Turbine rolls off of turning gear (TURNING GEAR - ENGAGED is OFF), and initials Step. 		
CAUTION	The turbine should be maintained at 90-100 rpm as briefly as possible to achieve the desired checks. When turbine speed is maintained below 800 rpm for periods exceeding 5 minutes, turbine damage could result from non-detected rubs.	Operator reads and initials Caution.		
CUE:	If during the following the Operator requests directions, direct the operator to take any necessary actions.			
	F. WHEN Turbine Speed indicates 90-100 rpm at Digital EHC HMI panel, CHECK for any abnormal vibration, expansion, bearing temperatures, etc.			
CUE:	If during the following the Operator requests directions, direct the operator to take any necessary actions.			
	G. PERFORM the following: 1. OBSERVE Point #4 FIRST STAGE SHELL - LOWER INNER SURFACE TEMPERATURE.			

JPM NUMBER: AC004
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<p>2. OBSERVE the following points are NOT in the "RED BAND" area:</p> <p>a. Point #15 DIFFERENTIAL EXPANSION ROTOR LONG (CRIDS PT A2531-MN TURB DIFF EXPN value can be used using point #15's acceptance band).</p> <p>b. Point #16 ROTOR EXPANSION ROTOR LONG (field measurements may be used in lieu of point 16 if approved by Production Engineering).</p>	Operator recognizes Point 15 in the "RED BAND", and/or CRIDS point A2531 in alarm.		
CUE:	ACKNOWLEDGE any report of Point 15 being in the RED BAND.			
	<div data-bbox="360 1205 721 1310" data-label="Text"> <p>The "RED BAND" areas are defined as follows:</p> <p>Point # 15: 0.00 - 0.30 <u>AND</u> 0.68 - 1.00</p> <p>Point # 16: 0.00 - 0.15 <u>AND</u> 1.81 - 2.00</p> </div> <p>3. <u>IF</u> the First Stage Shell temperature is < 250°F <u>OR IF</u> expansion detector XR7052 or Point #15 are in the "Red Band" area while "Rolling" the Turbine, <u>THEN TRIP</u> the turbine <u>AND PREWARM</u> the HP Turbine Shell (point #15 only), IAW Section 5.2 of this procedure.</p>	<p>*Operator observes expansion detector XR7052, Point #15 is in the "Red Band" area, OR CRIDS PT A2531 - MN TURB DIFF EXPN is in alarm, AND trips the Main Turbine,</p> <p>and informs the CRS.</p>		
CUE:	IF Operator reports the need to trip the turbine, THEN DIRECT the operator to take any necessary actions.			

JPM NUMBER: AC004
REV NUMBER: 01

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<p>WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator responds to an abnormal Main Turbine response during Main Turbine roll in accordance with HC.OP-SO.AC-0001.</p>				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: AC004
REV NUMBER: 01

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AC004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	9/29/2017	Complete re-write.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: AC004

REV#: 01

TASK: Roll the Main Turbine to Rated Speed

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

VALIDATED BY:

Qualification Level Required: RO

<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date
<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/29/2017</u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: AC004

REV#: 01

INITIAL CONDITIONS:

I.C.

<i>Initial</i>	
----------------	--

RESET to IC ready to roll the Main Turbine.

PERFORM actions required by HC.OP-SO.AC-0001, Steps 5.3.1 through 5.3.7.

ENSURE associated Schedule and/or Event file(s) is/are open and running (as required).

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

<i>Initial</i>	Description
----------------	-------------

MARKUP HC.OP-SO.AC-0001 through Step 5.3.7. ENSURE to N/A 800 and 1500 checks.

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

EVENT FILE:

<i>Initial</i>	ET	
	1	Event code: tuns >= 90 Description: Main Turbine >= 90 rpm

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction TU02 from 50.00000 to 100.00000 in 60 on event 1	Main turbine rotor differential expansion high

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Reactor Startup is in progress.
2. HC.OP-IO.ZZ-0003 is complete through Step 5.4.2.
3. Preparations to roll the Main Turbine are complete. HC.OP-SO.AC-0001 is complete through Step 5.3.7.
4. The TBEO has been briefed and is standing by at the Front Standard.
5. No checks of the turbine are required at 800, OR 1500 rpm.

INITIATING CUE:

ROLL the Main Turbine IAW HC.OP-SO.AC-0001(Q), Main Turbine Operation.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - E

Copy _____ of _____

SYSTEM: Emergency Diesel Generator

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

JPM NUMBER: 305H-JPM.KJ008

REVISION: 06

SAP BET: NOH05JPKJ08E

K/A NUMBER: 264000 A4. Ability To Manually Operate And/Or Monitor In The Control Room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.04 Manual Start, Loading, And Stopping Of Emergency Generator: Plant-Specific

IMPORTANCE FACTOR: RO: 3.7 SRO: 3.7

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.KJ-0001 Rev. 74

HC.OP-SO.PB-0001 Rev. 29

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

ESTIMATED COMPLETION TIME: 14 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____

Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Diesel Generator

TASK NUMBER: 2640030101

TASK: Perform Non-Emergency Operation of the Diesel Generator

INITIAL CONDIITONS:

1. All Class 1E 4.16Kv Busses were shifted to their Alternate Feeder Breaker Alignment in accordance with HC.OP-SO.PB-0001.
2. An improper tagout of the 40108 breaker, in preparation for work on breaker 40108, caused the AG400 EDG to start and load onto the 10A401 bus.
3. All tagged components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 5.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

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

JPM NUMBER: KJ008
 REV NUMBER: 06

NAME: _____
 DATE: _____

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

JPM NUMBER: KJ008
REV NUMBER: 06

NAME: _____
DATE: _____

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

JPM NUMBER: KJ008
 REV NUMBER: 06

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	3. ADJUST DG Speed <u>UNTIL</u> the SYNCHROSCOPE pointer is moving slowly in the SLOW (counter clockwise) direction by pressing the DIESEL ENG INCR <u>OR</u> DECR PB.	*Operator presses the DIESEL ENG INCR <u>OR</u> DECR PB as necessary to move the pointer in the counter-clockwise direction, observes the synchroscope pointer rotating in the SLOW direction, and initials Step.		
	4. <u>WHEN</u> synchroscope pointer is at 3 minutes past 12 O'clock (before pointer reaches 12 O'clock in its direction of travel), <u>THEN</u> CLOSE the Normal (Alternate) FEED BRKR <u>AND</u> INITIAL Attachment 1.	*When synchroscope pointer is approximately 3 minutes past 12 O'clock, the operator closes the Alternate FEED BRKR (40101) by pressing the 40101 CLOSE PB, observes the Alternate FEED BRKR (40101) CLOSE light illuminates and the green TRIP light extinguishes, and initials Step.		
	H. PRESS the AUTO CLOSE BLOCK PB for the Normal(Alternate) Feed Breaker <u>AND</u> VERIFY that the AUTO CLOSE BLOCK PB is illuminated <u>AND</u> INITIAL Attachment 1. [CD-056H]	*Operator presses the AUTO CLOSE BLOCK PB for 40101, observes that the AUTO CLOSE BLOCK PB is illuminated for 40101, and initials Step.		
	I. PLACE the Normal (Alternate) FEED BRKR – SYNC KEYLOCK Switch in the OFF position.	*Operator places the Alternate (40101) FEED BRKR-SYNC KEYLOCK Switch in the OFF position, observes that the synchroscope de-energizes, and initials Step.		
	J. As directed by the CRS, UNLOAD <u>AND</u> STOP the Diesel Generator IAW HC.OP-SO.KJ-0001(Q).	Operator informs the CRS of the status of the EDG.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state " This JPM is complete ". STOP TIME: _____			
Task Standard: Operator shifts the breaker alignment on the 10A401 bus from the Diesel Generator Breaker to the ALTERNATE Supply Breaker (40101) in accordance with HC.OP-SO.PB-0001, Step 5.7.5.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: KJ008
REV NUMBER: 06

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KJ008

REVISION HISTORY

Rev #	Date	Description	Validation Required?
06	9/29/2017	Minor changes to Operator Actions (editorial). Updated procedure revision number (no changes to Steps.)	

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: KJ008

REV#: 06

TASK: Perform Non-Emergency Operation of the Diesel Generator

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

VALIDATED BY:

Qualification Level Required: RO

<u> ON-FILE </u>	<u> SRO </u>	<u> ON-FILE </u>	<u> 6-28-13 </u>
Name	Qual	Signature	Date

<u> ON-FILE </u>	<u> RO </u>	<u> ON-FILE </u>	<u> 6-28-13 </u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: KJ008

REV#: 06

INITIAL CONDITIONS:

I.C.

Initial

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

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

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

_____ **ENSURE** Isochronous light is ON.

_____ **OPEN** breaker 40108.

_____ **ACKNOWLEDGE** overhead AND local alarms.

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

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

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

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

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

Initial

Description

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

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

EVENT FILE:

Initial

ET

Event code:

Description:

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

REMOTE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. All Class 1E 4.16Kv Busses were shifted to their Alternate Feeder Breaker Alignment in accordance with HC.OP-SO.PB-0001.
2. An improper tagout of the 40108 breaker, in preparation for work on breaker 40108, caused the AG400 EDG to start and load onto the 10A401 bus.
3. All tagged components have been restored to their normal condition.
4. Station Service Transformers 1AX501 and 1BX501 are in service to supply power to class 1E 4.16Kv Busses.
5. Preparations are in progress to shutdown EDG A in accordance with HC.OP-SO.KJ-0001, Section 5.7.
6. HC.OP-SO.PB-0001 is complete through step 5.7.4.

INITIATING CUE:

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

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

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - F

Copy _____ of _____

SYSTEM: Reactor Auxiliaries Cooling System

TASK NUMBER: 4000230401

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

JPM NUMBER: 305H-JPM.ED002

REVISION: 11

SAP BET: NOH05JPED02E

K/A NUMBER: 295018 AA1. Ability To Operate And/Or Monitor The Following As They Apply To PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : (CFR: 41.7 / 45.6)
AA1.02 System Loads

IMPORTANCE FACTOR: RO: 3.3 SRO: 3.4

ALTERNATE PATH: ☒

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.ED-0001, Rev. 29 HC.OP-AR.ZZ-0002, Rev. 24
HC.OP-AB.COOL-0003, Rev. 7

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: _____
Signature

DATE: _____

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.

JPM NUMBER: ED002
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains 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.		
<u>NOTE</u>	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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: ED002
 REV NUMBER: 11

NAME: _____
 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.			
<u>CAUTION</u>	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, <u>OTHERWISE</u> , 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: ED002
 REV NUMBER: 11

NAME: _____
 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 <u>AND</u> is approximately the same as the other I/S RACS pumps' motor amps.	<p>*#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP B BP209 START pushbutton,</p> <p>observes:</p> <ul style="list-style-type: none"> 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 <p>and initials Step.</p>		
5.3.7.	PRESS REACTOR AUXILIARIES COOLING PUMP B(A)(C) STOP PB. STOP comes on.	<p>*#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A STOP pushbutton,</p> <p>observes the green STOP light illuminates and the red AP209 START light extinguishes, and initials Step.</p>		
		<p>5 seconds after the 'A' RACS pump has been secured, the Operator observes the following:</p> <ul style="list-style-type: none"> 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: ED002
 REV NUMBER: 11

NAME: _____
 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 Step.		
CUE:	Direct the Operator to perform Condition A of HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling System.			
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: <ul style="list-style-type: none"> 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 Condition 'A' of HC.OP AB.COOL 0003.			

JPM NUMBER: ED002
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	<p>A.2 <u>IF</u> a second RACS Pump CANNOT be placed in service, <u>THEN ISOLATE</u> RACS to the out of service Off-Gas Train as follows:</p> <ul style="list-style-type: none"> <u>IF</u> the Common Off-Gas Train is in service, <u>THEN CLOSE</u> HV-2577. <u>IF</u> Unit 1 Off-Gas Train is in service, <u>THEN CLOSE</u> HV-7712A1. 	<p>Operator observes the OFFGAS RECOMB TRAIN SELECT:</p> <ul style="list-style-type: none"> COM TRAIN red OPEN light illuminated and green CLOSE light extinguished. TRAIN 1 red OPEN light extinguished and green CLOSE light illuminated. <p>*Operator presses the OFF GAS CLR CNDS COOLING, 10E306 UNIT 1, HV 2577, green CLOSE pushbutton,</p> <p>observes the green CLOSE light illuminates and red HV 2577 OPEN light extinguishes, and initials Step.</p>		
CUE:	<p>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.</p> <p>Examiner Note: Leaving the HV-7712A1 closed and/or causing an isolation of the Common Offgas Train is failure criteria.</p>			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator swaps RACS pumps and implements Condition A of HC.OP-AB.COOL-0003.</p>				

@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: ED002
REV NUMBER: 11

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ED002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
11	8/2/2016	Revised procedure revision number. Added @ and description to Comments. Editorial changes only.	N
11	9/29/2017	Validated with RO and SRO.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ED002

REV#: 11

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

ON FILE	RO	ON FILE	9/29/2017
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	9/29/2017
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: ED002

REV#: 11

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

STATION: Hope Creek

2018 NRC
JPM - G

Copy _____ of _____

SYSTEM: Control Area Ventilation System

TASK NUMBER: 4880060101

TASK: Isolate the Control Room HVAC System

JPM NUMBER: 305H-JPM.GK002

REVISION: 05

SAP BET: NOH05JPGK02E

K/A NUMBER: 290003 A4.01

IMPORTANCE FACTOR: RO: 3.2 SRO: 3.2

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.HVAC-0002 Rev.10

HC.OP-SO.GK-0001 Rev. 22

TOOLS, AND EQUIPMENT: None

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: _____

Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Control Area Ventilation System

TASK NUMBER: 4880060101

TASK: Isolate the Control Room HVAC System

INITIAL CONDIITONS:

1. The plant is at 100% power.
2. Control Room Ventilation Train A is in service.
3. The Aux Building Operator has been briefed and is standing by on location.
4. Chiller BK400 is ready for a start.

INITIATING CUE:

SWAP Control Room Ventilation Trains IAW Section 5.4 of HC.OP-SO.GK-0001.

JPM NUMBER: GK002
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	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 5.4.1.		
5.4.1	ENSURE that all prerequisites have been satisfied IAW Section 2.4.	Operator ensures that all prerequisites have been satisfied and initials each.		
<u>NOTE</u>	All operations are performed from 10C651E unless otherwise noted. Procedure describes transfer from A Control Chilled Water Loop in service to the B Loop in service, values in parentheses used to transfer back to A in service. SACS Pump Room Unit Coolers 1AVH214 AND 1BVH214 are interlocked to operate in AUTO only IF Chilled Water Pump AP400 is in service. SACS Pump Room Unit Coolers 1CVH214 and 1DVH214 are interlocked to operate in AUTO only IF Chilled Water Pump BP400 is in service.	Operator reads and initials NOTE.		

JPM NUMBER: GK002
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.4.2	PRESS CH W CIRC PUMP B(A)P400 MAN PB. VERIFY MAN comes on.	*Operator presses the BP400 MAN PB, and observes the MAN push button illuminated and the AUTO push button extinguished. Examiner Note: Operator may place BP400 in AUTO when proceeding to respond to smoke.		
CUE:	“REPORT as Yard Operator that there is a large fire north of the HC Million Gallon Fuel Oil Storage Tank and smoke is headed towards the power block.” “Light smoke is coming out of the Control Room ventilation supply ductwork into the Main Control Room. [SRO] Take any required actions. [SRO] If requested state, “Implement HC.OP-AB.HVAC-0002 and take any required actions.”			
CUE:	ENSURE ET-1 TRIGGERS; advance Fire Computer, <u>OR</u> PROVIDE Fire Computer Alarm Summary.			
HC.OP-AB.HVAC-0002				
		Operator reviews HC.OP-AB.HVAC-0002 CONTROL ROOM ENVIRONMENT. <u>EXAMINER NOTE:</u> The directions to HC.OP-AB.HVAC-0002 are contained within HC.OP-AR.QK-0001(2). The operator may respond to the fire alarm and not go directly to HC.OP-AB.HVAC-0002.		
CUE:	If operator responds to OHA A2-A5 in accordance with HC.OP-AR.ZZ-0002, and HC.OP-AR.QK-0001/2, respond as appropriate to implement HC.OP-AB.HVAC-0002 and take any required actions.			
I.	Smoke <u>OR</u> Toxic Gases are ENTERING the Control Room from an Outside source. Date/Time: _____	Operator determines Retainment Override Condition I. applies.		

JPM NUMBER: GK002
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	I.a. PRESS the ISOLATE PB for the I/S Control Room Ventilation Train.	*#Operator presses the ISOLATE PB for the A Control Room Ventilation Train. Operator observes the HD9598A ISOLATE PB for the A Control Room Ventilation Train illuminates. Operator observes the HD9588AA and HD9588BA NORMAL ISOLATED lights are illuminated. Operator observes the AV400 START PB illuminates, and the STOP PB extinguish.		
	I.b. PRESS the RECIRC PB for the I/S CREF Unit.	*#Operator presses the RECIRC PB for AV400. Operator observes the OA DMPR HD9593A OPEN PB extinguish and HD9593A CLOSED PB illuminate.		
CUE:	<p>WHEN operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator Isolates the Control Room HVAC System in accordance with HC.OP-AB.HVAC-0002.				

@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: GK002
REV NUMBER: 05

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: GK002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
04	4/25/2016	Revised format. Removed actions to swap the entire MCR HVAC before proceeding to the Alternate Path. Minor change to Initiating Cue. Validated for NRC exam.	Y
05	9/9/2016	Editorial changes to update format. No changes to operator actions.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: GK002

REV#: 05

TASK: Isolate the Control Room HVAC System

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

VALIDATED BY:

Qualification Level Required: RO

2016 NRC EXAM			
Name	Qual	Signature	Date
2016 NRC EXAM			
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: GK002

REV#: 05

INITIAL CONDITIONS:

I.C.

Initial

- _____ **INITIALIZE** the simulator to 100% power, MOL.
- _____ **ENSURE** B and D SACS Pumps in service supplying TACS and in AUTO.
- _____ **ENSURE** TSC HVAC B train in service.
- _____ **ENSURE** C SACS Pump in service and in AUTO.
- _____ **ENSURE** A SACS Pump stopped and in AUTO.
- _____ **ENSURE** A CR HVAC train in service and in AUTO.
- _____ **ENSURE** B CR HVAC train out of service and in AUTO.

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

Initial

Description

- _____ **ENSURE** POWERPOINT loaded for FC118 FIRE DET XSH-1-9588A1 RM 5602 CONTROL ROOM OUTSIDE AIR A NORMAL FILTER TRAIN EL 155 PF-563, or PRINT Alarm Summary page.
- _____ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:

<i>Initial</i>	ET	
	1	Event code: ZDHVACPM(2) Description: BP400 MAN PB

MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	NONE	NONE	Insert malfunction AN-A2A5 after 3 on event 1	CRYWOLF ANN A2A5-FIRE PROT PANEL 10C671

JOB PERFORMANCE MEASURE

TODAY

History

CURRENT ALARMS

5/10/2016	09:29:11	FC118	FC118
FIRE DET XSH-1-9533A1 RM 5602 CONTROL ROOM OUTSIDE AIR A NORMAL FILTER TRAIN EL 155 PF-563			

NO B
NO ST

NO B
Flag

CO B
BELL

NO B
SOUND

Page 1
73

NO B
PAGE

NO B
BELL

NO B
PAGE

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. Control Room Ventilation Train A is in service.
3. The Aux Building Operator has been briefed and is standing by on location.
4. Chiller BK400 is ready for a start.

INITIATING CUE:

SWAP Control Room Ventilation Trains IAW Section 5.4 of HC.OP-SO.GK-0001.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - H

Copy ____ of ____

SYSTEM: Condensate

TASK NUMBER: 2560010101

TASK: Fill And Startup The Condensate System

JPM NUMBER: 305H-JPM.AD001

REVISION: 00

SAP BET: NOH05JPAD01E

K/A NUMBER: 256000 A4. Ability To Manually Operate And/Or Monitor In The Control Room:
(CFR: 41.7 / 45.5 TO 45.8)
A4.01 Hotwell Condensate/ Condensate Booster Pumps

IMPORTANCE FACTOR: RO: 3.3 SRO: 3.3

ALTERNATE PATH: ☒

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AD-0001 Rev. 38

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: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Condensate

TASK NUMBER: 2560010101

TASK: Fill And Startup The Condensate System

INITIAL CONDIITONS:

1. A Reactor Startup is being performed in accordance with HC.OP-IO.ZZ-0003.
2. Currently at approximately 40% load (approximately 507 MWe).
3. Maintenance was just completed on Primary Condensate Pump CP102.

INITIATING CUE:

START Primary Condensate Pump CP102 in accordance with HC.OP-SO.AD-0001(Q), Condensate System Operation, Section 5.3.
Venting of the pump IS required.

JPM NUMBER: AD001
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue; marked up copy of HC.OP-SO.AD-00001; AND ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations Section 2.3.		
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 5.3.1.		
<u>NOTE</u>	To prevent Reactor Feedpump ...	Operator reads and initials NOTE.		
5.3.1.	ENSURE all prerequisites have been satisfied IAW Section 2.3.	Operator ensures all prerequisites have been satisfied IAW Section 2.3, and initials Step.		
5.3.2.	OBSERVE HV-1710 PRI CNDS - MIN FLOW RECIRC is in AUTO.	Operator observes AUTO pushbutton is illuminated for HV-1710 PRI CNDS - MIN FLOW RECIRC, and initials Step.		
<u>CAUTION</u>	<p>Hydrogen collects in system high points and may leak through the Secondary Condensate Pump Injection Valves from the Hydrogen Injection System. Site Protection should be contacted to analyze for hydrogen gas prior to venting or draining the system.</p> <p>Automatic trips on timed opening of discharge and minimum flow valve during pump start have been eliminated. Manual pump trip is required if there is a failure in the discharge valve not being full open after 99 seconds or the HV-1710 not showing dual indication after 75 seconds.</p>	Operator reads and initials CAUTION.		

JPM NUMBER: AD001
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.3.6.	START a Primary Condensate Pump as follows: A. ENSURE the PRI CNDS PUMP RM CLR 1A(B,C)VH112 is in service.	Operator contacts the Equipment Operator to ensure PRI CNDS PUMP RM CLR 1CVH112 is in service,		
CUE:	Respond as the Equipment Operator that PRI CNDS PUMP RM CLR 1CVH112 is in service.			
		and initials Step.		
	B. OPEN 1-AP-V108 (1-AP-V109, 1-AP-V110) Seal Wtr to Pri Cond Pump A(B,C)P102. Rm. 1104A (1104B, 1104C).	*#Operator contacts the Equipment Operator to open 1-AP-V110, Seal Wtr to Pri Cond Pump CP102. Rm. 1104C,		
CUE:	Respond as the Equipment Operator that 1-AP-V110 is open.			
		and initials Step.		
	C. ENSURE the suction valve HV-1639A(B,C) PRI CNDS PMP A SUCT VLV is open:	Operator observes the OPEN pushbutton is illuminated, and the CLOSE pushbutton is extinguished, for suction valve HV-1639C PRI CNDS PMP C SUCT VLV, and initials Step.		
	D. <u>IF</u> required to vent the pump, OPEN 1-AD-V070 (V068, V066) - Pri Cond Pmp A(B,C)P102 Dsch Vnt V (Rm. 1104)valve for approximately five minutes, <u>THEN CLOSE</u> valve 1-AD-V070 (V068, V066).	*#Operator contacts the Equipment Operator to open 1-AD-V066 for approximately 5 minutes, and then close,		
CUE:	Respond as the Equipment Operator that 1-AD-V066 was opened for approximately 5 minutes, and then closed.			
		and Initials Step.		
	E. <u>IF</u> HV-1680A(B,C) PRI CNDS PMP DISCH VLV AUTO PB is not on, PRESS HV-1680A(B,C) PRI CNDS PMP DISCH VLV LOCKOUT/AUTO PB <u>AND VERIFY</u> AUTO comes on.	Operator observes the AUTO pushbutton is illuminated, for HV-1680C, and initials Step.		

JPM NUMBER: AD001
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	F. OBSERVE PRI CNDS PUMP A(B,C) START ENABLE is on.	Operator observes PRI CNDS PUMP C START ENABLE is on, and initials Step.		
	G. PRESS PRI CNDS PUMP A(B,C)P102 START PB.	*#Operator presses PRI CNDS PUMP CP102 START pushbutton, observes the CP102 START illuminate and the STOP extinguish, and initials Step.		
	H. OBSERVE the following: <ul style="list-style-type: none"> HV-1680A(B,C) PRI CNDS PMP A(B,C) DISCH VLV OPEN is on. 	Operator observes HV-1680C OPEN pushbutton is illuminated, and initials Step.		
	<ul style="list-style-type: none"> AI-6318A(B), AI-6349, PRI CNDS PUMP A(B), C, MOT AMPS, indicates < 120 amps. (< 208 amps for CP102) 	Operator observes AI-6318C, AI-6349 indicates < 208 amps, and initials Step.		
		Operator observes/reports the following: <ul style="list-style-type: none"> Overhead Annunciator A3-F3, CONDENSATE TRAIN C TROUBLE, is in alarm CRIDS D5418, PRI CNDS DISCH V C FAIL TO OPN OR SUCT V NOT OPN AND PUMP RUNNING, is in alarm <p>NOTE: Alarm will happen approximately 40 seconds after pump start.</p>		
CUE:	Respond/Acknowledge as the Control Room Supervisor, as appropriate.			
CUE:	Respond as the Equipment Operator IF necessary, that HV-1680C does not appear to be full open.			
	Operator applies guidance from CAUTION "Manual pump trip is required if there is a failure in the discharge valve not being full open after 99 seconds".	*#Operator presses the STOP pushbutton for CP102, and informs the CRS.		

JPM NUMBER: AD001
REV NUMBER: 00

NAME: _____
DATE: _____

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

@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: AD001
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐

UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐

UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AD001

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	9/29/2017	New JPM.	Y
	1/12/2018	Incorporated comments from NRC.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: AD001

REV#: 00

TASK: Fill And Startup The Condensate System

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

VALIDATED BY:

Qualification Level Required: RO

<u> ON FILE </u> Name	<u> RO </u> Qual	<u> ON FILE </u> Signature	<u> 9/29/2017 </u> Date
<u> ON FILE </u> Name	<u> SRO </u> Qual	<u> ON FILE </u> Signature	<u> 9/29/2017 </u> Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: AD001

REV#: 00

INITIAL CONDITIONS:

I.C.

Initial

INITIALIZE the simulator to an IC at approximately 40% power and startup in progress.

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

Initial

Description

ENSURE conditions are satisfactory to start the third PCP IAW HC.OP-IO.ZZ-0003.

MARK UP HC.OP-SO.AD-0001, Section 5.3 for Start of Primary Condensate Pump.

INSERT EVENT TRIGGER and OVERRIDES.

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

EVENT FILE:

Initial	ET #	
	1	Event code: ZLFW80CO & fww1680c >= 0.1 Description: SCP C RUNNING AND DISCH OPENING

MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description

REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description
			Insert override 5A124_E_DI to Off on event 1	HV-1680C OPEN-PRIMARY CONDENSATE PMP VLV-PUMP C DISCH VLV (LO)
			Insert override 5A124_E_LO to On on event 1	HV-1680C OPEN-PRIMARY CONDENSATE PMP VLV-PUMP C DISCH VLV (LO)
			Insert override 5A124_F_DI to On on event 1 delete in 1	HV-1680C CLOSE-PRIMARY CONDENSATE PMP VLV-PUMP C DISCH VLV (DI)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Reactor Startup is being performed in accordance with HC.OP-IO.ZZ-0003.
2. Currently at approximately 40% load (approximately 507 MWe).
3. Maintenance was just completed on Primary Condensate Pump CP102.

INITIATING CUE:

START Primary Condensate Pump CP102 in accordance with HC.OP-SO.AD-0001(Q), Condensate System Operation, Section 5.3.

Venting of the pump IS required.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - I

Copy _____ of _____

SYSTEM: Residual Heat Removal

TASK NUMBER: 20000490504

TASK: Align Fire Water System For Alternate RPV Injection

JPM NUMBER: 305H-JPM.BC007

REVISION: 11

SAP BET: NOH05JPBC07E

K/A NUMBER: 295031 EA1. Ability To Operate And/Or Monitor The Following As They Apply To REACTOR
LOW WATER LEVEL : (CFR: 41.7 / 45.6)
EA1.08 Alternate Injection Systems: Plant-Specific

IMPORTANCE FACTOR: RO: 3.8 SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Plant/Simulate

REFERENCES: HC.OP-EO.ZZ-0310, Rev. 9

TOOLS, AND EQUIPMENT: Equipment as specified in section 4.0 of HC.OP-EO.ZZ-0310. (Have Key # (G1))

ESTIMATED COMPLETION TIME: 20 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Residual Heat Removal

TASK NUMBER: 20000490504

TASK: Align Fire Water System For Alternate RPV Injection

INITIAL CONDIITONS:

1. A Station Blackout has occurred due to severe weather conditions.
2. The reactor is shutdown; all control rods are in.
3. A, C, and D Emergency Diesel Generators have failed to start.
4. B Emergency Diesel Generator has started and loaded onto its respective bus.
5. B RHR pump has tripped on overcurrent and cannot be started.
6. The Diesel Driven Fire pump has started and is operating properly.
7. Due to severe weather conditions, the DG building watertight doors are not accessible.

INITIATING CUE:

Lineup for alternate injection using Fire Water IAW HC.OP-EO.ZZ-0310.
Use the local Fire Hose Station as the source of Fire Water.
The Reactor Building EO is standing by to assist as necessary.

JPM NUMBER: BC007
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-EO.ZZ-0310		
	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 Precautions And Limitations are satisfied."			
	<u>EQUIPMENT REQUIRED</u> Key # (G1) for EOP Locker on El. 102' diesel bldg. from either: <ul style="list-style-type: none"> • SM office <u>OR</u> • From EOP Locker in OSC (Use Key #9 obtained from SM office or by breaking red key holder glass in OSC). <u>AND</u> Equipment located in EOP locker on El.102' diesel bldg. Contents: 1 2.5" hose to flange adapter 1 1.5" hose to flange adapter 2 1-1/16" Box Wrenches 2 Fire Hose Wrenches 1 Hydrant Wrench 150' of 2.5" Fire Hose 50' of 1.5" Fire Hose (for Fire Hose Station) 1 2" flexitallic gasket (or equivalent) 1 Flashlight	*#Operator obtains the following required equipment: Key #(G1) for EOP Locker on El.102' diesel bldg. From either: <ul style="list-style-type: none"> • SM office <u>or</u> • From EOP Locker in OSC (use key #9 obtained from SM office or by breaking red key holder glass in OSC), and initials Step. Equipment located in EOP locker on El 102' diesel bldg. Examiner Note: After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.		
CAUTION	This procedure constitutes extreme actions that are only to be taken in response to severely degraded plant conditions. These actions warrant evaluation of current and future plant conditions, prioritization of available plant systems and components, and consideration of the expected consequences to the plant.	Operator reads and initials CAUTION.		

JPM NUMBER: BC007
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.1.		
5.1.1	ENSURE all prerequisites of Section 2.1 are satisfied.	Operator ensures that all prerequisites have been satisfied, and initials Step.		
CUE:	IF excessive time is taken reviewing Prerequisites, THEN INFORM operator that “all Prerequisites are satisfied.”			
CAUTION	The SM/CRS shall be aware of, and take into consideration, the environmental and radiological conditions that exist in areas requiring entry prior to dispatching personnel into the field.	Operator reads and initials CAUTION.		
5.1.2	CONNECT hose to the appropriate flange adaptor AND TIGHTEN. <ul style="list-style-type: none"> 1.5" hose and adapter for fire hose station 2.5" hose and adapter for yard fire hydrant or fire truck 	*Operator accesses the EOP locker and identifies the 1.5" fire hose and correct adapter, and initials Step. Examiner Note: Based on the Initiating Cue, Operator determines the 1.5" hose and adapter is the correct equipment.		
CUE:	Once the operator identifies the correct equipment, THEN INFORM the Operator “the remainder of the JPM will be simulated.”			
		*Operator connects the correct hose to the correct adapter, and initials Step.		
CUE:	“The hose is connected to the adapter.”			
5.1.3	REMOVE fire hose fill connection blank flange on 1-BC-V426 (local, Diesel Building, Elev. 102', see Attachment 2)	*Operator removes the four bolts on the 1-BC-V426 blank flange. (Bolts removed and re-installed using the 1- 1/16" Box wrenches). *Operator removes the blank flange, and initials Step.		
CUE:	“The flange you indicated is removed.”			

JPM NUMBER: BC007
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.1.4	INSTALL hose to flange adapter AND ENSURE flexitallic gasket of the appropriate size is installed between the adapter and the wall.	*Operator installs the 1.5" hose to flange adapter using the same four bolts. (Bolts removed and re-installed using the 1- 1/16" Box wrenches). and initials Step.		
CUE:	"The hose to flange adapter has been installed in the place you indicated."			
5.1.5	<u>IF</u> connecting to Fire Hose Station, THEN REMOVE the installed hose.	*Operator removes the installed hose from the Fire Hose Station, and initials Step.		
CUE:	"The hose identified has been removed from the place you indicated."			
5.1.6	CONNECT fire hose to one of the following sources of Fire Water: <ul style="list-style-type: none"> • Fire Hose Station • Yard Fire Hydrant • Fire Truck 	Operator removes installed Fire Station hose from standpipe. *Operator installs free end of 1.5" fire hose to the Fire Hose Station standpipe, and initials Step.		
CUE:	"The fire hose has been connected to the fire water source stated."			
5.1.7	OPEN one of the following as applicable: <ul style="list-style-type: none"> • Fire Hose Station Isolation Valve • Fire Hydrant Line Valve (side) and Plug Valve (top) • Fire Truck Valves 	*#Operator opens the Fire Hose Station Isolation Valve, and initials Step. Examiner Note: It is critical that the hose be connected properly before the performance of this Step.		
CUE:	"The valve you have indicated is open, flow noise can be heard past the valve and the fire hose is swelling."			
NOTE	The following step closes 1BCSV-F074, SW LP B EMERG M/U HDR DRN by de-energizing EA-HV-F073. This step prevents diverting fire water flow through 1BCSV-F074 to the SW Dewatering Tank.	Operator reads and initials NOTE.		

JPM NUMBER: BC007
 REV NUMBER: 11

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.1.8	In the South-east corner of the Rx Bldg, Elev. 102', OPEN breaker 52-222082.	*#Operator contacts RB Equipment Operator and directs the opening at breaker 52-222082, and initials Step.		
CUE:	As the RB Equipment Operator, report that "breaker 52-222082 has been opened."			
5.1.9	OPEN 1-BC-V426, SSWS Sup to RHR Fire Hose Fill Conn Sup Vlv (local, diesel truck bay, elevation 102 inside stairway door - see Attachment 2).	*#Operator opens 1-BC-V426, and initials Step.		
CUE:	"The valve you indicated is open; flow noise can be heard past the valve."			
5.1.10	OPEN BC-HV-F075, SSWS TO RHR LOOP B SUP MOV (panel 10C650).	Operator requests that the Control Room operator open BC-HV-F075.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator lines up for alternate injection using Fire Water IAW HC.OP-EO.ZZ-0310 using the local fire hose station isolation valve as the supply of Fire Water.</p>				

@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: BC007
REV NUMBER: 11

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BC007

REVISION HISTORY

Rev #	Date	Description	Validation Required?
10	7/25/2016	Updated due to procedure revision. No changes to operator actions.	N
11	9/27/2017	Updated due to procedure revision. Steps have been altered. Added AB 102' drawing.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: BC007

REV#: 11

TASK: Align Fire Water System For Alternate RPV Injection

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

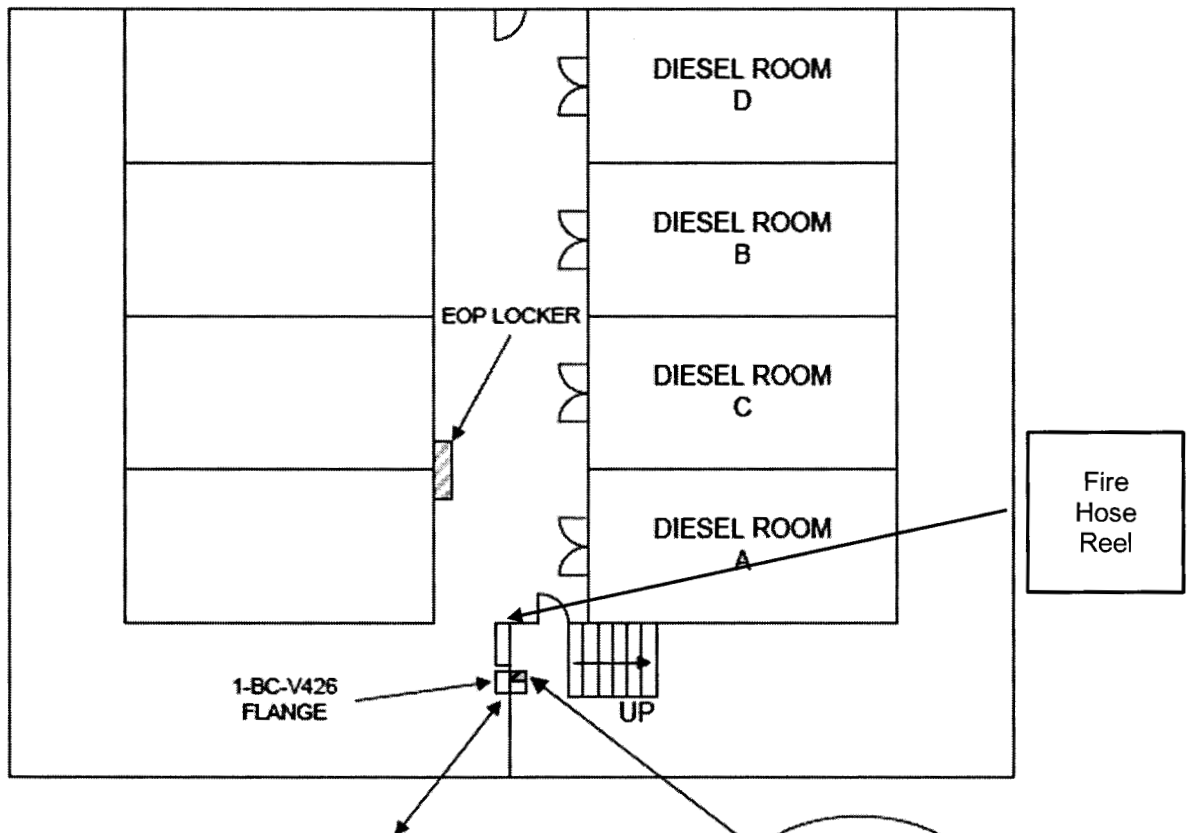
VALIDATED BY:

Qualification Level Required: EO

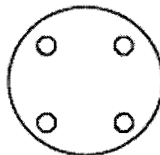
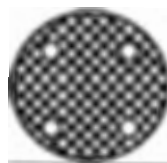
<u>ON FILE</u>	<u>RO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date
<u>ON FILE</u>	<u>SRO</u>	<u>ON FILE</u>	<u>9/27/2017</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

AUX/DIESEL BUILDING 102 ELEV.



FLANGE AREA VIEW



1-BC-V426

OP-EO.ZZ-310
OP-EO.ZZ-314

N-53-01-001

N-53-01-002

NOTE: N-53-01-001 is the penetration number associated with valve 1-BC-V426.

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Station Blackout has occurred due to severe weather conditions.
2. The reactor is shutdown; all control rods are in.
3. A, C, and D Emergency Diesel Generators have failed to start.
4. B Emergency Diesel Generator has started and loaded onto its respective bus.
5. B RHR pump has tripped on overcurrent and cannot be started.
6. The Diesel Driven Fire pump has started and is operating properly.
7. Due to severe weather conditions, the DG building watertight doors are not accessible.

INITIATING CUE:

Lineup for alternate injection using Fire Water IAW HC.OP-EO.ZZ-0310.

Use the local Fire Hose Station as the source of Fire Water.

The Reactor Building EO is standing by to assist as necessary.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: DC Electrical Distribution

TASK NUMBER: 4000030404

TASK: Respond To A Loss Of Offsite Power

2018 NRC
JPM - J

Copy _____ of _____

JPM NUMBER: 305H-JPM.NJ002

REVISION: 00

SAP BET: NOH05JPNJ01E

K/A NUMBER: 295003 AA1. Ability To Operate And/Or Monitor The Following As They Apply To PARTIAL OR COMPLETE LOSS OF A.C. POWER : (CFR: 41.7 / 45.6)
AA1.04 D.C. Electrical Distribution System

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.7

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Turbine Building/Simulate

REFERENCES: HC.OP-AB.ZZ-0135 Rev. 43

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 18 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 60 Minutes

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____ Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: System

TASK NUMBER: 4000030404

TASK: Respond To A Loss Of Offsite Power

INITIAL CONDIITONS:

1. A Loss of Offsite Power with a concurrent loss of Emergency Diesel Generator BG400 has occurred.
2. HC.OP-AB.ZZ-0135, STATION BLACKOUT //LOSS OF OFFSITE POWER//DIESEL GENERATOR MALFUNCTION is being implemented.

INITIATING CUE:

VENT the generator in accordance with Attachment 9, LOP / SBO ACTIONS FOR THE TURBINE BUILDING, of HC.OP-AB.ZZ-0135.

This is a Time Critical JPM.

JPM NUMBER: NJ002
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
CUE:	PROVIDE the operator the initiating cue; marked up HC.OP AB.ZZ-0135, Attachment 9; AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. Examiner Note: Performance of all steps are Time Critical. START TIME: _____			
	Operator determines beginning step of the procedure.			
ATTACHMENT 9 LOP / SBO ACTIONS FOR THE TURBINE BUILDING				
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.		
2.	VENT turbine hydrogen: A. OPEN 1-CC-V031, GEN MAINT. ISLN VLV. (102' Turbine Bldg)	*Operator simulates opening 1-CC-V031, GEN MAINT. ISLN VLV, and initials Step. NOTE: Operator may check Machine Gas Pressure is lowering on Panel 10C120. Cue appropriately.		
CUE:	The handwheel of the valve indicated rotates and comes to a hard stop. If necessary, state that indicated pressure is lowering on the indicator identified.			
	B. OPEN 1-CC-V034, GEN CASING VNT TO ATM ISLN VLV. (102' Turbine Bldg)	*Operator simulates opening 1-CC-V034, GEN MAINT. ISLN VLV, and initials Step.		
CUE:	The handwheel of the valve indicated rotates and comes to a hard stop.			
	C. OPEN two access doors to the Turbine Building Supply Intake Plenum	*Operator simulates opening two access doors to the Turbine Building Supply Intake Plenum, STOP TIME: _____ Stop time for Time Critical Time.		
CUE:	The door(s) identified are open. (Cue appropriately.)			

JPM NUMBER: NJ002
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	AND NOTIFY RP to perform radiological sampling as necessary. (171' Turbine Bldg.)	Operator notifies RP to perform radiological sampling as necessary, and initials Step.		
CUE:	Acknowledge as RP.			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator vents the Main Generator in accordance with Attachment 9, LOP / SBO ACTIONS FOR THE TURBINE BUILDING, of HC.OP-AB.ZZ-0135 within the required time limitations.</p>				

@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: NJ002
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: NJ002

REVISION HISTORY

Rev #	Date	Description	Validation Required?
0	9/27/2017	New JPM.	Y
	1/12/2018	Incorporated comments from NRC.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: NJ002

REV#: 00

TASK: Respond To A Loss Of Offsite Power

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

VALIDATED BY:

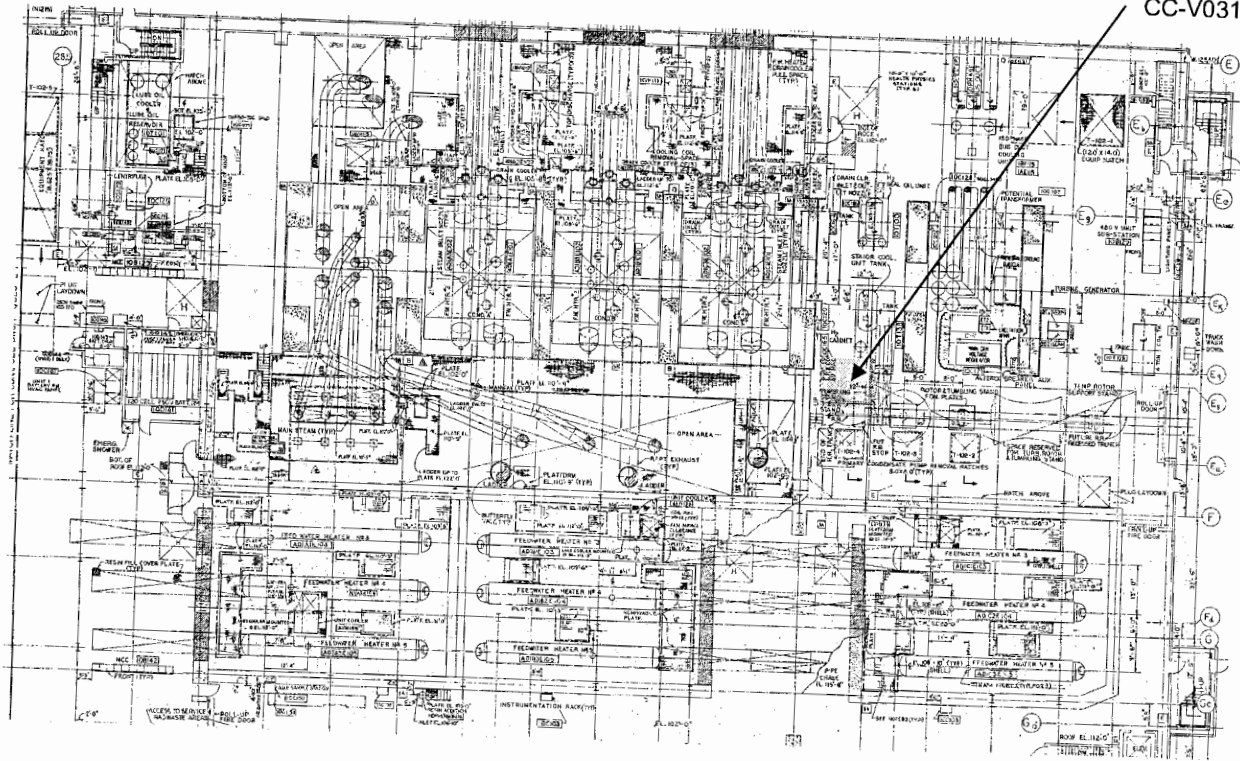
Qualification Level Required: EO

<u> ON FILE </u> Name	<u> RO </u> Qual	<u> ON FILE </u> Signature	<u> 9/27/2017 </u> Date
<u> ON FILE </u> Name	<u> SRO </u> Qual	<u> ON FILE </u> Signature	<u> 9/27/2017 </u> Date

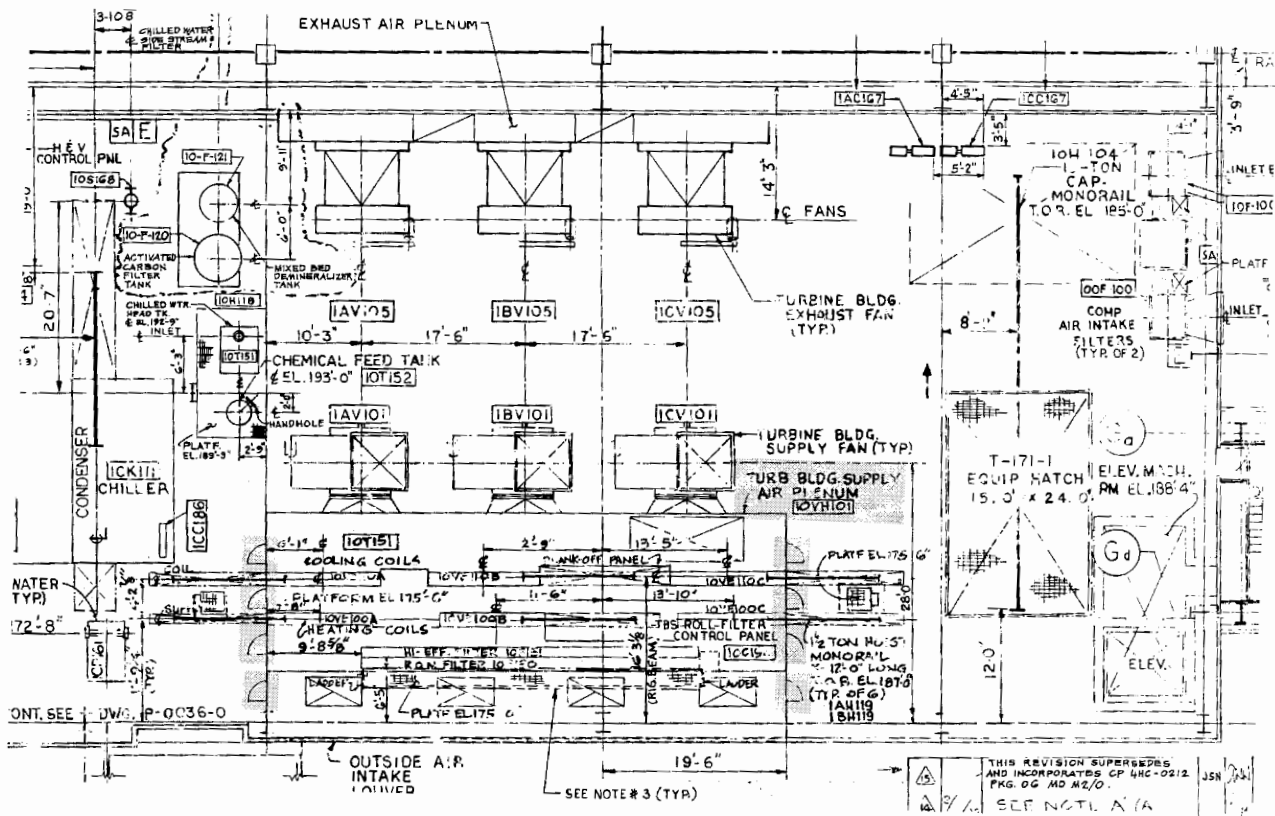
JOB PERFORMANCE MEASURE

TURBINE BUILDING 102' EL.

CC-V031/34



TURBINE BUILDING 171' EL.



JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Loss of Offsite Power with a concurrent loss of Emergency Diesel Generator BG400 has occurred.
2. HC.OP-AB.ZZ-0135, STATION BLACKOUT //LOSS OF OFFSITE POWER//DIESEL GENERATOR MALFUNCTION is being implemented.

INITIATING CUE:

VENT the generator in accordance with Attachment 9, LOP / SBO ACTIONS FOR THE TURBINE BUILDING, of HC.OP-AB.ZZ-0135.

This is a Time Critical JPM.

STATION BLACKOUT // LOSS OF OFFSITE POWER //
DIESEL GENERATOR MALFUNCTION**TRAINING ONLY****ATTACHMENT 9
LOP / SBO ACTIONS FOR THE TURBINE BUILDING****NOTE**Main Turbine should be at zero rpm before opening Turbine Generator Emergency Bearing Lube Oil Pump. **N/A**

- 1.
- OPEN**
- breakers for the following DC Oil pumps

N/A

PUMP	ID	BREAKER	POSITION
Reactor Recirc MG Set Emergency Lube Oil Pump A	1AP113	72-17012	O
Reactor Recirc MG Set Emergency Lube Oil Pump B	1BP113	72-17015	O
RFPT Emergency Lube Oil Pump A	1AP125	72-17021	O
RFPT Emergency Lube Oil Pump B	1BP125	N/A 72-17022	O
RFPT Emergency Lube Oil Pump C	1CP125	72-17023	O
Turbine Generator Emergency Bearing Lube Oil Pump	10P112	72-17014	O

- 2.
- VENT**
- turbine hydrogen:

- A. **OPEN** 1-CC-V031, GEN MAINT. ISLN VLV.
(102' Turbine Bldg) _____
- B. **OPEN** 1-CC-V034, GEN CASING VNT TO ATM ISLN VLV.
(102' Turbine Bldg.) _____
- C. **OPEN** two access doors to the Turbine Building Supply Intake
Plenum AND NOTIFY RP to perform radiological sampling as
necessary. (171' Turbine Bldg.) _____

TRAINING ONLY

JOB PERFORMANCE MEASURE

STATION: Hope Creek

2018 NRC
JPM - K

Copy _____ of _____

SYSTEM: Reactor Manual Control

TASK NUMBER: 2140210401

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

JPM NUMBER: 305H-JPM.SF012

REVISION: 16

SAP BET: NOH05JPSF04E

K/A NUMBER: 201002 A2. Ability To (A) Predict The Impacts Of The Following On The REACTOR MANUAL CONTROL SYSTEM ; And (B) Based On Those Predictions, Use Procedures To Correct, Control, Or Mitigate The Consequences Of Those Abnormal Conditions Or Operations: (CFR: 41.5 / 45.6)
A2.04 Control Rod Block

IMPORTANCE FACTOR: RO: 3.2 SRO: 3.1

ALTERNATE PATH: ☐

APPLICABILITY:

RO ☒

SRO ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

REFERENCES: HC.OP-SO.SF-0001, Rev. 33

HC.OP-AB.IC-0001, Rev. 16

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 10 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐ UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Manual Control

TASK NUMBER: 2140210401

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

INITIAL CONDIITONS:

1. The plant is operating at 100% power
2. The transponder card for Control Rod 22-19 has failed producing a RDCS fault.
3. Action J.4 of HC.OP-AB.IC-0001, Control Rod, is being implemented.
4. There are no rod sequencing constraints.

INITIATING CUE:

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

JPM NUMBER: SF012
 REV NUMBER: 16

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@																				
CUE:	PROVIDE the operator the initiating cue; HC.OP-SO.SF-0001; AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____																							
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.																						
CUE:	IF excessive time is taken reviewing Precautions And Limitations, THEN INFORM operator that all are satisfied.																							
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.7.1.																						
5.7.1.	ENSURE that all prerequisites have been satisfied IAW Section 2.7.	Operator ensures that all prerequisites have been satisfied IAW Section 2.7 (completes Attachment 1).																						
5.7.2.	Have SM/CRS DETERMINE control rod to be bypassed, ANNOTATE AND INITIAL on Attachment 3.	Operator observes that Rod 22-19 is annotated and initialed on Attachment 3. Then initials Step.																						
CUE:	Complete Attachment 1. Enter 22-19 and initial Step 5.7.2 on Attachment 3.																							
5.7.3.	DETERMINE Binary Code for rod to be bypassed from XX-YY coordinates on the FAULT LOCATION MAP AND INITIAL Attachment 3. (performer and verifier) (10C616)	*#Operator determines the Binary Code for rod 22-19, annotates on Attachment 3, and requests Verifier initials. <table><tr><td>X₄</td><td>X₃</td><td>X₂</td><td>X₁</td><td>X₀</td><td>Y₄</td><td>Y₃</td><td>Y₂</td><td>Y₁</td><td>Y₀</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr></table>	X ₄	X ₃	X ₂	X ₁	X ₀	Y ₄	Y ₃	Y ₂	Y ₁	Y ₀	0	0	1	1	1	0	0	1	1	0		
X ₄	X ₃	X ₂	X ₁	X ₀	Y ₄	Y ₃	Y ₂	Y ₁	Y ₀															
0	0	1	1	1	0	0	1	1	0															
CUE:	Initial as Verifier.																							
		Operator initials Step.																						
NOTE	The 'UP' position on the toggle represents (1), the 'DOWN' position represents (0).	Operator reads and initials NOTE.																						

JPM NUMBER: SF012
 REV NUMBER: 16

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@																				
5.7.4.	SET Binary Code on BYPASSED ROD IDENTITY toggles for rod to be bypassed AND INITIAL Attachment 3. (performer and verifier) (10C616).	*#Operator inserts the correct binary code using the BYPASSED ROD IDENTITY toggles as follows: (10C616) <table><tr><td>X₄</td><td>X₃</td><td>X₂</td><td>X₁</td><td>X₀</td><td>Y₄</td><td>Y₃</td><td>Y₂</td><td>Y₁</td><td>Y₀</td></tr><tr><td>DN</td><td>DN</td><td>UP</td><td>UP</td><td>UP</td><td>DN</td><td>DN</td><td>UP</td><td>UP</td><td>DN</td></tr></table>	X ₄	X ₃	X ₂	X ₁	X ₀	Y ₄	Y ₃	Y ₂	Y ₁	Y ₀	DN	DN	UP	UP	UP	DN	DN	UP	UP	DN		
X ₄	X ₃	X ₂	X ₁	X ₀	Y ₄	Y ₃	Y ₂	Y ₁	Y ₀															
DN	DN	UP	UP	UP	DN	DN	UP	UP	DN															
CUE:	The toggles indicated are in the positions stated.																							
		Operator requests Verifier initials.																						
CUE:	Initial as Verifier.																							
		Operator initials Step.																						
<u>NOTE</u>	While a control rod is bypassed in RDCS Cabinet (10C616) the following indications associated with the rod are disabled: Accumulator Trouble Scram Valve Status Rod Select Indication (Full Core Display)	Operator reads and initials NOTE .																						
<u>CAUTION</u>	Bypassing a control rod in the RDCS Cabinet (10C616) prevents control rod movement from signals generated by the Reactor Manual Control System. The Scram function of the bypassed control rod is still operable.	Operator reads and initials CAUTION .																						
5.7.5.	SET BYPASSED toggle up AND INITIAL Attachment 3. (performer and verifier) (10C616)	*#Operator sets BYPASSED toggle up, and initials Attachment 3.																						
CUE:	The indicated toggle is in the position stated.																							
		Operator requests Verifier initials.																						
CUE:	Initial as Verifier.																							
		Operator initials Step.																						

JPM NUMBER: SF012
 REV NUMBER: 16

NAME: _____
 DATE: _____

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

JPM NUMBER: SF012
 REV NUMBER: 16

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
5.7.7.	VERIFY RDCS STATUS ROD BYPASSED is ON <u>AND</u> INITIAL Attachment 3. (performer and verifier) (10C651C)	Operator contacts the Main Control Room to verify RDCS STATUS ROD BYPASSED is ON.		
CUE:	As NCO, acknowledge that RDCS ROD BYPASSED light is on.			
		Operator initials Attachment 3, and requests Verifier initials.		
CUE:	Initial as Verifier.			
		Operator initials Step.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator bypasses Rod 22-19 in accordance with HC.OP-SO.SF-0001.				

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

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: SF012
REV NUMBER: 16

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SF012

REVISION HISTORY

Rev #	Date	Description	Validation Required?
16	9/27/2017	Revised procedure revision number. Editorial. Modified control rod location. Added location and panel drawings.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: SF012

REV#: 16

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

- | | |
|--|---|
| <u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>
<u> X </u>
<u> X </u>
<u> X </u>

<u> X </u>

<u> X </u>

<u> X </u> | 1. Task description and number, JPM description and number are identified.
2. Knowledge and Abilities (K/A) is identified, and is: ≥ 3.0 (LOR); or ≥ 2.5 (ILT); or justification is provided.

3. License level identified. (SRO,RO,STA,NLO)
4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
5. Initial setup conditions are identified.
6. Initiating and terminating cues are properly identified.
7. Task standards for successful completion are identified.
8. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). Sequence Critical Steps are identified with a pound sign (#).

9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
11. Cues both verbal and visual are complete and correct.
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.

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

14. Validation time is included.
15. JPM is identified as Time Critical and includes Critical Time (if required). |
|--|---|

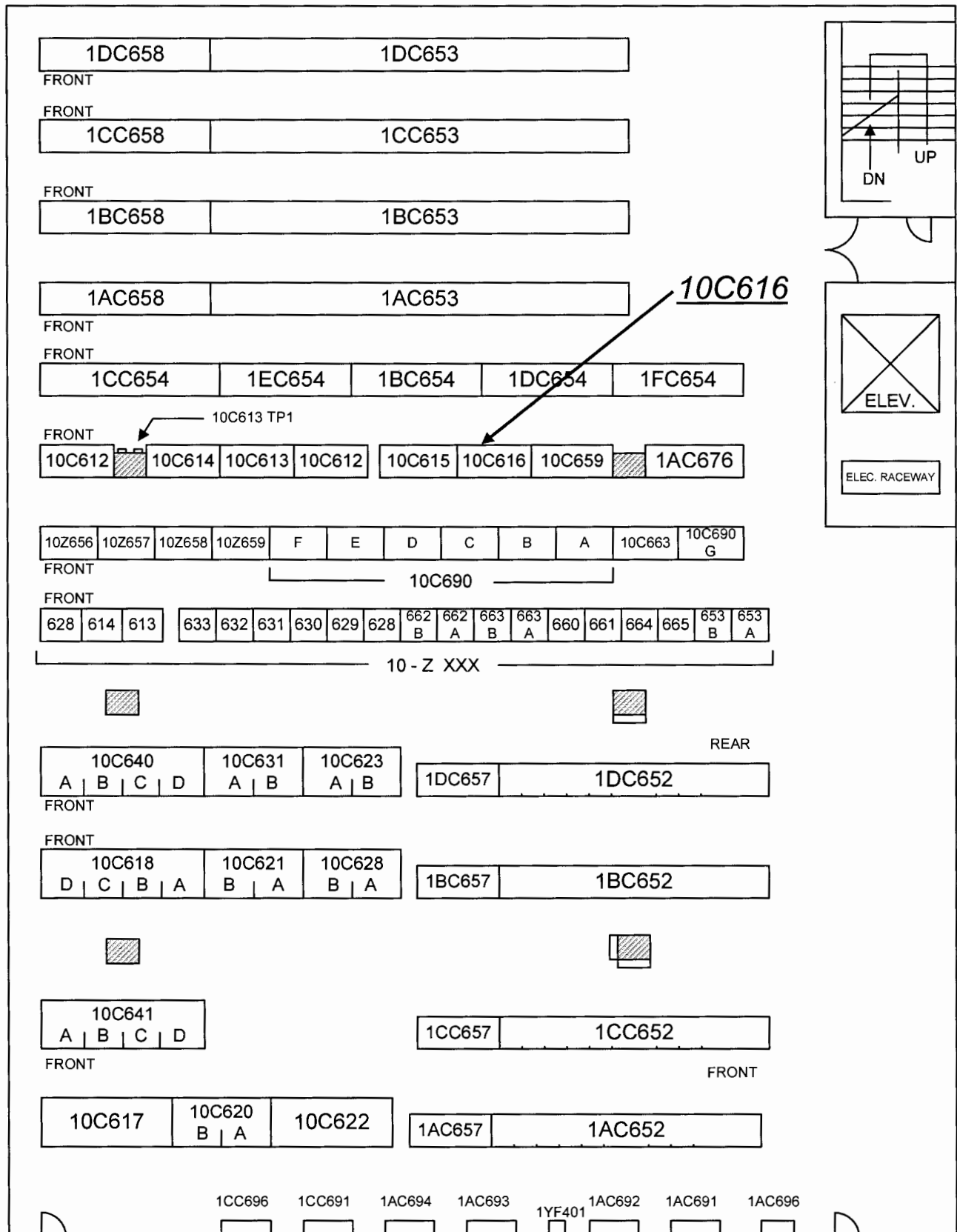
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Qualification Level Required: RO

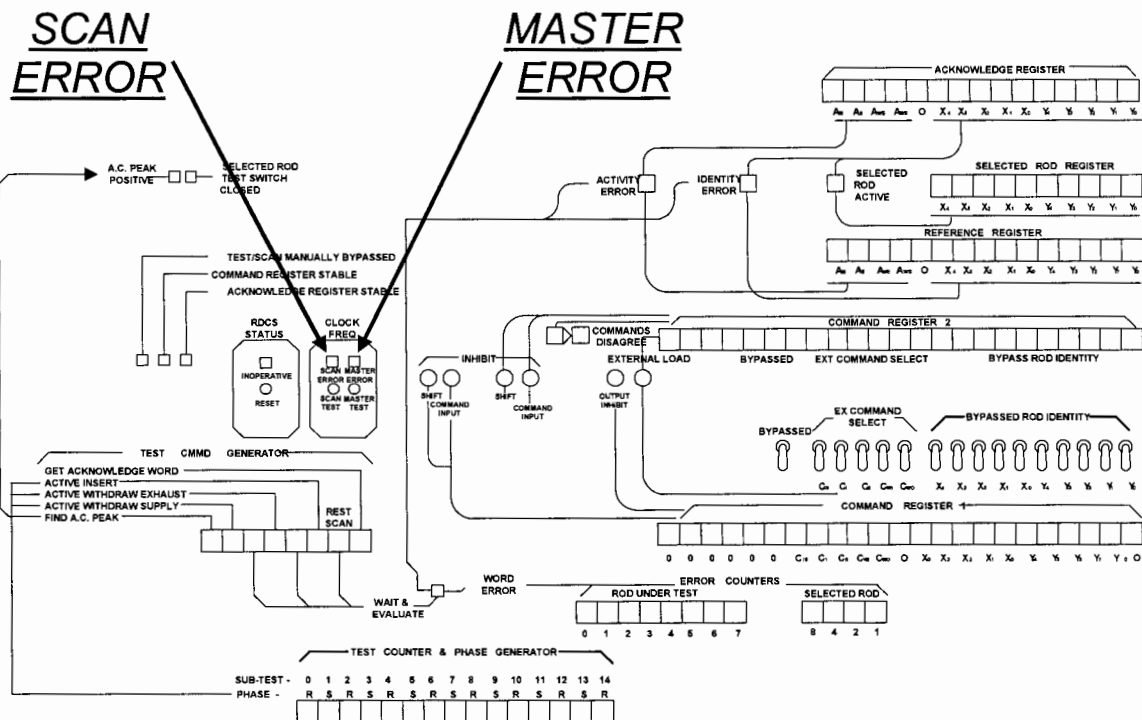
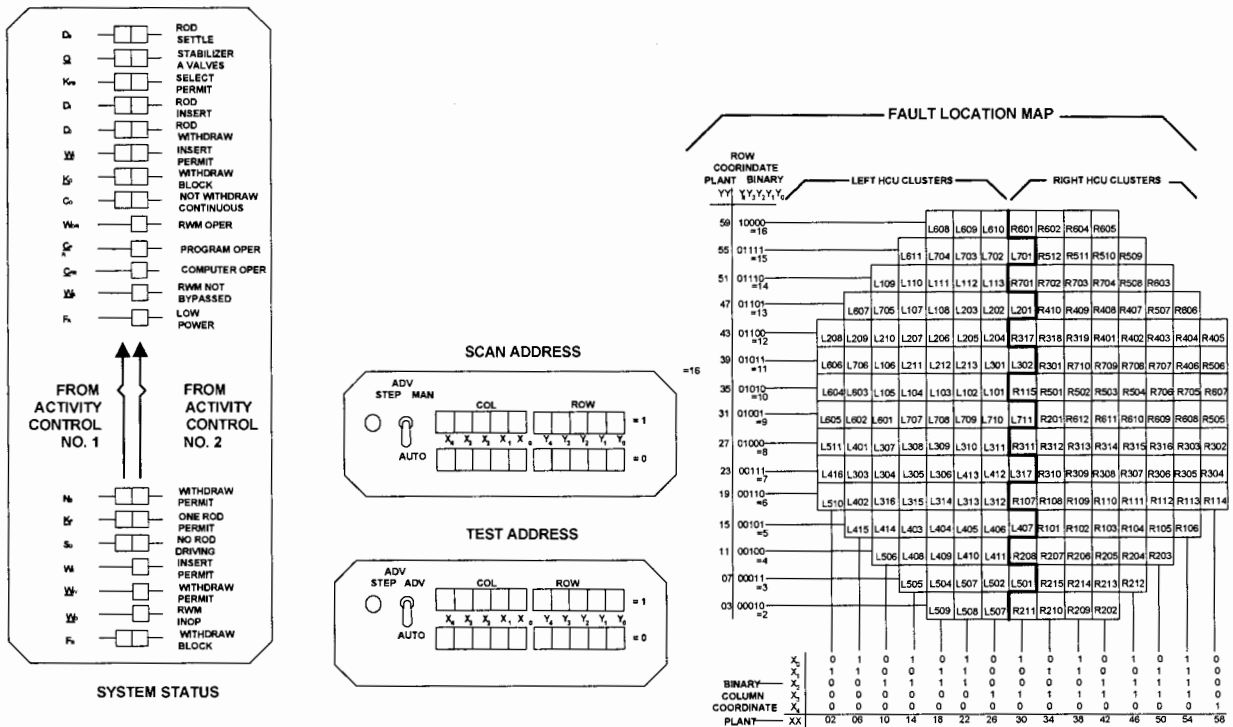
<u>ON FILE</u> Name	<u>RO</u> Qual	<u>ON FILE</u> Signature	<u>9/27/2017</u> Date
<u>ON FILE</u> Name	<u>SRO</u> Qual	<u>ON FILE</u> Signature	<u>9/27/2017</u> Date

JOB PERFORMANCE MEASURE

LOWER RELAY ROOM PANEL LOCATIONS



ROD DRIVE CONTROL SYSTEM ANALYZER PAGE INDICATORS



JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power
2. The transponder card for Control Rod 22-19 has failed producing a RDCS fault.
3. Action J.4 of HC.OP-AB.IC-0001, Control Rod, is being implemented.
4. There are no rod sequencing constraints.

INITIATING CUE:

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

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2018 NRC-1**SCENARIO NUMBER:** ESG-2018 NRC-1**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 1 Hour**REVISION NUMBER:** 1

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

REVISION SUMMARY:

1. Minor editorial comments made from validation.

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. Swap SACS Pumps
- B. APRM Failure
- C. FWH Leak
- D. Loss Of Essential 125VDC Bus 10D420
- E. Earthquake/Condensate Line Break
- F. LOCA
- G. Penetration Failure to Isolate
- H. Drywell Spray Valve Failure

III. SCENARIO SUMMARY:

The scenario starts with the plant at 100% power. SACS pump require swapping to allow for maintenance activities. A single channel APRM will fail causing a rod block. Following the bypassing of the affected APRM, 6B FWH develops a tube rupture due to flow accelerated corrosion. The Crew will be required to reduce power and isolate the 6B FWH. After the FWH is isolated, the 10D420 125VDC bus is lost. This, in itself, does not cause a transient, but due to the loss of 1E Channel B components, requires a shutdown if not restored in two hours. After Tech Specs for this have been reviewed, the plant will experience an earthquake exceeding the SSE. This will result in a rupture in the condensate system, that eventually leads to a loss of condensate and condenser vacuum. Due to the loss of 10D420, the 10A402 1E 4.16 KV bus will not be available. This leaves only the 'A' RHR pump for drywell spray. One of the 'A' RHR drywell spray valves will fail to open, and an Emergency Depressurization will be required due to entry into the Action Required Region of the PSP curve. One drywell penetration will fail to isolate, but can be isolated from the Control Room. The scenario ends when the reactor has been depressurized.

IV. INITIAL CONDITIONS:

I.C.

Initial

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

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

_____ **ENSURE** B SACS pump is in service.

_____ **ENSURE** D SACS pump is in standby.

_____ **ENSURE** B SSW pump is in standby.

_____ **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

_____ 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:

- _____ • Main Generator MWe
- _____ • Feedwater Temp to RPV: **c91a1744** and **c91a1746** or equivalent
- _____ • Core Thermal Power 5 Minute Average: **c91ctp5m** or equivalent
- _____ • W/R Reactor Pressure
- _____ • Fuel Zone Reactor Water Level

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

EVENT FILE:

<i>Initial</i>	<i>Event</i>		
	3	Event Code: Description:	zcrprun <= 0.0 // Mode Switch NOT in RUN Triggers remaining events if Crew scrams during loss of FWH.
	4	Event Code: Description:	zcrprun <= 0.0 // Mode Switch NOT in RUN Triggers remaining events if Crew scrams during loss of FWH.
	6	Event Code: Description:	rhv021(1) >= 0.01 // Drywell Spray Valve F021A opening Triggers failure of Drywell Spray valve
	7	Event Code: Description:	rrprv <= 750 // Reactor Pressure in psia Inserts downcomer break if Crew depressurizes to ensure PSP is reached.
	8	Event Code: Description:	zdcwrrcx(3) // HV-2554 CLOSE Pushbutton Allows closure of HV-2554 from the Control Room
		Event Code: Description:	

MALFUNCTION SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction NM21B to 0 on event 1	APRM channel B reads high or low
	None	None	Insert malfunction FW12B to 80.00000 in 240 on event 2	High pressure heater BE106 tube leak
	None	None	Insert malfunction ED11B on event 3	Loss of 125 VDC class 1E bus 10D420
	None	None	Insert malfunction ED21 after 70 on event 4	Loss of 5023 (New Freedom) Line
	None	None	Insert malfunction FW31 after 120 from 0 to 100.00000 in 300 on event 4	Condensate line break between PCPs and condensate prefilter inlet
	None	None	Insert malfunction MC01 after 240 to 100.00000 in 180 on event 4	Low pressure turbine exhaust bellows leak
	None	None	Insert malfunction MC01A after 480 on event 4	Complete Loss of Vacuum
	None	None	Insert malfunction RR31A2 after 540 to 7.00000 in 240 on event 4	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction PC04 after 360 to 100.00000 in 180 on event 4	Downcomer break
	None	None	Insert malfunction PC04 to 100.00000 in 180 on event 7	Downcomer break

REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote ET057 to FAIL_AS_IS	ET057 GROUP 16B HV-2554 RACS Supply Isol
	None	None	Insert remote RH20A to RACK_CLOSE on event 6	RH20 HV-F021A RHR CTMT SPRAY
	None	None	Insert remote ET057 to NORMAL on event 8	ET057 GROUP 16B HV-2554 RACS Supply Isol

OVERRIDE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
SACS Pump Swap: Crew swaps SACS pumps.	<ul style="list-style-type: none"> • CRS directs swap of SACS pumps. 	
	<ul style="list-style-type: none"> • PO swaps SACS pump IAW HC.OP-SO.EG-0001: <ul style="list-style-type: none"> ⇒ Place SACS PUMP D in MAN control. ⇒ Start SACS Pump D. ⇒ May adjust OPEN EG-HV-2512B to establish RHR HX flow of \approx 9000 gpm. ⇒ Place SACS PUMP B in MAN control. ⇒ Stop SACS Pump B. ⇒ Adjust CLOSED EG-HV-2512B to establish RHR HX flow of \approx 4500 gpm. INITIAL Attachment 1. (If increased above.) ⇒ Place SACS Pumps B and D in AUTO 	
APRM Failure: After SACS pumps have been swapped, and at the discretion of the Lead Examiner, TRIGGER ET-1 (APRM failure).	<ul style="list-style-type: none"> • Crew identifies "B" APRM downscale by: <ul style="list-style-type: none"> ⇒ C3-E4 "APRM DOWNSCALE". ⇒ C3-F3 "OPRM TRIP/BYP/INOP/TRBL. ⇒ C6-D3 Rod Out Motion Block ⇒ Amber "DNSC" Monitor Status lights. ⇒ 'B' APRM reading 0% ⇒ CRIDS C048, "ROD OUT BLOCK" in alarm ⇒ CRIDS C021, "ANY APRM DOWNSCALE" in alarm 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew identifies/verifies ROD BLOCK by: ⇒ ROD SELECT MODULE "ROD MOTION BLOCK" amber warning. 	
	<ul style="list-style-type: none"> Crew enters HC.OP-AB.IC-0004, Condition B 	
	<ul style="list-style-type: none"> CRS directs: ⇒ Bypassing the Malfunctioning APRM B 	
	<ul style="list-style-type: none"> RO bypasses APRM B by placing the APRM bypass switch on 10C651C to the B position and observes the APRM B BYP lamp illuminate, Rod Out Motion Block clear. 	
	<ul style="list-style-type: none"> CRS references Tech Spec sections 3.3.1 & 3.3.6. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>6B FWH Tube Rupture: After the Crew assumes the watch and at the discretion of the Lead Examiner, TRIGGER ET-2 (6B FWH Tube Rupture).</p>	<ul style="list-style-type: none"> • Crew recognizes trip of 6B FWH and loss of Feedwater heating by: <ul style="list-style-type: none"> ⇒ Lowering RPV Water Level ⇒ RFP speeds and flow rise ⇒ Low SCP suction pressure alarms ⇒ CRIDS A2134, "FDW HTR 6B LEVEL LT-1558B" rising ⇒ OHA A7-E2 "FEEDWATER HTR 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 	<p>The 6B FWH dump valve will not open until after the Feedwater heater trip setpoint is reached.</p>
	<ul style="list-style-type: none"> • Crew announces trip of the 6B FWH on the plant page. 	
<p>InSight Items:</p> <ul style="list-style-type: none"> • FW Line Temp A c91a1744 • FW Line Temp B c91a1746 	<ul style="list-style-type: none"> • Crew recognizes leak in 6B FWH by: <ul style="list-style-type: none"> ⇒ 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 	<p>The tube leak will cause a small vessel level transient (≈3 inches).</p>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> the Crew scrams, <u>THEN</u> the remaining events will be automatically inserted <u>AND</u> indications of earthquake will need to be provided:</p> <ul style="list-style-type: none"> • PLAY the Earthquake Sound Effect (if available) at medium volume for about 15 seconds <u>OR</u> ANNOUNCE "You feel motion then it stops" <p>Support actions to take Crossflow to Blocked/Not Applied via CRIDS if necessary.</p>	<ul style="list-style-type: none"> • RO reduces and maintains reactor power to the Pre-Feedwater Heater Trip or Isolation Value IAW the SPRI. 	<p>Immediate Operator Action IAW AB.BOP-0001.</p>
	<p>* <i>Crew restores/maintains the Core Thermal Power 5 Minute Average to ≤ 3848 MWth.</i></p>	
<p><u>IF</u> dispatched to BC102, <u>THEN REPORT</u>:</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Crew dispatched TBEO to BC102 panel. 	
	<ul style="list-style-type: none"> • CRS implements AB.BOP-0001: ⇒ Condition A ⇒ Condition B 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew ensures automatic actions occur: <ul style="list-style-type: none"> ⇒ HV-1365B extraction steam isolation closes ⇒ HV-1366B/1367B/1359B drains open 	
	<ul style="list-style-type: none"> PO performs the following: <ul style="list-style-type: none"> ⇒ Closes HV-1753B ⇒ Closes HV-1768B ⇒ Ensures extraction steam isolated to 6B FWH IAW SO.AF-0001 Section 5.6 	
<u>IF</u> the RE is directed, TOGGLE CROSSFLOW to NOT APPLIED.	<ul style="list-style-type: none"> <u>As</u> Feedwater temperature changes due to the Loss of Feedwater Heating, <u>THEN</u> CRS directs RO to reduce reactor power IAW AB.BOP-0001 Retainment Override Guidance 	
<u>IF</u> directed to monitor Recirc M/G Set temperatures, <u>THEN</u> MAINTAIN temperatures using Remote Function CW15 & CW16 as necessary.	<ul style="list-style-type: none"> <u>IF</u> directed, <u>THEN</u> RO reduces and maintains reactor power. 	
	<ul style="list-style-type: none"> CRS implements AB. BOP -0001: <ul style="list-style-type: none"> ⇒ Condition B, and directs power reduction to less than 1050 MWE per Table 1. 	
	<ul style="list-style-type: none"> Crew contacts RE to inform about the heater trip and request Crossflow be taken to "Not Applied". 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • <u>WHEN</u> reactor power is reduced by 15%, <u>THEN</u> CRS recognizes the following actions apply: ⇒ Tech Spec 3.4.5.c.1 (Table 4.4.5-1 Item 4(b)) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f) IAW OP-HC-108-115-1001. 	<p>At least one sample (Isotopic Analysis for Iodine), between 2 and 6 hours following the change in THERMAL POWER or off-gas level, as required by ACTION c.</p>
	<ul style="list-style-type: none"> • Crew contacts ESOC and Trading Floor. 	
<p><u>Loss of 10D420:</u> 20 minutes after the Loss of #6 FWH, <u>OR</u> at the discretion of the Lead Examiner, TRIGGER ET-3 (Loss of 10D420 bus).</p>	<ul style="list-style-type: none"> • Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable. 	
	<ul style="list-style-type: none"> • Crew recognizes loss of 10D420 by: ⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE" ⇒ CRIDS D4637 "125 VDC BATT 1BD411 PWR AVAIL NO" ⇒ CRIDS D4634 "125 VDC SWGR 10D420 TRBL" Flashing INOP lights on all 10A402 bus breakers ⇒ 'B' Channel ECCS "LOGIC PWR FAILURE" lights ⇒ Flashing "OVLDPWR FAIL" lights on RCIC w/loss of position indication ⇒ Charger and bus voltage indication on 10C650D 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS implements AB.ZZ-0150. 	
<p>IF dispatched to investigate loss of 10D420, THEN REPORT:</p> <ul style="list-style-type: none"> Bus indicates 0 volts Both battery chargers DC CKT BREAKER are tripped (BD413/BD414) There is an acrid odor and indication of flash damage at the battery transfer switch (1BD412 Rm 5540) There is no indication of fire 	<ul style="list-style-type: none"> Crew dispatches ABEO and Maintenance to investigate loss of 10D420 bus. 	E-0009-1 Sheet 2
	<ul style="list-style-type: none"> CRS recognizes the following Tech Specs actions apply: <ul style="list-style-type: none"> ⇒ D.C. Sources - Operating 3.8.2.1 Action a ⇒ Distribution – Operating 3.8.3.1 Action b 	Need to restore the 1BD411 battery, 10D420 bus, and one charger in two hours, or be in Hot S/D in next 12 hours.
<p><u>Earthquake/Condensate Line Break:</u> After Technical Specifications have been addressed for the loss of 10D420 bus, <u>OR</u> at the discretion of the Lead Examiner:</p> <ul style="list-style-type: none"> PLAY the Earthquake Sound Effect (if available) at medium volume for about 5 seconds <u>OR</u> ANNOUNCE "You feel motion then it stops" TRIGGER ET-4 	<ul style="list-style-type: none"> Crew recognizes Seismic Event by: <ul style="list-style-type: none"> ⇒ Loud rumbling noise (if available) 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew monitors critical parameters to determine if plant is stable. 	
	<ul style="list-style-type: none"> Crew recognizes loss of New Freedom line by: <ul style="list-style-type: none"> ⇒ OHA E1 C5 "500 KV SWITCHYARD TROUBLE" ⇒ CRIDS D5795 "HOPE CREEK-NEW FRDM LINE TRB" ⇒ CRIDS D5792 "500KV BRK 5 1 TROUBLE" ⇒ CRIDS D5789 500KV BRK 6 5 TROUBLE" ⇒ TRIP light on 500 KV BS5 1 and BS6 5 breakers 	
<p><u>IF</u> called as ESOC, report there has been a series of line trips and:</p> <ul style="list-style-type: none"> The 5023 line has been lost not time estimate yet for restoration Salem 1 & 2 are still online 	<ul style="list-style-type: none"> CRS implements AB.BOP-0004 <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition F 	<p>The pace of the scenario will not allow full implementation of actions.</p>
	<ul style="list-style-type: none"> Crew recognizes Condensate Line Break by: <ul style="list-style-type: none"> ⇒ RPV Level lowering ⇒ RFP speed rising ⇒ TB Exhaust Radiation levels rising ⇒ Lowering SCP suction pressures ⇒ Main Condenser In-Leakage rising ⇒ Main Condenser levels lowering 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none">Crew implements HC.OP-AB.RPV-0004.	
	<ul style="list-style-type: none">Crew implements HC.OP-AB.BOP-0006	
	<ul style="list-style-type: none">RO reduces Reactor Power with Recirc, as necessary, to Maintain above LEVEL 4	Immediate Operator Action IAW AB.RPV-0004
	<ul style="list-style-type: none">CRS directs Reactor Scram when Reactor Water Level ≤ 15".	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</p> <p>Reactor Scram Reports</p> <p>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.</p>	<ul style="list-style-type: none"> • RO Locks the Mode Switch in Shutdown • RO performs scram actions IAW AB.ZZ-0001 Att. 1. <ul style="list-style-type: none"> ⇒ ANNOUNCE "Crew - Standby for Scram Report". ⇒ LOCK the Mode Switch in Shutdown. ⇒ ANNOUNCE Rod Motion status, APRM Downscale status, Reactor Shutdown status ⇒ ANNOUNCE Reactor Water Level and trend, Reactor Pressure and trend ⇒ ANNOUNCE "scram report complete". ⇒ INSERT the SRM/IRM's ⇒ SELECT IRM CHART RECORDERS. ⇒ WHEN main generator output reaches approximately zero Mwe THEN TRIP the main turbine. ⇒ ENSURE the Reactor Scram has been announced (over PA). ⇒ REPORT "All Scram Actions Complete". 	
	<ul style="list-style-type: none"> • Crew recognizes RPV Level Below 12.5" EOP entry condition by: <ul style="list-style-type: none"> ⇒ 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
<p>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.</p>	<ul style="list-style-type: none"> CRS implements EOP-101. 	
	<ul style="list-style-type: none"> CRS directs maintaining RPV level -30" to +30" with HPCI. 	<p>Due to the Loss of 10D420, RCIC is not available.</p>
	<ul style="list-style-type: none"> RO/PO maintains RPV level as directed by CRS with HPCI IAW AB.ZZ-0001 Att. 6. 	
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Direct initial band of 800 - 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and does not challenge RPV cooldown limits. 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. As pressure decays pressure bands should be adjusted to accommodate for this decay.</p>	<ul style="list-style-type: none"> CRS directs manual pressure control to maintain RPV pressure below 1037 psig. 	<p>Due to the loss of 10D420, only the 'P' Lo-Lo Set SRV will be automatically cycling (935-1047 psig)</p>
	<ul style="list-style-type: none"> PO maintains pressure as directed by the CRS IAW AB.ZZ-0001. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> Crew calls National Earthquake Center, <u>THEN REPORT</u> a seismic event of 1.0 on Richter scale centered 12 miles east of Wilmington, DE.</p>	<ul style="list-style-type: none"> CRS implements AB.MISC-0001: ⇒ Condition E ⇒ Condition F 	<p>AB.MISC-0001 actions provided for reference only. Due to the pace of the scenario, it is unlikely they will be implemented.</p>
<p><u>IF</u> Crew calls Security, <u>THEN REPORT</u> the Security system is intact.</p>	<ul style="list-style-type: none"> RO/PO implements AR.ZZ-0011 Attachment C4. 	
<p><u>IF</u> dispatched to 10C673, <u>THEN REPORT</u>:</p> <ul style="list-style-type: none"> Amber SMA-3 EVENT ALARM light EXTINGUISHED 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 EXTINGUISHED. 	<ul style="list-style-type: none"> Crew dispatches ABEO to 10C673. Crew recognizes a seismic event ≥ 0.01 gs but < 0.1 gs has occurred 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Loss of Condenser Vacuum:</u> The loss of condenser vacuum begins 240 seconds after the earthquake.</p>	<ul style="list-style-type: none"> Crew recognizes elevated condenser in-leakage and degrading vacuum by: <ul style="list-style-type: none"> ⇒ Lowering Main Gen MWe ⇒ OHA A4-F3 "OFFGAS RECOMB PNL 00C327" ⇒ RM11 9AX343 Offgas Flow alarm ⇒ CRIDS A9343 "OFFGAS TREATMENT DISCHARGE FLOW" rising ⇒ Various Main Condenser vacuum indications degrading 	
	<ul style="list-style-type: none"> CRS implements AB.BOP-0006: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition G 	
	<ul style="list-style-type: none"> CRS enters 	
	<ul style="list-style-type: none"> RO/PO verifies automatic actions. <ul style="list-style-type: none"> ⇒ Reactor Feed Pump Trip 10" Hg ABS ⇒ MSIV Closure 21.5" Hg ABS ⇒ Bypass Valve Closure 22.9" Hg ABS 	
	<ul style="list-style-type: none"> CRS directs level control with HPCI/CRD/SBLC as necessary IAW HC.OP-EO-0101 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS directs pressure control with SRVs IAW HC.OP-EO-0101 	
<p>LOCA: The LOCA begins 540 seconds after the earthquake.</p> <p>ADJUST severity/ramp rate of Malfunction RR31A2 as necessary to ensure SC Pressure exceeds PSP curve limitations.</p>	<ul style="list-style-type: none"> Crew recognizes LOCA condition: <ul style="list-style-type: none"> ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" 	
	<ul style="list-style-type: none"> Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ Various drywell pressure indications. ⇒ Various system initiations and isolations. 	
	<ul style="list-style-type: none"> CRS enters EOP-102, re-enters EOP-101. 	
	<ul style="list-style-type: none"> RO/PO verifies automatic actions. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Failure of Primary Containment Penetration to Isolate:</u></p> <p>The failure of the penetration to isolate is already inserted. The HV-2553 will not isolate due to the loss of 10D420 and the 10A402 bus. The HV-2554 valve auto closure is failed. The HV-2554 can be closed from the Control Room.</p>	<ul style="list-style-type: none"> Crew recognizes failure of HV-2554 to isolate from: <ul style="list-style-type: none"> ⇒ SPDS Primary Containment Isolation Valves screen ⇒ 10C650D Containment Isolation Valves indication ⇒ CRIDS Page 231 ⇒ Indication on 10C651A ⇒ Verification IAW AB.CONT-0001 Att. 3 or SO.SM-0001 	
	<ul style="list-style-type: none"> RO/PO closes HV-2554. 	Immediate Operator Action IAW AB.CONT-0002.
	<ul style="list-style-type: none"> Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators 	
	<ul style="list-style-type: none"> CRS re-enters EOP-102. 	
	<ul style="list-style-type: none"> CRS directs placing AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> RO/PO place AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3. 	
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>EOP-102 Primary Containment Control. Primary Containment Pressure Leg</p> <p>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.</p>	<ul style="list-style-type: none"> <u>WHEN</u> Suppression Chamber pressure exceeds 9.5 psig, <u>THEN</u> CRS directs initiating drywell spray. 	
	<ul style="list-style-type: none"> RO/PO place AP202 RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2. 	BP202 is not available due to 10D420 failure.
	<ul style="list-style-type: none"> Crew recognizes failure of HV-F021A by: <ul style="list-style-type: none"> ⇒ OHA A6-B1 "RHR LOOP A TROUBLE" ⇒ Flashing OVLD/PWR FAIL ⇒ Loss of position indication ⇒ No indication of drywell spray flow ⇒ CRIDS D4465 "RHR CONT SPY OUTBD HV-F021A OFF" 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>IF</u> dispatched to investigate trip of HV-F021A breaker, <u>THEN REPORT</u> the breaker is tripped and will not reset.	<ul style="list-style-type: none"> Crew dispatches NEO and Maintenance to breaker for HV-F021A (52-451062). 	
	<ul style="list-style-type: none"> Crew recognizes containment not performing properly by: <ul style="list-style-type: none"> ⇒ Suppression Chamber pressure approaching Action Required area of PSP curve ⇒ Suppression Chamber airspace temperature significantly above water temperature ⇒ Drywell Pressure response 	
<u>IF</u> necessary, <u>THEN REDUCE</u> the severity on malfunction rr31a2 to raise Supp Pool pressure, and/or to maintain RPV level >-185".	<ul style="list-style-type: none"> <u>WHEN</u> the Crew determines Suppression Chamber pressure cannot be maintained below the Action Required region of the PSP curve; <u>THEN</u> the CRS directs implementation of EOP-202 to Emergency Depressurize. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>For non-ATWS emergency depressurizations, the Control Room Supervisor should establish and maintain an RPV level band between -38" to +54" on Wide Range indication. This transient level band will prevent adverse hydraulic effects caused by high outside shroud reactor level while maintaining adequate core submergence based on Fuel Zone indication. Following the emergency depressurization, level will be restored and maintained to the preferred EOP reactor level band by using a suggested Wide Range compensated level band of +12.5" to +54" if possible using Condensate and Startup Level Control or the Control Room Supervisor can maintain an RPV level band of -38" to +54" if still batch feeding with low pressure ECCS to maintain RPV level.</p>	<ul style="list-style-type: none"> Crew prevents injection from Core Spray and LPCI pumps not required for adequate core cooling. 	
	<ul style="list-style-type: none"> RO/PO open ADS valves IAW AB.ZZ-0001 Attachment 13. 	
	<p>* <i>Crew directs Emergency Depressurization in accordance with EOP-202 when Suppression Chamber pressure reaches the Action Required region of the PSP curve.</i></p> <p>NOTE: Preventing entry into the Action Required Region of the PSP curve satisfies this critical task.</p>	
	<ul style="list-style-type: none"> CRS directs restoring PCIG to SRVs. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Termination Requirement:</u> The scenario may be terminated at the discretion of the Lead Examiner when:</p> <ol style="list-style-type: none">1. RPV level is being maintained above -129"2. The reactor has been Emergency Depressurized	<ul style="list-style-type: none">• RO/PO restores PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	

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-SO.AE-0001 Feedwater System Operation**
- Q. **HC.OP-SO.SF-0003 Rod Worth Minimizer Operation**
- R. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- S. **HC.OP-AB.CONT-0002 Primary Containment**
- T. **HC.OP-AB.BOP-0001 Feedwater Heating**
- U. **HC.OP-AB.MISC-0001 Acts of Nature**
HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator
- V. **Malfunction**
- W. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**
- X. **HC.OP-AB.ZZ-0150 125 VDC Malfunction**
- Y. **HC.OP-AB.ZZ-0171 Loss of 4.16 KV Bus 10A402 B Channel**
- Z. **HC.OP-AB.ZZ-000 Reactor Scram**
- AA. **HC.OP-EO.ZZ-0101 RPV Control**
- BB. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- CC. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
- DD. **HC.OP-EO.ZZ-0322 Core Spray Injection Valve Override**
- EE. Strategies For Successful Transient Mitigation

VII. ESG CRITICAL TASK RATIONAL

ESG-2018 NRC-1/ 1

1.

- * **Crew restores/maintains the Core Thermal Power 5 Minute Average to ≤ 3848 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 6B 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 3848 MWth 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.

- * **Crew directs Emergency Depressurization in accordance with EOP-202 when: Suppression Chamber pressure reaches the Action Required region of the PSP curve.**

K/A 295024 High Drywell Pressure

EA2 Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE:

EA2.04 Suppression chamber pressure RO 3.9 SRO 3.9

K/A 223001 Primary Containment Systems and Auxiliaries

A2. Ability to (a) predict the impacts of the following on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:

A2.02 Steam bypass of the suppressions pool RO 3.9 SRO 4.1

If suppression chamber pressure cannot be maintained below the pressure suppression pressure (PSP), EOPs direct actions to emergency depressurize the reactor. A LOCA condition while in the action required region of the Pressure Suppression Pressure curve could cause design containment limits to be exceeded. Preventing entry into the Action Required Region of the PSP curve satisfies this critical task.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

<u>Y/N</u>	<u>EVENT</u>	<u>Y/N</u>	<u>EVENT</u>
<input type="checkbox"/>	Loss Of Offsite Power/SBO	<input type="checkbox"/>	Internal Flooding
<input checked="" type="checkbox"/> Y	LOCA		
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<input type="checkbox"/>	Turbine Trip	<input type="checkbox"/>	Loss of SSW
<input checked="" type="checkbox"/> Y	Loss of Condenser Vacuum	<input type="checkbox"/>	Loss of SACS
<input checked="" type="checkbox"/> Y	Loss of Feedwater		
<input type="checkbox"/>	Manual Scram		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<input type="checkbox"/>	Manual Depressurization of the RPV w/ no HP Injection Available
<input type="checkbox"/>	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
<input type="checkbox"/>	Control RPV Water Level w/ HP Injection during ATWS Sequence
<input type="checkbox"/>	Align Portable Power Supply to Battery Chargers
<input type="checkbox"/>	Venting of Primary Containment
<input type="checkbox"/>	Restore Switchgear Cooling
<input type="checkbox"/>	Restart Condensate
<input type="checkbox"/>	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-2018 NRC-1

SELF-CHECK

- _____ 1. Abnormal Events: 2-4
- _____ 2. Major Transients: 1-2
- _____ 3. EOPs entered/requiring substantive actions (1-2).
- _____ 4. Malfunctions after EOP entry (1-2).
- _____ 5. Entry into contingency EOP requiring substantive actions (0-2)(>1 per set)
- _____ 6. Preidentified Critical Tasks (2-3)

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)

Crew Validation Rev.: 0 Date Validated: 9/26/2017

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Minor editorial comments.	1. Comments incorporated.

Crew Validation Rev.: 1 Date Validated: 1/11/2018

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Comments from NRC validation.	1. Comments incorporated.

IX. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL:

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

100% power.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

Swap SACS Pumps, DP210 running and BP210 in standby IAW HC.OP-SO.EG-0001, to support scheduled maintenance to start next shift.

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY ____ OF ____

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2018 NRC-2**SCENARIO NUMBER:** ESG-2018 NRC-2**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 1 Hour**REVISION NUMBER:** 1

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

REVISION SUMMARY:

1. Minor editorial comments made from validation.

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 Reactor Power with Recirculation System
- B. Recirculation Pump Runaway
- C. Failure of RRCS Level Transmitter
- D. Trip of a Fuel Pool Cooling Pump
- E. Fuel Cladding/MSIV Isolation
- F. Rod Bounce (LP ATWS)
- G. Loss of Condensate/Feedwater
- H. RCIC Failure To Auto Start
- I. HPCI Steam Leak

III. SCENARIO SUMMARY:

The scenario begins with the plant at 95% power with power ascension in progress. A Recirculation Pump runaway will occur during power ascension. The crew will need to lower power to less than the pre-transient power level. After actions have been taken for the power excursion a RRCS Level Transmitter failure will require Technical Specifications to be addressed. Then the in service FPCCU Pump will trip. The standby pump can be placed in service. The elevated and unbalanced recirculation flow will result in Fuel Cladding Failure. The Fuel Cladding Failure will require a manual scram and MSIV isolation. A few Control Rods will not fully insert on the scram. This will require manual insertion of Control Rods to shutdown the Reactor. Following the scram the Condensate System will isolate. The RCIC injection valve will fail to open on system startup. The crew will be able manually open the valve and inject with RCIC as necessary. When the MSIVs are closed and/or HPCI is initiated, a steam line leak in the HPCI room will develop as a result. Operator action will be required to isolate the steam leak.

IV. INITIAL CONDITIONS:

I.C.

Initial

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

LOWER power to 95% using Recirculation Pump speed.

STABILIZE Xenon concentration.

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

Initial

PREPARE a Fire Computer Alarm for FA015.

PREPARE a REMA to support power rise from 95% to 100% power.

MARKUP HC.OP-IO.ZZ-0006 to support power ascension.

ENSURE FPC Pump AP211 is in service.

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

COMPLETE the Simulator Ready for Training/Examination Checklist.

EVENT FILE:

<i>Initial</i>	<i>Event</i>		
	1	Event Code: Description:	STR086_V >= 81 & ZDRRS621(5) RR A DMD >=81% and INC PB
	6	Event Code: Description:	crqnm1 <= 25 Reactor Power <=25%
	7	Event Code: Description:	crafp >= 1000000 Fuel Cladding Failure inserted
	8	Event Code: Description:	msvf022(1) <= 0.0 msvf028(1) <= 0.0 MSL A isolated
	9	Event Code: Description:	msvf022(2) <= 0.0 msvf028(2) <= 0.0 MSL B isolated
	10	Event Code: Description:	msvf022(3) <= 0.0 msvf028(3) <= 0.0 MSL C isolated
	11	Event Code: Description:	msvf022(4) <= 0.0 msvf028(4) <= 0.0 MSL D isolated
	12	Event Code: Description:	msvfdrn1(1) <= 0.0 msvfdrn1(2) <= 0.0 F016 or F019 shut

EVENT FILE:

<i>Initial</i>	<i>Event</i>		
	13	Event Code: Description:	crqnm1 <= 7 Reactor Power <=7%
	17	Event Code: Description:	et_array(8) >= 1.0 & et_array(12) >= 1.0 Removes high radiation from MSL A
	18	Event Code: Description:	et_array(9) >= 1.0 & et_array(12) >= 1.0 Removes high radiation from MSL B
	19	Event Code: Description:	et_array(10) >= 1.0 & et_array(12) >= 1.0 Removes high radiation from MSL C
	20	Event Code: Description:	et_array(11) >= 1.0 & et_array(12) >= 1.0 Removes high radiation from MSL D
	23	Event Code: Description:	D2015_V Main Turb Tripped
	26	Event Code: Description:	A3015_V >= 315 CRD Drive Pressure >= 315 psig

MALFUNCTION SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction HP10	HPCI steam isolation valves F002 & F003 failure to auto close
	None	None	Insert malfunction RC13	RCIC valves F013 failure to auto open
	None	None	Insert malfunction CD19A	Control rod bounce (2 - 4 rods)
	None	None	Insert malfunction CD033851	Control Rod 38-51 stuck
	None	None	Insert malfunction RZ01B to 60.00000 on event 2	RRCS Level Transmitter LT-N402B Failure
	None	None	Insert malfunction CW07A on event 3	Fuel pool cooling pump AP211 trip
	None	None	Insert malfunction CR01 to 30.00000 in 300 on event 4	Fuel cladding leak
	None	None	Insert malfunction HP09 to 15.00000 in 600 on event 5	HPCI Room steam leak
	None	None	Insert malfunction AN-A2A5 after 105 on event 5	CRYWOLF ANN A2A5-FIRE PROT PANEL 10C671
	None	None	Insert malfunction CR01 to 30.00000 in 180 on event 6	Fuel cladding leak
	None	None	Insert malfunction RM9509 to 113.00000** in 720 on event 7	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 to 122.00000** in 720 on event 7	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 to 112.00000** in 720 on event 7	9RX511, MSL 'C' - Main Steam Line Chan C
	None	None	Insert malfunction RM9512 to 122.00000** in 720 on event 7	9RX512, MSL 'D' - Main Steam Line Chan D
	None	None	Insert malfunction RM9509 to 142.00000 in 180 on event 13	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 to 137.00000 in 180 on event 13	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 to 133.00000 in 180 on event 13	9RX511, MSL 'C' - Main Steam Line Chan C
	None	None	Insert malfunction RM9512 to 141.00000 in 180 on event 13	9RX512, MSL 'D' - Main Steam Line Chan D
	None	None	Insert malfunction RM9509 to 19.00000 in 60 on event 17	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 to 19.00000 in 60 on event 18	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 to 15.00000 in 60 on event 19	9RX511, MSL 'C' - Main Steam Line Chan C

MALFUNCTION SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction RM9512 to 18.00000 in 60 on event 20	9RX512, MSL 'D' - Main Steam Line Chan D
	None	None	Insert malfunction FW30A on event 23	Heater 2A hi level switch failure
	None	None	Insert malfunction FW30B on event 23	Heater 2B hi level switch failure
	None	None	Insert malfunction FW30C on event 23	Heater 2C hi level switch failure
	None	None	Insert malfunction CD033851 on event 26 delete in 1	Control Rod 38-51 stuck

REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote HV06 to STOP on event 25	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 25	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 25	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 25	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 3 to STOP on event 25	HV02 RBVS Exhaust fan B
	None	None	Insert remote HV01 after 3 to STOP on event 25	HV01 RBVS Exhaust fan A

OVERRIDE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert override 5A159_C_DI to Off	HV-1625 OPEN-BYPASS HEATERS 1&2 DRN CLEAR (DI)
	None	None	Insert override 5A159_D_DI to Off	HV-1625 RAISE-BYPASS HEATERS 1&2 DRN CLEAR (DI)
	None	None	Insert override 3A28_C_DI to On on event 1	SIC-R621A RAISE-RECIRC PUMP A (DI)

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>Raise Reactor Power With Recirculation Flow</u>	<ul style="list-style-type: none"> CRS directs power ascension IAW HC.OP-IO-0006 and REMA. 	
	<ul style="list-style-type: none"> RO raises Total Core Flow using Recirculation Pumps A and B IAW REMA and HC.OP-SO.BB-0002. 	
<u>Reactor Recirculation Pump Runaway:</u> The runaway will occur automatically during the power ascension, OR at the discretion of the Lead Examiner, TRIGGER ET-1.	<ul style="list-style-type: none"> Crew recognizes 'A' Reactor Recirculation pump runaway by: <ul style="list-style-type: none"> ⇒ OHA C1-A5 "COMPUTER POINT IN ALARM" ⇒ Reactor power >100% ⇒ CRIDS D2899 "RECIRC MG A SPEED CONTROL SIG FAIL" ⇒ CRIDS D2930 "RECIRC MG A DRIVE TUBE LOCK TRBL" ⇒ SIC-R621A SPEED DEMND and SPEED Upscale ⇒ 10C650C Recirc and Jet pump indications 	
	<ul style="list-style-type: none"> RO performs the following: <ul style="list-style-type: none"> ⇒ Presses SCOOP TUBE TRIP for 'A' Recirc Pump ⇒ Reduces 'B' Recirc Pump speed to reduce power to pre-transient value. 	Immediate Operator Action IAW AB.RPV-0001.
	<p>* Crew reduces power to ≤3848 MWt as indicated by the PPC 5 minute average following the Recirc Pump runaway.</p>	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS implements AB.RPV-0001: ⇒ Condition F 	
SUPPORT requests for local operation of 'A' Recirc MG scoop tube using Remote Function RR09.	<ul style="list-style-type: none"> Crew checks Recirc Loop Flow mismatch IAW ST.BB-0001. 	
SUPPORT requests for local control of Recirc MG Oil Temperatures. ADJUST Remotes CW15 and CW16 as necessary.	<ul style="list-style-type: none"> Crew ensures Recirc MG Oil Temperatures are maintained in the normal band. 	
	<ul style="list-style-type: none"> Crew Monitors Offgas Pretreatment AND Main Steam Line Radiation Monitors for indications of Fuel Damage. 	
<u>IF</u> called as RE to determine maximum thermal power reached, THEN REPORT thermal power peaked at 103.6% (3960 MWth).	<ul style="list-style-type: none"> Crew determines peak thermal power during the transient. 	
	<ul style="list-style-type: none"> CRS recognizes the following Tech Specs/actions apply: ⇒ 3.4.1.3 Recirculation Loop Flow 	Must restore recirc loop flow mismatch within two hours or declare the B loop inoperable.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Failure of RRCS Level Transmitter</u></p> <p>After Technical Specifications have been addressed, or at the Lead Examiners discretion, TRIGGER ET 2.</p>	<ul style="list-style-type: none"> Crew recognizes failure of RRCS transmitter by: <ul style="list-style-type: none"> ⇒ OHA D1-E1, RRCS TROUBLE ⇒ Logic B, RRCS LOGIC A TRBL warning light 10C651D ⇒ CRIDS A3549 (N402B) reading 60 inches 	
<p><u>IF</u> dispatched to RRCS, THEN REPORT there is an "ATM CAL/GROSS FAILURE" light lit on 10C602 and LT-N402B is reading 60 inches.</p> <p><u>IF</u> dispatched to transmitter at instrument rack C004, THEN REPORT no visible problem at instrument rack.</p>	<ul style="list-style-type: none"> Crew dispatches ABEO and/or Maintenance to RRCS cabinets 10C601/602. 	
	<ul style="list-style-type: none"> CRS recognizes the following Tech Specs/actions apply: <ul style="list-style-type: none"> ⇒ ATWS Recirculation Pump Trip System Instrumentation 3.3.4.1 action b OR action d. 	<p>Place the inoperable channel in a tripped condition within one hour, OR</p> <p>Declare one system inop and restore to operable status within 72 hours.</p>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Trip of Fuel Pool Cooling Pump</u></p> <p>After Technical Specifications have been addressed, or at the Lead Examiners discretion, TRIGGER ET 3.</p>	<ul style="list-style-type: none"> Crew recognizes loss of AP211 by: <ul style="list-style-type: none"> ⇒ OHA D1-D5 "FUEL POOL COOLING SYS TROUBLE" ⇒ OHA D1-A4 "BOP SAFETY SYS OUT OF SVCE" ⇒ CRIDS D3830 "FUEL POOL COOLING PUMP AP211 TRBL" ⇒ CRIDS D4679 "FUEL POOL CLG OUT OF SERVICE" 	
	<ul style="list-style-type: none"> CRS implements AB.COOL-0004: <ul style="list-style-type: none"> ⇒ Condition I 	
<p><u>IF</u> dispatched, <u>THEN REPORT:</u></p> <ul style="list-style-type: none"> Thermal Overload trip of Breaker for AP211 (52-212103). No abnormal indications observed through viewing window. <p>DELAY request for local operation of placing F/D 00F311 in service.</p>	<ul style="list-style-type: none"> PO performs the following in accordance with OP-AB.COOL-4: <ol style="list-style-type: none"> ENSURE Skimmer Surge Tank > 22". OPEN 1-EC-HV-4689A(B), FILTER DEMIN BYPASS VALVE. CLOSE 1-EC-HV-4689B(A), FILTER DEMIN BYPASS VALVE. CLOSE either 1-EC-HV-4676A OR 1-EC-HV-4676B, F/D INL ISLN. START one Fuel Pool Cooling Pump BP211. Contacts Radwaste Operator to PLACE the FPCC Filter Demin in service (EC). 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Fuel Cladding Failure:</p> <p>After actions have been taken for the FPC Pump failure, <u>OR</u>, at the Lead Examiners discretion, TRIGGER ET-4 (Fuel cladding failure).</p>	<ul style="list-style-type: none"> Crew recognizes fuel clad damage by: <ul style="list-style-type: none"> ⇒ RM11 9RX621/622 Offgas Pretreatment Alarms ⇒ OHA C6-A3 "MN STM LINE RADIATION HI" ⇒ RM11 9RX509/510/511/512 Alert alarms and readings ⇒ CRIDS Page 37 MSL Radiation readings 	<p><u>IF</u> the Crew scrams during the Recirc Runaway, <u>THEN</u> the Fuel Failure will automatically be inserted.</p> <p>MSL Radiation levels will reach 3xNFPB approximately 10 minutes after the failure begins.</p>
	<ul style="list-style-type: none"> CRS implements AB.RPV-0008: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition B ⇒ Condition C 	<p>If the plant is shutdown, Condition B actions are not applicable.</p>
	<ul style="list-style-type: none"> CRS implements AB.RPV-0001: <ul style="list-style-type: none"> ⇒ Condition B 	<p>If the plant is shutdown, actions are not applicable.</p>
	<ul style="list-style-type: none"> CRS implements AB.RPV-0003: <ul style="list-style-type: none"> ⇒ Condition B 	<p>If the plant is shutdown, actions are not applicable.</p>
	<ul style="list-style-type: none"> RO reduces power IAW Standard Power Reduction Instructions to reduce Reactor power as necessary to clear MN STM LINE RADIATION HI alarm. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • Crew recognizes HI-HI MSL Radiation levels by: <ul style="list-style-type: none"> ⇒ OHA C6-B2 "MN STM LINE RAD HI HI OR INOP" ⇒ RM11 9RX509/510/511/512 High alarms ⇒ CRIDS Page 37 MSL Radiation readings 	
	<ul style="list-style-type: none"> • CRS directs: <ul style="list-style-type: none"> ⇒ Locking the Mode Switch in SHUTDOWN ⇒ Closing MSIVs, HV-F016 and HV-F019 steam line drains. 	<p>CRS may direct action before reaching required HI-HI condition.</p> <p>IAW RETAINMENT OVERRIDE of HC.OP-AB.RPV-0008.</p>
	<ul style="list-style-type: none"> • RO locks the Mode Switch in SHUTDOWN. 	
	<ul style="list-style-type: none"> • RO performs scram actions IAW AB.ZZ-0001 Attachment 1. 	
	<ul style="list-style-type: none"> • CRS enters EOP-101 RPV Water Level is <12.5 inches and directs actions to control RPV Water Level and Pressure IAW EOP-101. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</p> <p>Pressure Leg Direct initial band of 800-1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and does not challenge RPV cooldown limits. 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. As pressure decays pressure bands should be adjusted to accommodate for this decay. Maintain an RPV level band of +30" to -30" when depressurizing with SRVs and maintaining RPV level with HPCI/RCIC. With RPS not reset, it is not necessary to announce every 12.5" RPV level re-entry condition when maintaining this RPV level band. Note 3 on EOP-101 provides the guidance for using this band and re-entry into EOP-101 is not necessary each time 12.5" RPV level is reached since EOP-101 steps RC/L- 5 and RC/L- 6 are being used to continually assess if RPV can be maintained above -129" while in the RPV level band. When the swell can be sustained without causing a Level 8 trip with an SRV open, maintain RPV level by establishing an injection rate of 1500 gpm to 2000 gpm (.75 to 1 Mlbs/hr) · Close the SRV's at the high end of the level band and allow injection to turn level following the shrink. Reduce injection flow to that necessary to maintain pressure in the new band and if necessary slowly raise water level back into preferred RPV level band. This minimizes the reactor pressure drop due to "overfeeding."</p>	<ul style="list-style-type: none"> • PO controls level as directed by CRS with: <ul style="list-style-type: none"> ⇒ Feedwater IAW AB.ZZ-0001 Attachment 14 ⇒ HPCI/RCIC IAW AB.ZZ-0001 Attachment 6 	
<p>ENSURE MSL Radiation Malfunctions RM9509-RM9512 ramp down to <20 when the Main Steam Lines <u>AND</u> drain lines are isolated.</p>	<ul style="list-style-type: none"> • RO/PO close MSIVs, HV-F016 and HV-F019 steam line drains. (Note: HV-F019 should already be closed.) 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>* <i>The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line when MSL radiation reaches the Hi-Hi setpoint.</i></p> <p>(Note: Closure of HV-F016 is not critical since HV-F019 is already closed.)</p>	The Critical Task is satisfied as long as all lines are isolated. For instance, closing the inboard MSIV, but <u>NOT</u> the outboard MSIV satisfies isolation of the steam line.
	<ul style="list-style-type: none"> • <u>IF</u> directed by the CRS, <u>THEN</u> RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3. 	
<p><u>Control Rods NOT Fully Inserted:</u></p> <p>2-4 control rods will bounce to 02 and one control rod is stuck at 48.</p>	<ul style="list-style-type: none"> • Crew recognizes Reactor is NOT shutdown by: <ul style="list-style-type: none"> ⇒ CRIDS page 249/OD-7 ⇒ RWM, NOT SHUTDOWN indication 	
	<ul style="list-style-type: none"> • CRS exits EOP-101, and enters EOP-101A, ATWS-RPV CONTROL 	
	<ul style="list-style-type: none"> • CRS directs inhibiting ADS 	
	<ul style="list-style-type: none"> • PO inhibits ADS IAW HC.OP-AB.ZZ-0001: <ul style="list-style-type: none"> ⇒ Inserts key then positions Channel B ADS actuation timer manual inhibit switch to INHB. ⇒ Inserts key then positions Channel B ADS actuation timer manual inhibit switch to INHB. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Note: CRS may order bypassing ARI/RPS and the scram to be reset IAW HC.OP-EO.ZZ-0320. INSERT Remotes EP09 through EP14 in 8 minutes, THEN report EOP-320 field actions complete.	<ul style="list-style-type: none"> CRS directs manual rod insertion by bypassing the RWM and manually inserting Control Rods per AB.ZZ-0001. 	
	<ul style="list-style-type: none"> RO aligns CRD for rod insertion IAW AB.ZZ-0001: <ul style="list-style-type: none"> ⇒ ENSURE FIC 600 is in MANUAL. ⇒ ADJUST AND MAINTAIN Drive Water D/P between 260-450 psid by throttling HV-F003 AND adjusting FIC 600. ⇒ IF required, BYPASS the RWM to insert Control Rods. 	
<u>IF</u> RO raises Drive Pressure to ≥ 315 psig, <u>OR</u> HV-F003 is full closed and Drive Pressure has been maximized, with the Lead Examiner's permission, ENSURE Malfunction CD033851 is deleted.	<ul style="list-style-type: none"> RO inserts control rods to shutdown the reactor under all conditions and reports condition to the CRS. 	
DELETE Malfunction CD033851 <u>IF</u> HC.OP-EO.ZZ-0320 is implemented (scram has been reset).	<ul style="list-style-type: none"> * CREW inserts control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320 to achieve Shutdown Under All Conditions Without Boron. 	
	<ul style="list-style-type: none"> CRS exits EOP-101A, and enters EOP-101. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Loss of Condensate/Feedwater:</u> The 1&2 Feedwater heaters will isolate shortly after the scram. ENSURE ET-23 activates.</p>	<ul style="list-style-type: none"> • Crew recognizes 1&2 FWH trip by: <ul style="list-style-type: none"> ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ Flashing HTR TRIP lights for FWH #2A/B/C ⇒ Condensate Inlet and Outlet valves stroking shut for FWH 1&2A/B/C. 	
	<ul style="list-style-type: none"> • PO attempts to open 1&2 FWHs bypass IAW AB.ZZ-0001 Att. 14. 	
	<ul style="list-style-type: none"> • PO informs CRS of inability to inject with condensate. 	
	<ul style="list-style-type: none"> • CRS directs level control with RCIC and CRD. 	
	<ul style="list-style-type: none"> • RO/PO control level as directed by CRS with: <ul style="list-style-type: none"> ⇒ CRD IAW AB.ZZ-0001 Att.6 ⇒ RCIC IAW AB.ZZ-0001 Att 6 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>RCIC Failure To Auto Initiate:</u>	<p>PO attempts to start RCIC IAW AB.ZZ-0001 Att 6, ⇒ ARM, THEN PRESS RCIC MAN INIT PB. and observes that RCIC does not auto-start, and informs CRS.</p>	
	<p>PO manually starts RCIC IAW AB.ZZ-0001 Att 6, and injects into the RPV with RCIC:</p> <p>⇒ IF system initiation does NOT occur, THEN MANUALLY START the system as follows:</p> <ul style="list-style-type: none"> • ENSURE OP219 RCIC VACUUM PUMP is running. • ENSURE BD-HV-F046 is OPEN. • SIMULTANEOUSLY PERFORM the following: <ul style="list-style-type: none"> ▪ PRESS AND HOLD FC-HV-F045 OPEN PB UNTIL FC-HV-F045 is OPEN. ▪ OPEN BD-HV-F013. • ADJUST FIC-R600 setpoint, as necessary, to achieve desired flow. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Steam Leak in the HPCI Room: AFTER the Crew shuts the MSIVs AND places HPCI in service, OR, at the Lead Examiners discretion, TRIGGER ET-5 AND PROVIDE Fire Computer indication of point FA015 (Fire Computer point may be provided by Examiner <u>or</u> by Fire Computer Simulation).</p>	<ul style="list-style-type: none"> Crew recognizes a steam line break in the HPCI room by: <ul style="list-style-type: none"> ⇒ OHA B1-A5 "HPCI STEAM LINE DIFF PRESSURE HI" ⇒ OHA A2-A5 "FIRE PROT PANEL 10C671" ⇒ Fire Comp Pt FA015 "RM 4111 HPCI PUMP AND TURBINE ROOM" ⇒ OHA B1-A4 "HPCI TURBINE TRIP" ⇒ OHA D3-A1 "HPCI/RHR A AREA LEAK TEMP HI" ⇒ Offsite release rate trending up ⇒ HPCI room temperature trending up (Rm 4111) ⇒ ISLN INIT status lights ⇒ Turbine Inlet Pressure on PI-R602. 	<p>B1-A4 will only be received if HPCI is in service. D3-A1 will not be received if the leak is isolated promptly.</p>
	<ul style="list-style-type: none"> Crew recognizes failure of HPCI to automatically isolate by: <ul style="list-style-type: none"> ⇒ HV-F002/F003 valve position ⇒ HPCI room temperature trending up (Rm 4111) 	
	<ul style="list-style-type: none"> RO/PO closes HV-F002 and HV-F003 using Control Room keylock switches. 	<p>Immediate Operator Action IAW AB.CONT-0002.</p>
	<p>* Crew isolates the steam leak in the HPCI room by placing the HV-F002 OR HV-F003 keylock switch in CLOSE.</p>	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS implements AB.CONT-0002: ⇒ Condition A 	Valve will stall at 25% open and closure will be delayed until HPCI Room temperature reaches 200F.
	<ul style="list-style-type: none"> <u>IF</u> RBVS Exhaust reaches 5E-4 UCI, <u>OR</u> Reactor Bldg ARMs alarm, <u>OR</u> HPCI room temperature (Rm 4111) exceeds 115F, <u>THEN</u> CRS implements EOP-103. 	
	<ul style="list-style-type: none"> CRS directs placing FRVS in service if not already running. 	May already be in service if RPV LVL 2, <u>OR</u> RBVS Exhaust High Radiation was reached.
<u>IF</u> directed to remove RBVS from service, <u>THEN REFER</u> to SO.GU-0001 <u>AND TRIGGER ET-25.</u>	<ul style="list-style-type: none"> RO/PO places FRVS in service IAW OP-AB.ZZ-0001 Attach 20 <u>OR</u> SO.GU-0001 Section 5.3. 	
	<ul style="list-style-type: none"> <u>IF</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833 alarm ⇒ Various Suppression Pool temperature indicators 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • IF Suppression Pool temperature reaches 95 degrees, <u>THEN</u> the CRS implements EOP-102. 	
	<ul style="list-style-type: none"> • IF directed by the CRS, <u>THEN</u> RO/PO place additional RHR pump in Suppression Pool Cooling IAW AB.ZZ-0001 Att. 3. 	
<p><u>Termination Requirement:</u></p> <p>The scenario may be terminated at the discretion of the Lead Examiner when: The HPCI steam leak is isolated RPV pressure and level are being controlled with the MSIVs shut FRVS is in service (IF SPV Effluent RMS is alarming)</p>		

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-SO.BB-0002 Reactor Recirculation System Operation**
- Q. **HC.OP-SO.GU-0001 Filtration, Recirculation, and Ventilation System Operation**
- R. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- S. **HC.OP-AB.COOL-0004, Fuel Pool Cooling**
- T. **HC.OP-AB.RPV-0001 Reactor Power**
- U. **HC.OP-AB.RPV-0003 Recirculation System**
- V. **HC.OP-AB.RPV-0008 Reactor Coolant Activity**
- W. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
- X. **HC.OP-AB.BOP-0002 Main Turbine**
- Y. **HC.OP-AB.ZZ-000 Reactor Scram**
- Z. **HC.OP-EO.ZZ-0101 RPV Control**
- AA. **HC.OP-EO.ZZ-0101A ATWS-RPV Control**
- BB. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- CC. **HC.OP-EO.ZZ-0103 Reactor Building Control**
- DD. **HC.OP-ST.BB-0001 Jet Pump Operability - Daily**
- EE. Strategies For Successful Transient Mitigation

VII. ESG CRITICAL TASK RATIONAL

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1.

- * ***Crew reduces power to ≤ 3848 MWt as indicated by the PPC 5 minute average following the Recirc Pump runaway.***

K/A 2.4.49 Conduct of Operations

Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. RO: 4.0 SRO: 4.0

K/A 295014 Inadvertent Reactivity Addition

AA1 Ability to operate and/or monitor the following as they apply to Inadvertent Reactivity Addition:

AA1.02 Recirculation Flow Control System RO: 3.8 SRO: 3.8

The 'A' Reactor Recirculation Pump runaway results in the reactor power exceeding the licensed limit. Without operator action, power will stabilize at or slightly above 100.5%. Per HC.OP-IO.ZZ-0006, Intentional operation above the Licensed Power Limit is not permitted. "Intentional operation" occurs when the Operating Shift has sufficient information to recognize that Core Thermal Power exceeds the Licensed Power Limit (taking into account normal variation around the nominal value) and does not initiate prompt action to reduce Core Thermal Power below the Licensed Power Limit. This exceeds the 100% power limitation of 3840 MWth specified in Technical Specification 2.C. Operator action is required to Immediately restore reactor power to within licensed limits by reducing the NON-affected Reactor Recirc Pump Speed to Reduce Power to Pre-Transient value per HC.OP-AB.RPV-0001. Normal variation is defined as ± 8 MWt around the nominal value and is derived from historical data. The PPC 5 minute average is used to determine when Core Thermal Power is above the nominal value by more than this normal variation.

2.

- * ***The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line when MSL radiation reaches the Hi-Hi setpoint.***

K/A 239001 Main Steam and Reheat Steam System

A2 Ability to (a) predict the impacts of the following on the MAIN AND REHEAT STEAM SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.05 †Main steam line high radiation RO 3.9 SRO 4.2

One of the three conditions for approval of Tech Spec Amendment 54 was that we would have procedures to expeditiously control significant increases in MSL radioactivity to limit both occupational doses and environmental releases. To meet this requirement, AB.RPV-0008 directs scrambling the reactor and closing the MSIVs if a valid MSL Hi-Hi radiation condition exists. In order to accomplish isolation of the release, only one valve in each line need be closed. Isolating the lines BEFORE receiving the Hi-Hi alarms is a conservative action that also satisfies this Critical Task. Scramming prior to the fuel cladding failure and subsequently closing the MSIVs IAW the above requirements also satisfies this Critical Task.

VII. ESG CRITICAL TASK RATIONAL (continued)

3.

- * ***Crew isolates the steam leak in the HPCI room by placing the HV-F002 OR HV-F003 keylock switch in CLOSE.***

K/A 206000 High Pressure Coolant Injection System

A2 Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.10 System isolation RO 4.0 SRO 4.1

A3 Ability to monitor automatic operations of the HIGH PRESSURE COOLANT INJECTION SYSTEM including

A3.09 Response to system isolation RO 4.2 SRO 4.1

A4 Ability to manually operate and/or monitor in the control room:

A4.04 Major system valves RO 3.7 SRO 3.7

HPCI has failed to automatically isolate and can only be isolated by the Crew. This represents a bypass of both the RCS and Containment barriers. With indications of high steam flow, high room temperature, rising offsite releases, and an isolation signal to HPCI, the Crew should perform their Immediate Operator Actions IAW AB.CONT-0002 for a failure of a containment isolation valve to close. This action must be completed by the end of the scenario.

4.

- * ***CREW inserts control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320 to achieve Shutdown Under All Conditions Without Boron.***

K/A 295006 SCRAM

AA2. Ability to determine and/or interpret the following as they apply to SCRAM :

AA2.02 Control rod position RO 4.3 SRO 4.4

Manually inserting enough control rods to achieve Shutdown Under All Conditions Without Boron is critical to shut the reactor down. Failure to initiate these actions may result in the Reactor undergoing re-criticality. This represents a potentially significant challenge to maintaining adequate core cooling.

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HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

<u>Y/N</u>	<u>EVENT</u>	<u>Y/N</u>	<u>EVENT</u>
<input type="checkbox"/>	Loss Of Offsite Power/SBO	<input type="checkbox"/>	Internal Flooding
<input checked="" type="checkbox"/>	LOCA		
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<input type="checkbox"/>	Turbine Trip	<input type="checkbox"/>	Loss of SSW
<input type="checkbox"/>	Loss of Condenser Vacuum	<input type="checkbox"/>	Loss of SACS
<input type="checkbox"/>	Loss of Feedwater		
<input checked="" type="checkbox"/>	Manual Scram		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<input type="checkbox"/>	Manual Depressurization of the RPV w/ no HP Injection Available
<input type="checkbox"/>	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
<input type="checkbox"/>	Control RPV Water Level w/ HP Injection during ATWS Sequence
<input type="checkbox"/>	Align Portable Power Supply to Battery Chargers
<input type="checkbox"/>	Venting of Primary Containment
<input type="checkbox"/>	Restore Switchgear Cooling
<input type="checkbox"/>	Restart Condensate
<input type="checkbox"/>	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.

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SELF-CHECK

- _____ 1. Abnormal Events: 2-4
- _____ 2. Major Transients: 1-2
- _____ 3. EOPs entered/requiring substantive actions (1–2).
- _____ 4. Malfunctions after EOP entry (1-2).
- _____ 5. Entry into contingency EOP requiring substantive actions (0-2)(>1 per set)
- _____ 6. Preidentified Critical Tasks (2–3)

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)

Crew Validation Rev.: 0 Date Validated: 9/26/2017

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Minor editorial comments.	1. Comments incorporated.

Crew Validation Rev.: 1 Date Validated: 1/11/2018

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Comments from NRC validation.	1. Comments incorporated.

IX. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL:

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

95% power with power ascension in progress. Raise Reactor power to 100% in accordance with HC.OP-IO.ZZ-0006, and REMA.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY ____ OF ____

SIMULATOR

COPY _____ OF _____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2018 NRC-3**SCENARIO NUMBER:** ESG-2018 NRC-3**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 1 Hour**REVISION NUMBER:** 1

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

REVISION SUMMARY:

1. Minor editorial comments made from validation.

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. RWCU Pump Trip
- B. SRV Open/Closes
- C. Loss of 10D410 125VDC 1E Bus
- D. Main Turbine High Vibration
- E. Loss of Offsite Power
- F. EDG Failure to Auto-start
- G. LOCA
- H. Loss of RPV Level Indication

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. After Turnover, the B RWCU Pump will trip. After the crew has responded to the pump trip, a Safety Relief Valve will open. This will require a power reduction and attempts to close will be successful. After Technical Specifications have been addressed for the SRV failure, the 10D410 125VDC 1E bus will be lost due to a fault in the transfer switch. This will not cause a plant transient, however, it will cause a significant loss of Channel A equipment. After Tech Specs for the bus are addressed, the Main Turbine will develop high vibrations on the #7 bearing. The vibrations will be of such a magnitude that the reactor will have to be scrammed to support tripping the turbine. Post scram vibrations will require closing the MSIVs and breaking vacuum. Thrown turbine blades will cause a complete loss of vacuum. When the MSIVs are closed, a LOP/LOCA will occur. Due to the loss of the 10D410 bus, HPCI will not be available and RPV water level will lower until Emergency Depressurization is required. During the depressurization, RPV water level indication will be lost, and Reactor Flooding will be required. The scenario ends when adequate core cooling has been established IAW EOP-206.

IV. INITIAL CONDITIONS:

I.C.

Initial

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

ENSURE SACS Pump C is running, SACS Pump A in standby

ENSURE SSW Pump C is running, SSW Pump A in standby

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

ENSURE Data Collection is trending the following parameters:

- W/R Reactor Pressure
- W/R Reactor Water Level
- Fuel Zone Reactor Water Level

ENSURE Fire Computer loaded for LOP response.

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

COMPLETE the Simulator Ready for Training/Examination Checklist.

ENSURE Data Collection is trending the following parameters:

EVENT FILE:

<i>Initial</i>	<i>Event</i>		
	7	Event code: Description:	tc_trip tuvib(8) >= 12.5 Turbine tripped or vibration above the action level
	8	Event code: Description:	mcpmca >= 10 Main condenser pressure >= 10 psia
	9	Event code: Description:	rrprv <= 415 Reactor Pressure <= 400 psig
	16	Event code: Description:	ZDADS4(9) F013J OPEN PB

MALFUNCTION SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	None	None	Insert malfunction DG07B	Diesel generator B emergency start signal failure
	None	None	Insert malfunction CU01B on event 1	RWCU recirc pump BP221
	None	None	Insert malfunction AD02JO on event 15	ADS/Relief valve F013J (MS LINE A) sticks open
	None	None	Insert malfunction AD02JO on event 16 delete in 1	ADS/Relief valve F013J (MS LINE A) sticks open
	None	None	Insert malfunction ED11A on event 2	Loss of 125 VDC class 1E bus 10D410
	None	None	Insert malfunction TU1207 from 75.00000 to 100.00000 in 720 on event 3	Turbine bearing #7 high temperature
	None	None	Insert malfunction TU1507 from 6.00000 to 13.00000 in 720 on event 3	Turbine bearing #7 vibration high
	None	None	Insert malfunction MC01A after 180 on event 7	Complete Loss of Vacuum
	None	None	Insert malfunction EG12 on event 4	Loss of all off site power
	None	None	Insert malfunction RR31A2 to 3.00000 in 600 on event 4	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction CD09A after 90 to 75.00000 on event 6	Drive water flow control valve F002A failure
	None	None	Insert malfunction CD09B to 0 on event 6	Drive water flow control valve F002B failure
	None	None	Insert malfunction RR39B to 0 on event 9	LT-3622B PAMS Shutdown Range Failure
	None	None	Insert malfunction RR39C to 0 on event 9	PDT-N017 Upset Range Failure
	None	None	Insert malfunction FW29A to 0 on event 9	Feedwater level sensor N004A failure
	None	None	Insert malfunction FW29B after 60 to 60.00000 on event 9	Feedwater level sensor N004B failure
	None	None	Insert malfunction FW29C to 25.00000 in 60 on event 9	Feedwater level sensor N004C failure
	None	None	Insert malfunction RR20B to -150 on event 9	ECCS level transmitter N091B failure
	None	None	Insert malfunction RZ01B to 60.00000 on event 9	RRCS Level Transmitter LT-N402B Failure
	None	None	Insert malfunction RZ01F from -150 to -32 in 15 on event 9	RRCS Level Transmitter LT-N402F Failure
	None	None	Insert malfunction RR24B after 120 on event 9	Reactor level transmitter N085B fails low
	None	None	Insert malfunction TU1507 to 45.00000 in 180 on event 7	Turbine bearing #7 vibration high
	None	None	Insert malfunction TU1507 to 0 in 120 on event 8	Turbine bearing #7 vibration high

MALFUNCTION SCHEDULE:

	None	None	Insert malfunction RR31A2 to 50.00000 in 300 on event 9	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
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REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote CD04 to OPEN on event 5	CD04 CRD suction filter isolation valve V030
	None	None	Insert remote CD06 to 100.00000 in 60 on event 6	CD06 Drive water press cont bypass valve V062 (0-100%)
	None	None	Insert remote CD10 after 120 to ON on event 6	CD10 CRD FCV B
	None	None	Insert remote EP37 after 180 to BYPASS on event 10	EP37 EOP-323, Bypass BC-HV-F015B isolation interlocks

OVERRIDE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert override 8AR27_B_AO to 0 on event 9	REACTOR WATER LEVEL LR-3683B (AO)
	None	None	Insert override 8AR27_G_AO to -19 on event 9	REACTOR WATER LEVEL LR-3682B (AO)
	None	None	Insert override 8M13_B_AO to 0 on event 9	LEVEL LI-R605-B21 (AO)

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>RWCU Pump BP221 Trip:</u> After the Crew assumes the watch, and at the discretion of the Lead Examiner, TRIGGER ET-1 (Trip of BP221 RWCU Pump).</p>	<ul style="list-style-type: none"> RO/PO recognizes trip of BP221 RWCU Pump by: <ul style="list-style-type: none"> ⇒ OHA C1-C2 "RWCU SYSTEM TROUBLE" ⇒ CRIDS D5359 "RWCU PUMP BP221 MOTOR MALF" ⇒ Flashing STOP light for BP221 	
<p>Crew may decide to stop lowering flow when slightly greater than 160 gpm and wait for removal of a RWCU F/D.</p> <p>REPORT as Chemistry that they will be ready to remove a Filter Demineralizer in approximately 1 hour.</p> <p>Crew may terminate lowering RWCU flow once FD low flow CRIDS alarms are received, until one FD is removed from service.</p>	<ul style="list-style-type: none"> RO/PO refers to OHA Response OP-AR.ZZ-0008 for C1-C2 and performs OPERATOR ACTION to: <ul style="list-style-type: none"> ⇒ THROTTLE BG-HV-F042, REGEN HX RTN ISLN to system flow of 140-160 gpm on Computer Point A2856 RWCU OUTLET FLOW TO FDW UNTIL Chemistry can remove a Filter/Demin from service. 	<p>Note: Removing a FD from service is not required to be observed.</p>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
SRV Opening: After the Crew has responded to the RWCU pump trip, and at the discretion of the Lead Examiner, TRIGGER ET-15	<ul style="list-style-type: none"> Crew recognizes open SRV by: <ul style="list-style-type: none"> ⇒ OHA C1-A3 "ADS/SAFETY RELIEF VLV NOT CLOSED" ⇒ Acoustic Monitor indication ⇒ CRIDS D5009 "SAFETY RELIEF VALVE F013J" ⇒ Total steam flow lowering ⇒ Main Gen MWe lowering ⇒ RPV level swell ⇒ Elevated SRV tailpipe temperature 	
	<ul style="list-style-type: none"> CRS implements AB.RPV-0006. 	
	<ul style="list-style-type: none"> RO reduces reactor power to 95% using Recirc. 	Immediate Operator Actions IAW AB.RPV-0006
ENSURE Malfunction AD02JO deletes.	<ul style="list-style-type: none"> PO cycles SRV control switches in attempt to close the SRV. 	Immediate Operator Actions IAW AB.RPV-0006
	<ul style="list-style-type: none"> Crew recognizes SRV closed by: <ul style="list-style-type: none"> ⇒ Acoustic Monitor indication ⇒ Total steam flow rising ⇒ Main Gen MWe rising ⇒ RPV level shrink ⇒ Lowering SRV tailpipe temperature 	
	<ul style="list-style-type: none"> CRS implements AB.RPV-0006 <ul style="list-style-type: none"> ⇒ Condition E 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS/STA/IA recognize the following Tech Spec actions apply: <ul style="list-style-type: none"> ⇒ Suppression Chamber-Drywell Vacuum Breakers 4.6.4.1.b.1 	WITHIN 12 hours PERFORM ST.GS-0004.
	<ul style="list-style-type: none"> CRS/STA/IA evaluate the following Tech Specs for applicability: <ul style="list-style-type: none"> ⇒ Safety/Relief Valves 3.4.2.1 	F013J lifted outside of its specified code safety function lift setting IAW T/S 3.4.2.1. Tracking LCO.
<p><u>Loss of 10D410 125VDC Bus:</u> After Tech Specs have been addressed for the SRV, and at the discretion of the Lead Examiner, TRIGGER ET-2.</p>	<ul style="list-style-type: none"> Crew recognizes Loss of 1E 125VDC by: <ul style="list-style-type: none"> ⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE" ⇒ CRIDS D4630 "125VDC SWGR 10D410 TRBL" ⇒ CRIDS D4633 "125VDC BATT 1AD411 PWR AVAIL NO" ⇒ Flashing INOP lights on all 10A401 bus breakers ⇒ 'A' Channel ECCS "LOGIC PWR FAILURE" lights ⇒ Flashing "OVLD/PWR FAIL" lights on HPCI w/loss of position indication ⇒ Charger and bus voltage indication on 10C650D ⇒ CRIDS Page 166 	
	<ul style="list-style-type: none"> CRS implements AB.ZZ-150. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF dispatched to investigate loss of 10D410, THEN REPORT:</p> <ul style="list-style-type: none"> • Bus indicates 0 volts • Both battery chargers DC CKT BREAKER are tripped (AD413/AD414) • There is no indication of damage to any of the equipment. 	<ul style="list-style-type: none"> • Crew dispatches ABEO and Maintenance to investigate loss of 10D410 bus. 	E-0009-1 Sheet 1
Respond as Maintenance that an inspection of 10D410 will be required to troubleshoot failure.	<ul style="list-style-type: none"> • CRS recognizes the following Tech Specs actions apply: <ul style="list-style-type: none"> ⇒ D.C. Sources - Operating 3.8.2.1 Action a ⇒ 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.
<p>Turbine High Vibrations: 15 minutes after the Loss of 10D410, OR, at the discretion of the Lead Examiner, TRIGGER ET-3.</p>	<ul style="list-style-type: none"> • Crew recognizes Main Turbine High Vibration by: <ul style="list-style-type: none"> ⇒ OHA D3-C5 "TURBINE GENERATOR VIB HI" ⇒ CRIDS A2525 "MAIN TURB BRG 7 VIB X PROBE" 	#7 Bearing will reach 11 mils in about 9.5 minutes.
	<ul style="list-style-type: none"> • CRS implements AB.BOP-0002: <ul style="list-style-type: none"> ⇒ Condition B 	
SUPPORT requests to raise MTLO temperature using Remote Function TU03 .	<ul style="list-style-type: none"> • Crew directs TBEO to raise MTLO temperature (110 – 120°F) 	
As System Operator, PROVIDE guidance to lower MVARs as necessary.	<ul style="list-style-type: none"> • Crew co-ordinates with System Operator to adjust Main Generator MVAR loading. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF contacted as Engineering, THEN REPORT the vibration readings appear valid and the limitations in the abnormal should be followed.	<ul style="list-style-type: none"> Crew contacts Engineering for additional guidance. 	
IF contacted as Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004, THEN CONCURR with SM recommendation.	<ul style="list-style-type: none"> Crew contacts Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004. 	
IF dispatched to the Turbine Building, THEN wait until vibration reaches 15 mils and REPORT the floor was vibrating and it did not appear safe to approach the Main Turbine.	<ul style="list-style-type: none"> WHEN bearing #7 reaches 11 mils, THEN Crew: <ul style="list-style-type: none"> ⇒ Reduces recirc pump speed to minimum. ⇒ Locks the Mode Switch in SHUTDOWN. ⇒ Immediately trips the Main Turbine. 	
STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION Reactor Scram Reports Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OP-AB.ZZ-0001.	<ul style="list-style-type: none"> RO performs scram actions IAW AB.ZZ-0001 Attachment 1. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>EOP 101 RPV Control.</p> <p>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.</p>	<ul style="list-style-type: none"> CRS implements EOP-101. 	
	<ul style="list-style-type: none"> PO maintains RPV water level as directed by CRS IAW AB.ZZ-0001 Attachment 14. 	
<p><u>WHEN</u> Malfunction MC01A inserts, <u>THEN REPORT</u> as TBEO/Control Point (looking into TB) you heard a loud bang on 137' TB and now there is a loud whistling noise. There pieces of turbine blades and other metal on the 137' TB floor.</p>	<ul style="list-style-type: none"> Crew recognizes evidence of physical damage to Main Turbine by: <ul style="list-style-type: none"> ⇒ TBEO report ⇒ Rising Offgas flow ⇒ Degrading condenser vacuum 	
	<ul style="list-style-type: none"> CRS implements AB.BOP-0002: <ul style="list-style-type: none"> ⇒ Condition C 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
If crew breaks vacuum before MC01A inserts, report the loud bang and turbine blades message.	<ul style="list-style-type: none"> Crew performs the following: <ul style="list-style-type: none"> ⇒ Closes MSIVs and drains ⇒ Closes SJAE suction ⇒ Closes SJAE steam supply ⇒ Opens vacuum breakers 	NOTE: Crew may not have time to take these actions due to severity of vacuum loss.
	<ul style="list-style-type: none"> CRS directs RPV water level control with RCIC. 	HPCI is unavailable due to the loss of 10D410.
	<ul style="list-style-type: none"> PO controls RPV water level with RCIC IAW AB.ZZ-0001 Att. 6. 	
STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION Pressure Leg Direct initial band of 800 - 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and does not challenge RPV cooldown limits. 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. As pressure decays pressure bands should be adjusted to accommodate for this decay. Two recommended bands are listed below; however these upper and lower ends of these bands may be adjusted at the discretion of the Control Room Supervisor based on current plant conditions.	<ul style="list-style-type: none"> CRS directs maintaining reactor pressure below 1037 psig with SRVs. 	
	<ul style="list-style-type: none"> RO/PO control RPV pressure with SRVs as directed by CRS IAW AB.ZZ-0001 Att 13. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>LOP/LOCA:</u> 5 minutes after the MSIVs are closed, <u>OR</u>, at the direction of the of the Lead Examiner, TRIGGER ET-4.</p> <p>ADVANCE Fire Computer to alarm screen when OHA A2-A5 alarms. WHEN the crew announces the Fire Computer alarms displayed ADVANCE Fire Computer screen.</p>	<ul style="list-style-type: none"> Crew recognizes Loss of Offsite Power by: <ul style="list-style-type: none"> ⇒ 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. 	
<p><u>EDG BG400 Failure to Auto-Start:</u></p>	<ul style="list-style-type: none"> Crew recognizes failure of the 'B' EDG to start and load by: <ul style="list-style-type: none"> ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'B' Channel components 	
	<ul style="list-style-type: none"> RO/PO starts the 'B' EDG and ensures it loads. 	Immediate Operator Action IAW AB.ZZ-0135.
<p>IF directed to locally start the 'B' EDG, THEN DELETE Malfunction DG07B.</p>	<p>* <i>Crew starts the 'B' EDG by <u>EITHER:</u></i> <i>Pressing the 'B' EDG START pushbutton in the Control Room, <u>OR</u> Directing an operator to locally start the 'B' EDG.</i></p>	
<p>As ESOC, REPORT it will take at least 10 hours to restore Offsite power to Artificial Island.</p>	<ul style="list-style-type: none"> Crew contacts ESOC for estimated time to restoration of Offsite power. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS implements AB.ZZ-0135. 	
	<ul style="list-style-type: none"> Crew recognizes loss of AD481/482 inverters by: <ul style="list-style-type: none"> ⇒ 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.
	<ul style="list-style-type: none"> As time and resources permit, CRS implements AB.ZZ-0136 and AB.ZZ-170. 	
	<ul style="list-style-type: none"> Crew recognizes LOCA condition: <ul style="list-style-type: none"> ⇒ OHA D3-C3 "DRYWELL SUMP LVL HI/LO" ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure 	
	<ul style="list-style-type: none"> CRS implements AB.CONT-001: <ul style="list-style-type: none"> ⇒ Condition A 	Due to the pace of the LOCA, this may not be implemented.
	<ul style="list-style-type: none"> Crew observes DWT exceeds 135F. 	
	<ul style="list-style-type: none"> CRS enters EOP-102 when Drywell Temperature exceeds 135F. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>ADVANCE Fire Computer to alarm screen when OHA A2-A5 alarms.</p> <p>WHEN the crew announces the Fire Computer alarm displayed ADVANCE Fire Computer screen and ACKNOWLEDGE Remote AN-A2A5.</p>	<ul style="list-style-type: none"> RO/PO ensures drywell cooling maximized. 	<p>There may not be time to maximize cooling before it isolates on high drywell pressure.</p>
	<ul style="list-style-type: none"> Crew checks <ul style="list-style-type: none"> ⇒ Recirc pump seal parameters ⇒ SRV temperatures 	
	<ul style="list-style-type: none"> Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations. 	
	<ul style="list-style-type: none"> CRS re-enters EOP-102, re-enters EOP-101. 	
	<ul style="list-style-type: none"> RO/PO verifies automatic actions. 	
	<ul style="list-style-type: none"> CRS directs restoring PCIG to SRVs and Rx Bldg to Torus Vac Bkrs. 	
	<ul style="list-style-type: none"> RO/PO restores PCIG to SRVs and Rx Bldg to Torus Vac Bkrs IAW AB.ZZ-0001 Att. 9. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to align for two CRD pump injection, THEN PERFORM the following: REFER to SO.BF-0001 Sect 5.4. TRIGGER ET-5 (Suction filter). SET Remote Function for Stby CRD pump discharge valve to 0% (CD01/CD02). REPORT Stby CRD pump ready for start. WHEN Stby CRD is running, THEN RAMP discharge valve to 100% open. <u>IF</u> directed to manually open HV-F003, THEN REPORT you have opened the valve. (There is no function for this.) AFTER HV-F003 is open, THEN TRIGGER ET-6. WHEN two minutes have elapsed, THEN MODIFY Malfunctions CD09A/B to control injection.</p> <p><u>IF</u> instrument air pressure is zero, THEN REPORT the FCVs do not seem to be responding due to loss of air pressure.</p>	<ul style="list-style-type: none"> CRS orders injection with two CRD pumps. 	<p>CRD pumps will trip on low suction pressure due to suction filter clogging.</p>
	<ul style="list-style-type: none"> CRS orders injection with 'B' SLC pump. 	
<p>Crew may request EOP-323 implementation. If so, TRIGGER ET-10.</p>	<ul style="list-style-type: none"> <u>WHEN</u> RPV water level drops to -129", THEN the Crew inhibits ADS. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF Crew requests RCIC Hi Temp isolation bypass, THEN INSERT Remote RC11 to Bypass.	<ul style="list-style-type: none"> • <u>WHEN</u> the Crew determines RPV water level cannot be maintained above -185", <u>THEN</u> between -129" and -185" the CRS implements EOP-202. 	
	<ul style="list-style-type: none"> • RO/PO open ADS valves IAW AB.ZZ-0001 Attachment 13. 	
	<ul style="list-style-type: none"> * <i>Crew determines that Emergency Depressurization is required before compensated RPV water level reaches -185", and subsequently opens 5 SRVs IAW EOP-202.</i> 	RECORD RPV Level (compensated) when the crew determines ED is required. LEVEL: _____
	<ul style="list-style-type: none"> • RO/PO inject with available ECCS IAW AB.ZZ-0001: ⇒ Att. 4 for B/C/D RHR ⇒ Att. 4 for 'B' Core Spray loop 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>Loss of RPV Water Level Indication:</u></p> <p>The Loss of RPV Water Level Indication will automatically occur when RPV pressure drops to 400 psig.</p>	<ul style="list-style-type: none"> • <u>WHEN</u> reactor pressure drops to 400 psig, <u>THEN</u> Crew recognizes inability to determine RPV water level due to widely diverging indications. 	
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>The achievement of saturation conditions in the Drywell is not sufficient in and of itself to call the instruments unreliable. When indications of flashing in the instrument legs are observed, then the water level indications may be considered unreliable for that instrument. Indications of flashing include erratic indications, large oscillations and large mismatches between level indicators. Only if all indications are unreliable, then level is "unknown" and EOP 206/206A be appropriate.</p>	<ul style="list-style-type: none"> • CRS exits EOP-101 and enters EOP-206. 	<p>RC/P leg was exited when EOP-202 was implemented; RC/L leg is exited when EOP-206 is entered.</p>
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>EOP-206/EOP 206A RPV FLOODING TO THE STEAM LINES.</p> <p>The strategy for flooding to the MSLs does not require that every system listed be immediately injected. The crew should methodically run through the list of systems and continue to raise injection until indications are received that the RPV is flooded to the MSLs. This allows the crew the flexibility to leave Drywell and/or Torus sprays running for some amount of time while other systems are being started.</p>		

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS directs commencing and raising injection to the MSIVs are flooded. 	Cannot achieve MSIV flooding without injection from the 'D' RHR pump.
<p>Available RPV pressure indicators:</p> <ul style="list-style-type: none"> PI-R605 PAMS PR-R3684B A2802 PT-3684B A3547 RRCS Div 2 Ch A A3548 RRCS Div 2 Ch B Local gauges PI-R004A/B <p>Available Supp Chamber pressure indicators:</p> <ul style="list-style-type: none"> PR-4960B1 PI-4960B1 A2814 W/R Supp Chbr Press 	<ul style="list-style-type: none"> Crew continues injection into the RPV until the RPV has been flooded to the Main Steam Lines as indicated by: <ul style="list-style-type: none"> ⇒ At least 5 SRVs are open <u>AND</u> ⇒ At least 2 of the RPV Flooded Indications of Table RF-2 can be observed. 	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Table RF-2 Flooded RPV Indications Some combination of the following conditions should be observed as water fills the steam lines. No single indication can be relied upon in all events.</p> <ul style="list-style-type: none"> • Decreasing SRV tailpipe temperatures • Actuation of SRV tailpipe acoustic monitors • Increasing RPV pressure • Main steam line, HPCI, or RCIC high steam flow trips • Water leakage from the HPCI or RCIC turbine shaft seals • If MSIVs are open, two phase flow audible near main steam tunnel, main steam chest, or main turbine valves • If injection sources are drawing suction from the suppression pool, suppression pool level decreases as the RPV and steam lines are flooded, then stabilizes when the steam lines are full • Instrument gross fail indication 	<p>* <i>WHEN RPV water level indication is lost, THEN Crew injects into the RPV until at least 2 of the RPV Flooded Indications of Table RF-2 can be observed.</i></p>	<p>It will take about 10 minutes for the RPV to fill above the Main Steam Lines.</p>
<p><u>Termination Requirement:</u> The scenario may be terminated at the discretion of the Lead Examiner when adequate core cooling has been established IAW EOP-206.</p>		

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.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**
- R. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**
- S. **HC.OP-AB.ZZ-0150 125 VDC Malfunction**
- T. **HC.OP-AB.ZZ-0170 Loss of 4.16KV Bus 10A401 A Channel**
- U. **HC.OP-AB.BOP-0002 Main Turbine**
- V. **HC.OP-AB.CONT-0001 Drywell Pressure**
- 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-EO.ZZ-0206 RPV Flooding**
- BB. **HC.OP-SO.BG-0001 Reactor Water Cleanup System Operation**
- CC. Strategies For Successful Transient Mitigation

VII. ESG CRITICAL TASK RATIONAL

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1.

- * **Crew starts the 'B' EDG by EITHER:**
Pressing the 'B' EDG START pushbutton in the Control Room,
OR
Directing an operator to locally start the 'B' EDG.

K/A 295003 Partial or Complete Loss of A.C. Power

AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER

AA1.02 Emergency generators RO 4.2 SRO 4.3

AA1.03 Systems necessary to assure safe plant shutdown RO 4.4 SRO 4.4

Due to the loss of 10D410, the 'A' EDG and 'A' Channel ECCS components are unavailable. This leaves the 'B' RHR pump as the only immediately available means of removing decay heat from the containment. The 'B' RHR pump will be required for injection to successfully implement EOP-206 and ensure adequate core cooling. Additionally, 'B' RHR is the only pump available with a heat exchanger for decay heat removal.

2.

- * **Crew determines that Emergency Depressurization is required before compensated RPV water level reaches -185", and subsequently opens 5 SRVs IAW EOP-202.**

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

EA1.02 High Pressure Coolant Injection RO: 4.5 SRO 4.5

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 IAW EOP-202 to allow level restoration with low pressure ECCS.

VII. ESG CRITICAL TASK RATIONAL (continued)

3.

- ***WHEN RPV water level indication is lost,
THEN Crew injects into the RPV until at least 2 of the RPV Flooded Indications of
Table RF-2 can be observed with 5 SRV's open.***

K/A 295031 Reactor Low Water Level

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

EA2.01 Reactor water level RO 4.6 SRO 4.6

Reactor water level indication has been lost. The only way to ensure adequate core cooling is to successfully implement reactor flooding IAW EOP-206. Successful implementation requires all three available RHR pumps and the available core spray loop. The 'D' RHR pump auto start and injection valve automatic opening are failed, and operator action will be required to align the 'D' RHR pump for injection and successfully implement EOP-206.

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HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

<u>Y/N</u>	<u>EVENT</u>	<u>Y/N</u>	<u>EVENT</u>
<u>Y</u>	Loss Of Offsite Power/SBO	<u> </u>	Internal Flooding
<u>Y</u>	LOCA		
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<u> </u>	Turbine Trip	<u> </u>	Loss of SSW
<u> </u>	Loss of Condenser Vacuum	<u> </u>	Loss of SACS
<u> </u>	Loss of Feedwater		
<u>Y</u>	Manual Scram		

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>Y</u>	Manual Depressurization of the RPV w/ no HP Injection Available
<u> </u>	Reopen SSW Discharge Valve to SACS Hx After Level 1 or Hi DW Press. Signal
<u> </u>	Control RPV Water Level w/ HP Injection during ATWS Sequence
<u> </u>	Align Portable Power Supply to Battery Chargers
<u> </u>	Venting of Primary Containment
<u> </u>	Restore Switchgear Cooling
<u> </u>	Restart Condensate
<u> </u>	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-2018 NRC-3

SELF-CHECK

- _____ 1. Abnormal Events: 2-4
- _____ 2. Major Transients: 1-2
- _____ 3. EOPs entered/requiring substantive actions (1-2).
- _____ 4. Malfunctions after EOP entry (1-2).
- _____ 5. Entry into contingency EOP requiring substantive actions (0-2)(>1 per set)
- _____ 6. Preidentified Critical Tasks (2-3)

Comments:

VIII. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)

Crew Validation Rev.: 0 Date Validated: 9/26/2017

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Minor editorial comments.	1. Comments incorporated.

Crew Validation Rev.: 1 Date Validated: 1/11/2018

Validated with 2 ROs and 1 SRO.

Validation Comments	Disposition
1. Comments from NRC validation.	1. Comments incorporated.

IX. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL:

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

100% Power.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

COPY ____ OF ____