

# 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)@
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue; copy of Attachment 1 of HC.OP-DL.ZZ-0002; <b>AND ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator obtains and locates procedure.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
<b>CUE:</b>	<b>IF excessive time is taken reviewing precautions and limitations, THEN INFORM</b> 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 <b>WHEN</b> the plant is in Operational Condition 4 or 5.			
3.2	Parameter values are recorded in the appropriate spaces for each shift.	<b>*Operator records the parameter values in the appropriate spaces.</b>		
	7.2 KV Bus 10A110 Voltage    A3455 KV	<b>*Operator records 7.2 KV Bus 10A110 Voltage [7.08 – 7.32 KV].</b>		
	7.2 KV Bus 10A120 Voltage    A3458 KV	<b>*Operator records 7.2 KV Bus 10A120 Voltage [7.08 – 7.32 KV].</b>		
	4.16 KV Bus 10A103 Voltage    A3325 KV	<b>*Operator records 7.2 KV Bus 10A103 Voltage [4.10 – 4.30 KV].</b>		
	4.16 KV Bus 10A104 Voltage    A3324 KV	<b>*Operator records 4.16 KV Bus 10A104 Voltage [4.10 – 4.30 KV].</b>		
	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.		
<b>CUE:</b>	<b>ACKNOWLEDGE</b> as necessary as the Control Room Supervisor when informed of the out of range value.			

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. <b>COMPARE</b> Bus Voltage with Station Service Transformer Sec. Voltage. <u>IF</u> Bus Voltage is outside the MIN/MAX take manual control of Load Tap Changer <b>AND ADJUST</b> 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.) ( <b>REFER TO</b> the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]	<b>*Operator implements NOTE 4 by taking manual control of transformer AX503 TAP Changer and adjusting voltage until within range (4.10-4.30).</b>  NOTE: Operator may make a NOTE of the value being outside of the MIN/MAX and the actions taken.		
		<b>*Operator records 4.16 KV Bus 10A501 Voltage</b>		
		Operator notifies CRS of the actions taken for the out-of-specification reading and the current status.		
<b>CUE:</b>	<b>ACKNOWLEDGE</b> as necessary as the Control Room Supervisor.			
4.16 KV Bus 10A502 Voltage	A3475 KV	<b>*Operator records 4.16 KV Bus 10A502 Voltage [4.10 – 4.30 KV].</b>		
4.16 KV Bus 10A101 Voltage	A3484 KV	<b>*Operator records 4.16 KV Bus 10A101 Voltage [4.05 – 4.40 KV].</b>		
4.16 KV Bus 10A102 Voltage	A3487 KV	<b>*Operator records 4.16 KV Bus 10A102 Voltage [4.05 – 4.40 KV]</b>		
Reactor Coolant Temperature	A2942 °F	<b>*Operator records Reactor Coolant Temperature [149 ±1 F].</b>		
SACS A Temperature	TI-2535A or A2106 °F	<b>*Operator records SACS A Temperature [32 – 87 F].</b>		
SACS B Temperature	TI-2535B or A2107 °F	<b>*Operator records SACS B Temperature [32 – 87 F].</b>		
OBTAIN RACS Temp from Rx Bldg Operator or	A2539 °F	<b>*Operator records RACS Temp [45 – 90 F]</b>		

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 RECORD</u> the STOP TIME.</p> <p><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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.</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:           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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** ZZ058

**REV#:** 00

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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	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

JPM NUMBER: ZZ058

REV#: 00

## INITIAL CONDITIONS:

I.C.

<i>Initial</i>	
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- \_\_\_\_\_ **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  $\leq 4.09$  KV.
- \_\_\_\_\_ **INSERT** Overrides

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

<i>Initial</i>	Description
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- \_\_\_\_\_ **ENSURE** Event file is open.
- \_\_\_\_\_ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

## EVENT FILE:

<i>Initial</i>	ET	
	1	Event code: ZDEDTC1(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  
**SYSTEM:** Reactor Recirculation  
**TASK NUMBER:** 2020140401  
**TASK:** Conduct Reactor Recirculation Single Loop Operation

**2018 NRC**  
**RO A2**

Copy \_\_\_\_ of \_\_\_\_

**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)@
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue, marked-up HC.OP-ST.BB-0007, <b>AND ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations, and initials that each is complete.		
<b>CUE:</b>	<b>IF</b> excessive time is taken reviewing precautions and limitations, <b>THEN INFORM</b> operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.		
<b>5.2 APRM % Flow to Total Core Flow Comparison</b>				
5.2.1	<b>IF</b> this is the first subsection of the procedure to be performed <b>THEN LOG</b> test start time in the Control Room log(s).	Operator ensures that the test start time is logged in the Control Room log.		
<b>CUE:</b>	<b>Control Room log entry has been made.</b>			
5.2.2.	<b>ENSURE</b> that all prerequisites have been satisfied IAW Section 2.2.	Operator ensures that all prerequisites are satisfied and initials each one.		
5.2.3.	<b>ENSURE</b> Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed <b>AND</b> Regular Surveillance <b>OR</b> 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, <b>PLACE</b> the Meter Function Switch to Flow.	<b>*#Operator places EACH Meter Function Switch to flow,</b>  <b>APRM F; APRM D; APRM B;</b> <b>APRM A; APRM C; APRM E</b>  Examiner Note: Refer to attached copy of Attachment 2 for values. Order of switch placement is NOT critical.		
5.2.5.	<b>RECORD</b> the value indicated for each APRM's flow on Attachment 2.	<b>*#Operator records the value indicated for each APRM flow on Attachment 2,</b>  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.	<b>RETURN</b> 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	<b>ENTER</b> the Total Core Flow obtained in Step 5.1.4.G on Attachment 2.	<b>*#Operator enters the Total Core Flow obtained in Step 5.1.4.G on Attachment 2,</b> and initials Step.		
5.2.8	For the HIGHEST and LOWEST APRM values, <b>PLOT</b> 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)]	<b>*#Operator determines that one point is NOT above Line A,</b>		
5.2.10	<u>IF EITHER</u> point is BELOW Line A (-5.0%), <b>ENTER UNSAT</b> on Attachment 2 <u>AND DECLARE INOPERABLE</u> any APRM Flow Unit with a reading BELOW Line A.	<b>*#Operator enters UNSAT on Attachment 2,</b>		
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; <b>IMMEDIATELY NOTIFY</b> the NCO and SM/CRS. [CD-927E]	Notifies the Control Room Supervisor (CRS).		
<b>CUE:</b>	<b>Acknowledge as CRS.</b>			
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.		
<b>CUE:</b>	<b>Control Room log entry has been made.</b>			

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	<p><u>IF</u> this is the final subsection of the procedure to be performed <u>THEN SUBMIT</u> this procedure to the SM/CRS for review AND completion of Attachment 1.</p>	<p>Operator submits this procedure to the SM/CRS for review AND completion of Attachment 1, and initials Step.</p>		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	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

JPM NUMBER: ZZ013

REV#: 02

## INITIAL CONDITIONS:

I.C.

<i>Initial</i>	
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- \_\_\_\_\_ **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)

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

## EVENT FILE:

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

## MALFUNCTION SCHEDULE:

<i>Initial</i>	@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±1%
	APRM D % FLOW	46±1%
	APRM B % FLOW	46±1%
	APRM A % FLOW	54±1%
	APRM C % FLOW	54±1%
	APRM E % FLOW	53±1%
5.2.7	TOTAL (CALCULATED) CORE FLOW	52±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. 50/44 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:	<p><b>PROVIDE</b> the operator: the initiating cue; M-51-1, Sheets 1 and 2; <b>AND</b>  <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.</p> <p><b>START TIME:</b> _____</p>			
<b>OP-AA-109-115</b>				
4.1.2	<p><b>Determine Blocking Points and Tag Types (Initiator)</b></p> <p>1. Review the following:</p> <p>e. Controlled Documents and Drawings from the TDR or DCRMS. If...</p>	Operator reviews provided M-51-1, Sheets 1 and 2.		
	<p>2. Perform the following:</p> <p>e. Select blocking points and tag types.</p>	Operator determines the blocking points AND required positions by reviewing the controlled drawing.		
		Applicant identifies the following mechanical isolation valves:		
		<p>Applicant identifies the following mechanical isolation valves <b>AND</b> the required positions:</p> <ul style="list-style-type: none"> <li>• *V132, SHUT</li> <li>• *V317, SHUT</li> <li>• *HV-F024A (V124), SHUT</li> <li>• *HV-F010A (V125), SHUT</li> <li>• *HV-F011A (V126), SHUT</li> <li>• *V205, SHUT</li> <li>• *HV-F007A (V128), SHUT</li> </ul>		
		<p>Applicant identifies the following mechanical VENT <b>AND</b> the required positions:</p> <ul style="list-style-type: none"> <li>• *V372, OPEN</li> <li>• *V373, OPEN</li> </ul> <p>Examiner Note: V338 and V339 would satisfy this vent path.</p>		

JPM NUMBER: ZZ055  
 REV NUMBER: 01

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

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

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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b>.</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> Operator <b>IDENTIFIES</b> the mechanical and electrical components, and their required positions, to <b>ISOLATE, VENT, AND DRAIN</b> 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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

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

# JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

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## INITIATING CUE:

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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: This Worksheet: Page \_\_\_\_ of \_\_\_\_

Seq.	FLOC Identifier	Tagging Point Description	Tag Type	Current Position	Desired Position	Apply/Release Date/Time	QO Initials	Verified Date/Time	QO Initials

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: [REDACTED]

TAGOUT NUMBER: [REDACTED]    This Worksheet: Page \_\_\_\_ of \_\_\_\_

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

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 CONDITONS:**

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:	<p><b>PROVIDE</b> the operator the initiating cue <u>AND</u>  <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____</p>			
B.1.a.	<p><b>OBTAIN</b> Licensed Operator review.</p>	<p><b>Examiner Note:</b> See attached completed form.</p> <p><b>Examiner Note:</b> PCIG compressors may be marked as OUT OF SERVICE(N) or as IN SERVICE(Y).</p> <p>Operator reviews the provided Major Equipment and Electrical Status (MEES) Form, while walking-down the control room boards.</p>		
CUE:	<p><b>IF</b> 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.]</p>			
		<p>*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].</p>		
		<p>*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].</p> <p>Note: PCIG Compressor A may be changed to N if it is currently not running (compressor cycles on pressure).</p>		
		<p>*Operator observes that 10K100 is not available based on 1E breaker is open, and corrects the Form [N or X].</p> <p>Note: Can be marked as N or X as there are procedures that will close the breaker.</p>		

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.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b>.</p> <p><b>STOP:</b> _____</p>			
<p><b>Task Standard:</b> Operator performs the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form.</p>				

**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



# 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:  $\geq 3.0$  (LOR); or  $\geq 2.5$  (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          

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

JPM NUMBER: ZZ060

REV#: 03

## INITIAL CONDITIONS:

I.C.	
<i>Initial</i>	

**RESET** to 100% power IC.

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

**INSERT** Malfunctions

**TAKE** Scram Actions

**RESTORE** 1E Breakers

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

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

EVENT FILE:		
<i>Initial</i>	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

## HOPE CREEK

### MAJOR EQUIPMENT AND ELECTRICAL STATUS (MEES)

DATE: TODAY  
UPDATE TIME: Now

<b>Instructions:</b> Y = IN SERVICE N = OUT OF SERVICE  ("X" OUT UNAVAILABLE EQUIPMENT)	<b>REACTIVITY CONTROL</b>		<b>ELECT. FEED</b>	<b>Y/N</b>	<b>CONTAINMENT CONTROL</b>		<b>ELECT. FEED</b>	<b>Y/N</b>					
	SLC PUMPS	A	B212	N	FRVS RECIRC FANS	A	B410	Y					
		B	B222	N		E	B450	Y					
	RWCU PUMPS	A	B254	X	REACTOR RECIRC PUMPS	B	B420	Y					
		B	B264	X		F	B460	Y					
		A	A110	X		C	B430	Y					
	B	A120	X	D		B440	Y						
<b>WATER COOLING SYSTEMS</b>	<b>ELECT. FEED</b>	<b>Y/N</b>	<b>CRD PUMPS</b>	A	B430	N	<b>FRVS VENT FANS</b>	A	B212	Y			
				B	B440	X		B	B222	N			
SW PUMPS	A	A401	Y	<b>ELECTRICAL STATUS</b>									
	C	A403	Y			<b>Y/N</b>	H2 RECOMBINERS	A	B410	N			
	B	A402	Y	OFFSITE AC POWER AVAILABLE			X	PCIG COMPRESSORS	A	B232	Y		
	D	A404	Y	EMERGENCY DIESELS		RUN	LOADED		B	B242	X	Y	
SACS PUMPS	A	A401	Y	EDG	A	Y	Y	<b>SERVICE AIR COMPRESSORS</b>		<b>ELECT. FEED</b>	<b>Y/N</b>		
	C	A403	Y		B	Y	Y		00K107	A120	X		
	B	A402	Y		C	Y	Y		10K107	A110	X		
	D	A404	Y		D	Y	Y						
ACS PUMPS	A	B415	Y	<b>HVAC</b>	<b>ELECT. FEED</b>		<b>Y/N</b>	<b>EMER. INST. AIR COMPRESSOR</b>	<b>ELECT. FEED</b>	<b>Y/N</b>			
	B	B426	Y	TURBINE BLDG		A	A110	X	10K100		<b>N OR X</b>	Y	
	C	B250	X	CHILLED WATER CHILLERS		B	A120	X	<b>ECCS</b>		<b>ELECT. FEED</b>	<b>Y/N</b>	
CIRC WATER PUMPS	A	A501	X		C	A101	X	RHR PUMPS		A	A401	N	
	B	A502	X		D	A110	X			C	A403	N	
	C	A501	X	TURBINE BLDG		A	B130	X			B	A402	N
	D	A502	X	CHILLED WATER CIRC PUMPS		B	B120	X			D	A404	N
<b>CONDENSATE/ FEEDWATER</b>	<b>ELECT. FEED</b>	<b>Y/N</b>	CONTROL AREA		A	B431	Y	<b>RCIC PUMPS</b>		STEAM	Y		
PRIMARY CONDENSATE PUMPS	A	A110	X	CHILLED WATER CIRC PUMPS		B	B44	X	Y	<b>HPCI PUMPS</b>		STEAM	Y
	B	A120	X	CONTROL AREA		A	A403	Y	<b>CORE SPRAY PUMPS</b>		A	A401	N
	C	A102	X	CHILLED WATER CHILLERS		B	A404	X			C	A403	N
SECONDARY CONDENSATE PUMPS	A	A110	X	TSC		A	B451	Y			B	A402	N
	B	A120	X	CHILLED WATER CIRC PUMPS		B	B461	Y			D	A404	N
	C	A104	X	TSC		A	A401	Y					
FEED WATER PUMPS	A	STEAM	X	CHILLED WATER CIRC PUMPS		B	B461	Y					
	B	STEAM	X	TSC		A	A401	Y					
	C	STEAM	X	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**

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			
	A	A110	X	C	B430	Y						
	B	A120	X	D	B440	Y						
WATER COOLING SYSTEMS			ELECT. FEED	Y/N	CRD PUMPS	A	B430	N	FRVS VENT	A	B212	Y
						B	B440	N	FANS	B	B222	N
SW PUMPS	A	A401	Y	ELECTRICAL STATUS			Y/N	H2 RECOMBINERS	A	B410	N	
	C	A403	Y	OFFSITE AC POWER AVAILABLE			X		B	B480	N	
	B	A402	Y	EMERGENCY DIESELS	RUN	LOADED		PCIG COMPRESSORS	A	B232	Y	
	D	A404	Y						B	B242	Y	
SACS PUMPS	A	A401	Y	EDG	A	Y	Y	SERVICE AIR COMPRESSORS		ELECT. FEED	Y/N	
	C	A403	Y		B	Y	Y		00K107	A120	X	
	B	A402	Y		C	Y	Y		10K107	A110	X	
	D	A404	Y		D	Y	Y					
ACS PUMPS	A	B415	Y	HVAC		ELECT. FEED	Y/N	EMER. INST. AIR COMPRESSOR	ELECT. FEED	Y/N		
	B	B426	Y									
	C	B250	X	TURBINE BLDG	A	A110	X	10K100	B450	Y		
CIRC WATER PUMPS	A	A501	X	CHILLED WATER CHILLERS	B	A120	X	ECCS		ELECT. FEED	Y/N	
	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	
				CHILLED WATER CIRC PUMPS	B	B120	X		D	A404	N	
CONDENSATE/FEEDWATER		ELECT. FEED	Y/N	CHILLED WATER CIRC PUMPS	C	B110	X	RCIC PUMPS		STEAM	Y	
PRIMARY CONDENSATE PUMPS	A	A110	X	CONTROL AREA	A	B431	Y	HPCI PUMPS		STEAM	Y	
	B	A120	X	CHILLED WATER CIRC PUMPS	B	B441	Y	CORE SPRAY PUMPS		A	A401	N
	C	A102	X	CONTROL AREA	A	A403	Y	C	A403	N		
SECONDARY CONDENSATE PUMPS	A	A110	X	CHILLED WATER CHILLERS	B	A404	X	B	A402	N		
	B	A120	X					D	A404	N		
	C	A104	X									
FEED WATER PUMPS	A	STEAM	X	TSC	A	B451	Y					
	B	STEAM	X	CHILLED WATER CIRC PUMPS	B	B461	Y					
	C	STEAM	X									
				TSC	A	A401	Y					
				CHILLED WATER CHILLERS	B	A402	Y					

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: \_\_\_\_\_ DATE: \_\_\_\_\_  
Signature

# JOB PERFORMANCE MEASURE

**SYSTEM:** Conduct of Operations

**TASK NUMBER:** 4010010201

**TASK:** Complete the Daily Surveillance Logs

## INITIAL CONDIITONS:

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

## INITIATING CUE:

You are the Control Room Supervisor.

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

JPM NUMBER: ZZ017  
 REV NUMBER: 05

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
<b>CUE:</b>	<b>PROVIDE</b> 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> <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	<b>If requested, provide copy of HC.OP-IS.BD-0001.</b>			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.1.		
2.1	<b>Shift Manager/Control Room Supervisor</b> - 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.  <b>*Operator checks Attachment 3m on Attachment 1 Section A Log Initiation.</b>		
		Operator determines Attachment 3k is required IAW Item 1 and T/S 4.7.3 due to current River Water level.  <b>*Operator checks Attachment 3k on Attachment 1 Section A Log Initiation.</b>		



JPM NUMBER: ZZ017  
 REV NUMBER: 05

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
		<p>Operator determines Attachment 3h is required IAW Item 1 and T/S 4.7.1.3.b.1 due to current River Water temperature.</p> <p><b>*Operator checks Attachment 3h on Attachment 1 Section A Log Initiation.</b></p>		
		<p>Operator determines Attachment 3t is required IAW Item 42 due to SPV RMS Inoperable.</p> <p><b>*Operator checks Attachment 3t on Attachment 1 Section A Log Initiation.</b></p>		
		<p>Operator places a "1" in the Operational Condition blank.</p>		
		<p>Operator determines Attachment 3z is required for tracking purposes.</p> <p>Operator checks Attachment 3z on Attachment 1 Section A Log Initiation.</p>		
		<p>Operator checks Attachment 5 on Attachment 1 Section A Log Initiation.</p> <p>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.</p>		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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:  $\geq 3.0$  (LOR); or  $\geq 2.5$  (ILT); or justification is provided.
- X   3. License level identified. (SRO,RO,STA,NLO)
- X   4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
- X   5. Initial setup conditions are identified.
- X   6. Initiating and terminating cues are properly identified.
- X   7. Task standards for successful completion are identified.
- X   8. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*). Sequence Critical Steps are identified with a pound sign (#).
- X   9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
- X   10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
- X   11. Cues both verbal and visual are complete and correct.
- X   12. Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
- X   13. Statements describing important actions or observations that should be made by the operator are included (if required.)
- X   14. Validation time is included.
- X   15. JPM is identified as Time Critical and includes Critical Time (if required).

### VALIDATED BY:

Qualification Level Required:           SRO          

<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

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

**EXAMINER'S COPY  
EXHIBIT 1**

## ATTACHMENT 1 Surveillance Log

Page 1 of 1

Date TODAY'S DATE

**A. LOG INITIATION**

1. Operational Condition 1

2. Check (✓) Attachments to be performed

1	✓	3a	_____	3f	_____	3k	✓	3r	_____	3v	_____	3z	_____	4c	_____
2	_____	3c	_____	3g	_____	3m	✓	3s	_____	3w	_____	3aa	_____	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	NA	NA
Attachment 1e Yard	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**

**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	N/A	_____
Attachment 1d Turbine Bldg	NA	NA
Attachment 1e Yard	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	_____		<b>N/A</b>

# 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)@
<b>CUE:</b>	<p><b>PROVIDE</b> the operator the initiating cue; SOE Printout; completed OP-HC-108-114-1001 Attachment 4; blank OP-HC-108-114-1001 Attachment 3; <u>AND</u>  <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.</p> <p><b>START TIME:</b> _____</p>			
	<p>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 ....</p>	<p>Operator reads the introduction to Attachment 3.</p> <p>Examiner Note: Refer to the Examiner's Copy of Attachment 3, Page 2 of 3.</p>		
<p>To complete the checklist (page 2), use the following guideline:</p>				
1)	<p><b>RECORD</b> 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.</p>	<p>Operator records the event date and time; Scram Initiating Signal; and the SOE Printout Start time in the appropriate locations on Attachment 3.</p>		
2)	<p>From the SOE printout, <b>RECORD</b> 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).</p> <p>From the SOE or Alarm Chronolog printouts, <b>RECORD</b> the time for each of the subsequent alarms (T2). Include milliseconds as available.</p>	<p><b>*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.</b></p>		

JPM NUMBER: ZZ052  
 REV NUMBER: 01

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	STANDARD (*Critical Step) (#Sequential Step)	SAT/ UNSAT	COMMENTS (Required for UNSAT)@																																	
3)	<b>RECORD</b> the times for the first-in of W or Y and the first-in of X or Z in the boxes provided. <b>INCLUDE</b> milliseconds.	<b>*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.</b>  Examiner Note: Placing only W(Y) OR X(Z) in the boxes provided satisfies this Critical.																																			
4)	<b>RECORD</b> 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-VALV CLS SCRAM</td><td>02133-02138</td></tr> <tr><td>2</td><td>TB CTNL-VALV CLS SCRAM</td><td>02137-02140</td></tr> <tr><td>3</td><td>SCRAM DRCH VOL LVL</td><td>02161-02164</td></tr> <tr><td>4</td><td>MSGV NOT OPEN SCRAM</td><td>02165-02168</td></tr> <tr><td>5</td><td>DRYNG HI PRESS SCRAM</td><td>02169-02172</td></tr> <tr><td>6</td><td>REAC HI PRESS SCRAM</td><td>02173-02176</td></tr> <tr><td>7</td><td>REAC LO WTR LVL SCRAM</td><td>02177-02180</td></tr> <tr><td>8 + 9</td><td>NEUTRON MON SYS SCRAM</td><td>02181-02184</td></tr> <tr><td>10</td><td>MANUAL SCRAM</td><td>02129, 02136, 02172, 02173</td></tr> <tr><td>11</td><td>REDUNDANT REACTIVITY CONTROL SYSTEM</td><td>02189, 02203</td></tr> </tbody> </table>	EVENT	DESCRIPTION	DIGITAL POINTS	1	TB STOP-VALV CLS SCRAM	02133-02138	2	TB CTNL-VALV CLS SCRAM	02137-02140	3	SCRAM DRCH VOL LVL	02161-02164	4	MSGV NOT OPEN SCRAM	02165-02168	5	DRYNG HI PRESS SCRAM	02169-02172	6	REAC HI PRESS SCRAM	02173-02176	7	REAC LO WTR LVL SCRAM	02177-02180	8 + 9	NEUTRON MON SYS SCRAM	02181-02184	10	MANUAL SCRAM	02129, 02136, 02172, 02173	11	REDUNDANT REACTIVITY CONTROL SYSTEM	02189, 02203	<b>*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.</b>		
EVENT	DESCRIPTION	DIGITAL POINTS																																			
1	TB STOP-VALV CLS SCRAM	02133-02138																																			
2	TB CTNL-VALV CLS SCRAM	02137-02140																																			
3	SCRAM DRCH VOL LVL	02161-02164																																			
4	MSGV NOT OPEN SCRAM	02165-02168																																			
5	DRYNG HI PRESS SCRAM	02169-02172																																			
6	REAC HI PRESS SCRAM	02173-02176																																			
7	REAC LO WTR LVL SCRAM	02177-02180																																			
8 + 9	NEUTRON MON SYS SCRAM	02181-02184																																			
10	MANUAL SCRAM	02129, 02136, 02172, 02173																																			
11	REDUNDANT REACTIVITY CONTROL SYSTEM	02189, 02203																																			
Page 3 NOTE	<sup>2</sup> Interval time (D) = Alarm SOE/Chronolog time (C) - Initiating Parameter SOE/Chronolog Time (A) [W, X, Y ,Z above]	<b>*Operator determines the INTERVAL TIMEs and records the times in the appropriate boxes.</b>																																			
5)	<b>COMPLETE</b> 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.																																			
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b>.</p> <p><b>STOP TIME:</b> _____</p>																																				
<b>Task Standard:</b> 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

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

**VALIDATED BY:**

Qualification Level Required:           SRO          

<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

## 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) <sup>2</sup> (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; and Vibration readings sheet.

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 CONDIITONS:**

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

**INITIATING CUE:**

1. **PERFORM** the SM/CRS review of the completed HC.OP-IS.BC-0003.
2. **CORRECT** discrepancies, IF any.
3. **DOCUMENT** applicable Technical Specifications 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:	<p><b>PROVIDE</b> 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; <u>AND</u>  <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.</p> <p><b>START TIME:</b> _____</p>			
5.42	<p><b>SUBMIT</b> the procedure to the SM/CRS for review <u>AND</u> completion of Attachment 1.</p>			
		<p>Operator commences the review.</p> <p>Operator determines that the Suppression Pool Cooling Flow recorded on Attachment 3, Steps 5.25.3, for the pump is less than required (10,452 &lt; 10,462).</p>		
CUE:	<p>If the operator reports the error, <b>STATE</b> "Make the necessary corrections and continue with the review."</p>			
		<p><b>*Operator changes the SAT to UNSAT.</b></p>		
		<p>Operator determines that the Discharge Pressure recorded on Attachment 3, Steps 5.21.3.A, for the pump is incorrect:</p> <p>The PUMP SUCTION PRESSURE should have been added to the PUMP DISCHARGE PRESSURE. GAGE DIFFERENTIAL PRESSURE should be 142.2 psid.</p>		
CUE:	<p>If the operator reports the error, <b>STATE</b> "Make the necessary corrections and continue with the review."</p>			
		<p><b>*Operator corrects error.</b></p>		
		<p>Operator determines that the TEST DIFFERENTIAL PRESS recorded on Attachment 3, Steps 5.21.5, for the pump is incorrect:</p> <p>A math error was made. It should be 140.0 psid.</p>		
CUE:	<p>If the operator reports the error, <b>STATE</b> "Make the necessary corrections and continue with the review."</p>			
		<p><b>*Operator corrects error.</b></p>		

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.		
<b>CUE:</b>	<b>If the operator reports the error, STATE "Make the necessary corrections and continue with the review."</b>			
		<b>*Operator changes the SAT to UNSAT.</b>		
<b>2.0 POST TEST INFORMATION</b>				
2.1	The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 6.8.4.i, 4.5.1.b.2, 4.6.2.3.b, 4.6.2.2.b, and 4.3.7.4 and the test is considered	Operator reviews the data entered for completeness and compliance with Technical Specifications.		
	2.1.1. SATISFACTORY (All acceptance criteria is marked SAT and/or ALERT. IF in ALERT, <b>GENERATE</b> a Notification for evaluation.)	Operator determines test does not meet these criteria.		
	2.1.2. UNSATISFACTORY (Any test evaluations are marked UNSAT). <b>TAKE</b> action IAW Technical Specifications and <b>GENERATE</b> a Notification.	Operator notes that data flagged as ACCEPTANCE CRITERIA was marked UNSAT.  <b>*Operator determines B RHR Pump is INOPERABLE for Technical Specifications, AND the most limiting Tech Spec is 3.6.2.3 Action a</b>  (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.		
<b>CUE:</b>	<b>Notification 12345678 has been written by another operator.</b>			

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:	<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><b>Task Standard:</b> Operator performs the SM/CRS review of a submitted HC.OP-IS.BC-0003.</p>				

**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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** ZZ027

**REV#:** 05

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

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

**VALIDATED BY:**

Qualification Level Required:           SRO          

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

ON FILE	SRO	ON FILE	9/27/2017
Name	Qual	Signature	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)@
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue, partially completed OP-HC-103-105, <b>AND</b> <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	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.		
<b>CUE:</b>	<b>IF</b> the operator requests the NCO to make changes, <b>THEN DIRECT</b> 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 securing of purge lineup for end time of second purge period instead of using entry into OPCON 4 time IAW step 4.4.2. Total hours should be 4.5 vice 7.0 (0822 vice 1048).		
<b>CUE:</b>	<b>IF</b> the operator requests the NCO to make changes, <b>THEN DIRECT</b> 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.		
<b>CUE:</b>	<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>			
<p><b>Task Standard:</b> 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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** ZZ059

**REV#:** 00

**TASK:** Verify Compliance with Gaseous Release Permit

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

**VALIDATED BY:**

Qualification Level Required:           SRO          

<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**

<b>SECTION A</b>																																													
Date: <u>Today</u>		<b>NOTE:</b> This permit is valid only until 2400 of this date																																											
Gaseous Effluent Permit #: <u>020160003</u>																																													
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- 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 date

Gaseous 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>	
<u>3/3/17</u>	<u>5.5</u>	(1) Max. allowed for 365 days (Admin Limit) <span style="float: right;"><b>452 hrs</b></span>
<u>6/25/17</u>	<u>3.5</u>	(2) Total previous year (NOTE 1) <span style="float: right;">(-) 35.5</span>
<u>8/30/17</u>	<u>24.0</u>	(3) Hours available this date (line 1 minus line 2) <span style="float: right;">(=) 416.5</span>
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		NCO performing calculation <span style="float: right;">Date/Time</span>
		<i>John Smith</i> <span style="float: right;"><u>Today/0030</u></span>
		SM/CRS verification and authorization <span style="float: right;">Date/Time</span>
		<i>Andrew Jones</i> <span style="float: right;"><u>Today/0045</u></span>

**SECTION C**

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

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

**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  $\mu$ Ci/sec Noble Gas
  - 1.17E-03  $\mu$ 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  $\mu$ Ci/sec Noble Gas
  - 1.17E-03  $\mu$ 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:	<p><b>PROVIDE</b> the operator the initiating cue <u>AND</u>  <b>ENTER START TIME</b> <u>AFTER</u> Operator repeats back the Initiating Cue.</p> <p><b>START TIME:</b> _____</p>			
	<b>EP-HC-111-101</b>			
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. <b>ASSESS</b> the event and/or plant conditions and <b>DETERMINE</b> 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. <b>REVIEW</b> 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, <b>REVIEW</b> EALs in the subcategory beginning with the lowest emergency classification level to the highest classification level (left to right). <b>ENSURE</b> all pages of a particular subcategory being considered are reviewed.</p> <p>4. If using the ECG – EAL Wallcharts, for each applicable subcategory, <b>REVIEW</b> 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 <b>REVIEW</b> the Fission Product Barrier (FPB) Table:</p> <p>a. <b>EXAMINE</b> the FPB categories in the left column of the table.</p> <p>b. <b>SELECT</b> the category that most likely coincides with event conditions.</p> <p>c. <b>REVIEW</b> all thresholds in this category for each fission product barrier.</p> <p>d. For each threshold that is exceeded, <b>IDENTIFY</b> its point value and <b>DETERMINE</b> 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. <b>REVIEW</b> the associated EALs as compared to the event and <b>SELECT</b> 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>	<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>		
	<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 &amp; Completion Reference.</p>	<p>Examiner Note: Filling out the NRC Data Sheet is beyond the scope of this JPM.</p>	<p>N/A</p>	



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.		
<b>CUE:</b>	<b>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.</b>			
	9. <b>IDENTIFY</b> and <b>IMPLEMENT</b> the referenced ECG form based on the Emergency Classification Level.  <ul style="list-style-type: none"> <li>• Unusual Event                      Implement EP-HC-111-F1</li> <li>• Alert                                    Implement EP-HC-111-F2</li> <li>• Site Area Emergency              Implement EP-HC-111-F3</li> <li>• General Emergency                Implement EP-HC-111-F4</li> <li>• Unusual Event (Common Site)    Implement EP-HC-111-F24</li> </ul> <p><b>REFER</b> 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.</p>	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.		
<b>EP-HC-111-F2            ATTACHMENT 3            ALERT</b>				
<b>A.</b>	<b><u>CLASSIFICATION</u></b>			
	1. <b>CALL</b> communicators to the Control Room.	Operator calls communicators to the Control Room and initials Step.		
<b>CUE:</b>	<b>After 2 minutes, report as the CM1 and CM2 communicators.</b>			

JPM NUMBER: ECG016  
 REV NUMBER: 00

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	2. <b>IF</b> a <b>Security Event</b> is in progress, <b>THEN IMPLEMENT</b> 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.		
<b>CUE:</b>	<b>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.</b>			
	3. If time allows, <b>DIRECT Classification Independent Verification</b> 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.		
<b>CUE:</b>	<b>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.</b>			
	4. After Classification <b>Independent Verification</b> is obtained: <ul style="list-style-type: none"> <li>• <b>DECLARE</b> the ALERT (enter time and date on ICMF)</li> </ul>	Operator commences filling out ICMF and initials Step.  <b>*Operator declares an ALERT, places time and date in the appropriate spots in Attachment 2,</b>  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).  <b>TIME:</b> _____		

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"> <li>• <b>COMPLETE / APPROVE</b> the ICMF</li> </ul>	<p><b>*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,</b></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, <b>OBTAIN</b> an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF and initials Step.		
<b>CUE:</b>	<b>IF the Operator requests a peer check to verify the EAL Classification, THEN INFORM the Operator that no one is available.</b>			
	6. Continue with <b><u>NOTIFICATION AND ACTIVATION</u></b> as follows: <ul style="list-style-type: none"> <li>• If desired, <b>ACTIVATE / DIRECT ACTIVATION</b> of ERO Emergency Callout (EP 96-003)</li> </ul>	<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>		
<b>CUE:</b>	<b><u>IF</u> asked/requested to activate, <u>OR</u> the Operator attempts to activate the ERO Emergency Callout, <u>THEN STATE</u> "Activation of the ERO Emergency Callout is complete."</b>			

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"> <li><b>DIRECT</b> the Primary Communicator to implement ECG Attachment 6</li> </ul>	<p><b>*Operator provides the ICMF to CM1 and directs implementation of Att.6,</b></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><b>TIME:</b> _____</p>		
	<ul style="list-style-type: none"> <li><b>DIRECT</b> the Secondary Communicator to implement ECG Attachment 8 for an ALERT</li> </ul>	<p><b>*Operator directs CM2 to implement Att. 8 for an ALERT,</b></p> <p>and initials Step.</p>		
<b>CUE:</b>	<b>Role-play as Secondary Communicator and repeat back the directions given. Provide Terminating Cue.</b>			
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> Operator declares an ALERT [ECG HA3.1], and makes notifications within identified Critical Times in accordance with EP-HC-111-101.</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: 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

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

**VALIDATED BY:**

Qualification Level Required:           SRO          

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

ON FILE	SRO	ON FILE	9/27/2017
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  $\mu$ Ci/sec Noble Gas
  - 1.17E-03  $\mu$ 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  $\mu$ Ci/sec Noble Gas
  - 1.17E-03  $\mu$ 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  
SYSTEM: Reactor Protection System  
TASK NUMBER: 2120030101  
TASK: Reset A Reactor Scram

**2018 NRC**  
**JPM - A**

COPY \_\_\_\_ OF \_\_\_\_

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: \_\_\_\_\_ DATE: \_\_\_\_\_  
Signature

# JOB PERFORMANCE MEASURE

**SYSTEM:** Reactor Protection System

**TASK NUMBER:** 2120030101

**TASK:** Reset A Reactor Scram

**INITIAL CONDIITONS:**

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

**INITIATING CUE:**

**COMPLETE** Section 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)@
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue, a marked-up copy of HC.OP-SO.SB-0001, <u>AND ENTER START TIME AFTER</u> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
<b>CUE:</b>	<b>If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.</b>			
	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	<b>ENSURE</b> 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
<b>NOTE</b>	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.		
<b>CAUTION</b>	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. <b>ENSURE</b> 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. <b>INSERT</b> Key AND PLACE HI LEVEL SCRAM BYPASS in BYPASS AND <b>OBSERVE</b> 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. <b>PERFORM</b> the following to reset the Scram Reset Switches:  1. <b>INSERT</b> Key AND <b>TURN</b> RPS TRIP SYSTEM A TRIP LOGIC A1 to RESET AND <b>RETURN</b> to NORM. <b>INITIAL</b> 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. <b>INSERT</b> Key AND <b>TURN</b> RPS TRIP SYSTEM A TRIP LOGIC A2 to RESET AND <b>RETURN</b> to NORM. <b>INITIAL</b> 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. <b>INSERT</b> Key AND <b>TURN</b> RPS TRIP SYSTEM B TRIP LOGIC B1 to RESET AND <b>RETURN</b> to NORM. <b>INITIAL</b> 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. <b>INSERT</b> Key AND <b>TURN</b> RPS TRIP SYSTEM B TRIP LOGIC B2 to RESET AND <b>RETURN</b> to NORM. <b>INITIAL</b> 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. <b>ENSURE</b> 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. <b>ENSURE</b> 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.		
<b>NOTE</b>	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. <b>RESET</b> 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. <b>ENSURE</b> 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. <b>ENSURE</b> 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. <b>ENSURE</b> the following annunciators are de-energized:  <ul style="list-style-type: none"> <li>• REACTOR SCRAM TRIP LOGIC A1</li> <li>• REACTOR SCRAM TRIP LOGIC A2</li> <li>• REACTOR SCRAM TRIP LOGIC B1</li> <li>• REACTOR SCRAM TRIP LOGIC B2</li> </ul>	Operator verifies the following annunciators are not in alarm:  <ul style="list-style-type: none"> <li>• REACTOR SCRAM TRIP LOGIC A1</li> <li>• REACTOR SCRAM TRIP LOGIC A2</li> <li>• REACTOR SCRAM TRIP LOGIC B1</li> <li>• REACTOR SCRAM TRIP LOGIC B2</li> </ul> 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)@
<b>NOTE</b>	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. <b>VERIFY</b> all control rods have settled into notch position "00" using one of the following: <ul style="list-style-type: none"><li>• FOUR ROD DISPLAY</li><li>• Process Plant Computer (PPC)</li><li>• RWM Shutdown Confirmation Screen.</li><li>• SPDS ALL RODS INSERTED reads "YES"</li></ul>	<b>*Operator attempts to verify all control rods have settled into notch "00", and identifies that all rods have NOT resealed,</b>  and informs the CRS that rod 38-47 is at position 02.		
<b>CUE:</b>	<b>Acknowledge the report from the operator, and direct the operator to reseat the Control Rod.</b>			
<b>NOTE</b>	<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. <b>RE-SEAT</b> Control Rods to "00" by applying a rod insert signal.	<b>*Operator applies an insert signal to Control Rod 38-47,</b>  Observes that it seats to position "00", informs the CRS that all rods are seated, and initials Step.		
<b>CUE:</b>	<b>Acknowledge the report from the operator.</b>			

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> <b>ISOLATE</b> 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, <b>NOTIFY</b> Radiation Protection to survey the Scram Discharge Volumes.	Operator notifies Radiation Protection to survey the Scram Discharge Volumes.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> Operator resets RPS, identifies rod 38-47 is at position 02, and reseats rod 38-47, in accordance with HC.OP-SO.SB-0001.</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: 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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	11/7/2014
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	11/7/2014
Name	Qual	Signature	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:

<b>Initial</b>	<b>ET</b>	
	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:

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

## OVERRIDE SCHEDULE:

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

# **JOB PERFORMANCE MEASURE**

## **INITIAL CONDITIONS:**

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

## **INITIATING CUE:**

**COMPLETE** Section 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: Reactor Recirculation

TASK NUMBER: 2020080401

TASK: Perform Scoop Tube Positioner Lockup Operation

JPM NUMBER: 305H-JPM.BB002

REVISION: 20

SAP BET: NOH05JPBB02E

K/A NUMBER: 202002 A2. Ability To (A) Predict The Impacts Of The Following On The Recirculation Flow 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)  
A2.05 Scoop Tube Lockup: BWR-2,3,4

IMPORTANCE FACTOR: RO: 3.1 SRO: 3.1

ALTERNATE PATH:

APPLICABILITY:

RO

SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.BB-0002, Rev. 103

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:** Reactor Recirculation

**TASK NUMBER:** 2020080401

**TASK:** Perform Scoop Tube Positioner Lockup Operation

## INITIAL CONDIITONS:

1. The plant was at 80% Reactor Power with power ascension in progress.
2. A control signal failure caused Reactor Recirculation Pump A Scoop Tube to lock-up.
3. Reactor Recirculation Pump A was placed in Scoop Tube Positioner Operation IAW Section 5.5 of HC.OP-SO.BB-0002.
4. I&C has repaired the control signal failure.
5. Currently at step 5.5.4 of HC.OP-SO.BB-0002.

## INITIATING CUE:

**USE** method 5.9.2.B. to **RESET** the Reactor Recirculation Pump A Scoop Tube Lockup IAW Section 5.9 of HC.OP-SO.BB-0002.



JPM NUMBER: BB002  
 REV NUMBER: 20

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue <u>AND</u> <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator obtains and locates procedure HC.OP-SO.BB-0002.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
<b>CUE:</b>	<b>IF</b> excessive time is taken reviewing precautions and limitations, <b>THEN INFORM</b> operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.9.1.		
<b>CAUTION</b>	<b>Improper reset of a Scoop Tube Positioner can result in a significant power transient, and possible Scram due to rapid changes in Recirculation Flow.</b>	Operator reads and initials CAUTION.		
5.9.1	<b>ENSURE</b> all prerequisites have been satisfied IAW Section 2.9.	Operator ensures that all prerequisites have been satisfied IAW Section 2.9, and initials each prerequisite and the Step.		
<b>NOTE</b>	SIC-R621A (B) SPEED ● Actual Speed (%)  SIC-R621A (B) SPEED DEMAND ● Demanded Scoop Tube Position  SIC-621A (B) SPEED DEMAND (demanded scoop tube position) may move ...	Operator reads and initials NOTE.		
5.9.2	Adjust SPEED DEMAND by performing EITHER 5.9.2.A OR 5.9.2.B:	Operator marks Steps 5.9.2.A.1. and 2 as N/A.		
A.	Use a deviation between the actual ...			

JPM NUMBER: BB002  
 REV NUMBER: 20

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
B.	Null the deviation between the actual speed and the demanded speed as follows:  1. <b>PRESS</b> SIC-R621A(B) SPD CONT INCREASE u DECREASE pushbuttons (alternating) to cycle speed demand above and below the indicated speed. This will ensure the controller is not saturated.	Operator presses SIC-R621A SPD CONT INCREASE AND DECREASE pushbuttons (alternating) to cycle speed demand above and below the indicated speed, and initials Step.		
	2. Using Attachment 4, <b>MATCH</b> speed demand and speed on SIC-R621A(B) SPD CONT.	Operator matches speed demand and speed on SIC-R621A SPD CONT, and initials Step.		
<b>NOTE</b>	Even a small error signal will gradually drive controller output high or low. <b>Perform Steps 5.9.2.B.3, 5.9.2.B.4, and 5.9.3 in quick succession</b> to ensure a bumpless reset of the lock-up.	Operator reads and initials NOTE.		
	3. <b>ADJUST</b> speed demand to obtain $3.00 \pm 0.01$ VDC on CRIDS POINT <b>STR090</b> RECIRC SPEED A ERROR SIGNAL ( <b>STR091</b> RECIRC SPEED B ERROR SIGNAL).	<b>*#Operator ensures speed demand indicates <math>3.00 \pm 0.01</math> VDC on CRIDS POINT STR090, RECIRC SPEED A ERROR SIGNAL,</b>  and initials Step.  Note: May not require adjustment, since speed demands might have been matched in 5.9.2.		
	4. <b>ENSURE</b> CRIDS point <b>STR088</b> RECIRC SPEED CONTROLLER A OUTPUT ( <b>STR089</b> RECIRC SPEED CONTROLLER B OUTPUT) is relatively stable and close to the desired speed demand, and <b>ENSURE</b> point <b>STR090</b> ( <b>STR091</b> ) is stable at $3.00 \pm 0.01$ VDC.	Operator ensures CRIDS point STR088 is relatively stable and close to the desired speed demand, and initials Step.  Note: CRIDS STR088/9 points not on page A085 display.		

JPM NUMBER: BB002  
 REV NUMBER: 20

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
<b>NOTE</b>	Although a constant speed should be maintained when coming out of Lockup, a small speed change may be experienced.	Operator reads and initials NOTE.		
<b>CAUTION</b>	<b>When coming out of Scoop Tube Lockup, the potential exists for the Recirc Pump to "Run Away", and the operator should be prepared to take appropriate action.</b>	Operator reads and initials CAUTION.		
5.9.3	<b>PRESS SCOOP TUBE TRIP RESET AND ENSURE SCOOP TUBE LOCK-UP light extinguishes.</b>	<b>*#Operator presses Recirc Pump A SCOOP TUBE TRIP RESET,</b>  ensures that the SCOOP TUBE LOCK-UP light extinguishes, and initials Step.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> Operator resets the Reactor Recirculation Pump A Scoop Tube Lockup IAW Section 5.9.2.B. of HC.OP-SO.BB-0002.</p>				

**OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: BB002  
REV NUMBER: 20

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_

QUESTION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESPONSE: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:            SAT                                UNSAT   

QUESTION: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESPONSE: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:            SAT                                UNSAT

# JOB PERFORMANCE MEASURE

JPM NUMBER: BB002

## REVISION HISTORY

Rev #	Date	Description	Validation Required?
20	9/29/2017	Revised due to procedure change.	N

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** BB002

**REV#:** 20

**TASK:** Perform Scoop Tube Positioner Lockup Operation

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	6/18/2015
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	6/18/2015
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: BB002

REV#: 20

## INITIAL CONDITIONS:

I.C.

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

**INITIALIZE** the simulator to 80% power, MOL as follows:

- **REDUCE** Reactor Recirc pump speeds to 64% (It is critical that 'A' Recirc pump speed is 64%).
- **INSERT** 10A and 10B rods to 00

**PRESS** the REACTOR RECIRCULATION PUMP A TRIPS SCOOP TUBE TRIP pushbutton.

**REDUCE** SIC-R621A Demand Output by 4% AND allow SIC-R621A SPEED DEMAND to saturate low.

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

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

**INITIAL** a copy of HC.OP-SO.BB 0002 Section 5.5 for the Reactor Recirc Pump A.

**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

## REMOTE SCHEDULE:

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

## OVERRIDE SCHEDULE:

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

# JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The plant was at 80% Reactor Power with power ascension in progress.
2. A control signal failure caused Reactor Recirculation Pump A Scoop Tube to lock-up.
3. Reactor Recirculation Pump A was placed in Scoop Tube Positioner Operation IAW Section 5.5 of HC.OP-SO.BB-0002.
4. I&C has repaired the control signal failure.
5. Currently at step 5.5.4 of HC.OP-SO.BB-0002.

## INITIATING CUE:

**USE** method 5.9.2.B. to **RESET** the Reactor Recirculation Pump A Scoop Tube Lockup IAW Section 5.9 of HC.OP-SO.BB-0002.



# 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:	<b>PROVIDE</b> the operator the initiating cue, <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue <b>AND</b> states ready to begin.  <b>START TIME:</b> _____			
CUE:	<b>PLACE the simulator in RUN, and inform the Operator that the simulator is in RUN.</b>			
	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	<b>IF</b> HPCI is in the Injection Mode of Operation, <b>THEN PERFORM</b> the following:  A. <b>IF</b> necessary, <b>RESET</b> HPCI INITIATION LOGIC.	<b>*Operator depresses the RESET HPCI INITIATION LOGIC pushbutton,</b>  and initials Step.		
	B. <b>ADJUST</b> 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. <b>WHEN</b> FLOW indicates zero gpm <b>THEN CLOSE</b> HV-F006.	<b>*When zero gpm is reached, operator depresses the CLOSE pushbutton for HV-F006,</b>  and initials Step.		
	D. <b>CLOSE</b> HV-8278.	<b>*Operator depresses the CLOSE pushbutton for HV-8278,</b>		

JPM NUMBER: BJ014  
 REV NUMBER: 05

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
	E. <b>ENSURE</b> 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. <b>PRESS</b> 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. <b>OPEN</b> 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. <b>ADJUST</b> 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. <b>THROTTLE</b> HV-F008 <u>AND</u> <b>ADJUST</b> 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)@
		<p>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).</p> <p>Operator announces 'Suppression Pool Level Hi/(Lo)', and informs CRS.</p>		
		<p>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.</p>		
<p>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.</p>				
<b>CUE:</b>	<p><b>IF necessary, DIRECT the Operator to transfer HPCI suction back to the CST and place HPCI in Full Flow Test mode to continue plant cooldown in accordance with HC.OP-AB.ZZ-0001.</b></p>			
<u>NOTE</u>	<p>Loss of 1AD481 may affect controls and indication.</p>	<p>Operator reads and initials NOTE.</p>		
1.0	<p><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 PERFORM</u> the following:</p> <p>A. <b>ADJUST</b> FIC R600 Flow Setpoint to zero gpm.</p>	<p><b>*Operator depresses the Lower Setpoint Pushbutton until zero gpm flow indication is reached on FIC-R600,</b></p> <p>and initials Step.</p>		
	<p>B. <u>IF</u> required, <b>CLOSE</b> AP-HV-F011.</p>	<p>Operator may depress the CLOSE Pb for AP-HV-F011,</p> <p>and initials Step.</p> <p>Examiner Note: Valve will auto close when BJ-HV-F042 is full open.</p>		
	<p>C. <u>WHEN</u> Suction Swap to Suppression Pool is completed, (HV-F042 OPEN, HV-F004 and AP-HV-F011 are CLOSED) <u>THEN PROCEED</u> in this Attachment.</p>	<p>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.</p>		

JPM NUMBER: BJ014  
 REV NUMBER: 05

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
2.0	<b>PRESS</b> HV-F042 AUTO OPEN OVRD Pushbutton <b>AND</b> <b>VERIFY</b> the HV-F042 OVRD Light is LIT.	<b>*Operator depresses the OVRD Pb for HV-F042,</b> and initials Step.		
3.0	<b>IF</b> a HPCI Initiation Signal is present, <b>THEN PERFORM</b> the following:	Operator identifies that the HPCI Initiation Signal is <b>NOT</b> 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	<b>IF</b> a HPCI Initiation Signal is <b>NOT</b> present, <b>THEN PERFORM</b> the following: A. <b>PRESS</b> the HV-F042 CLOSE Pushbutton	<b>*Operator depresses the HV-F042 CLOSE Pb,</b> and initials Step.		
	B. <b>WHEN</b> HV-F042 indicates dual position, <b>THEN OPEN</b> HV-F004.	Operator observes both the OPEN and CLSD lights are illuminated for HV-F042,  <b>*Operator depresses the HV-F004 OPEN Pb,</b> and initials Step.		
<b>CUE:</b>	<b>IF</b> the CRS is asked about restoring HPCI to full flow test, <b>DIRECT</b> the Operator to restore HPCI to the Full Flow Test mode to continue plant cooldown.			
5.0	<b>IF</b> required, <b>RESTORE</b> HPCI to Full Flow Test as follows: A. <b>ADJUST</b> FIC-R600 HPCI FLOW setpoint to 1000 gpm.	<b>*Operator depresses the Raise and/or Lower Setpoint Pushbutton(s) until HPCI flow setpoint indicates approximately 1000 gpm on FIC-R600,</b> and initials Step.		
	B. <b>IMMEDIATELY OPEN</b> AP-HV-F011.	<b>*Operator depresses the AP-HV-F011 OPEN pushbutton,</b> 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 <b>ADJUST</b> FIC-R600 setpoint to 3000 gpm.	<p>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.</p> <p>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.</p>		
	D. <b>THROTTLE</b> HV-F008 <b>AND ADJUST</b> 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.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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.</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: 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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** BJ014

**REV#:** 05

**TASK:** Place HPCI in Full Flow Test Operation

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	9-26-2012
Name	Qual	Signature	Date

ON FILE	RO	ON FILE	9-26-2012
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: BJ014

REV#: 05

## INITIAL CONDITIONS:

I.C.

Initial	
	<b>INITIALIZE</b> the simulator to 100% power, MOL
	<b>INSERT</b> Malfunction MS15 Spurious MSIV Closure.
	<b>IMPLEMENT</b> EOP-101 and EOP-102.
	<b>STABILIZE</b> Reactor Pressure using SRV's WHEN Reactor Water Level reaches -38 inches, <b>CONTROL</b> HPCI and RCIC injection to restore Reactor Water level. <b>STABILIZE</b> Reactor Water Level at approximately -15 inches with HPCI (at a low injection rate) and RCIC injecting.
	<b>PLACE</b> 'B' RHR in Suppression Pool Cooling mode of operation.
	<b>ESTABLISH</b> Suppression Pool level at approximately 77.9 inches.
	<b>STATION</b> Instructor in Outer/Inner horseshoe to acknowledge overhead alarms/control pressure/RCIC flow.

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

Initial	Description
	<b>ENSURE</b> a copy of HC.OP-AB.ZZ-0001 is available.
	<b>MARKUP</b> HC.OP-AB.ZZ-0001, Attachment 6 for HPCI injection.
	<b>ENSURE</b> Mode Switch key is removed.
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

## EVENT FILE:

Initial	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:

Initial	@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. 72

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)
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue, HC.OP-SO.AC-0001 (marked up), <b>AND ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator reviews Prerequisites, Precautions, and Limitations.	Operator reviews and initials Prerequisites, Precautions, and Limitations.		
5.3.8.	<b>MONITOR</b> 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. <b>[CD-053B]</b>	Operator ensures CRIDS page #40 is displayed on at least one CRT and initials Step.		
5.3.9.	<b>WHILE</b> rolling the Main Turbine from turning gear to 1800 rpm in the following steps <b>CLOSELY MONITOR</b> all Main Turbine parameters in the CR <b>AND DIRECT</b> field operator(s) to listen for rubbing or unusual noises, and check for steam leaks and bearing oil flows.	Operator reads and initials Step.		
<b>CUE:</b>	<b>Respond as the field operator(s) if directed to monitor Main Turbine roll.</b>			
	A. <b>CYCLE</b> HV-1065, EXHAUST HOOD SUPPLY BYPASS to maintain CRIDS points A3169, A3170 and A3171 less than 140°F.	Operator reads and initials Step.		
<b>CAUTION</b>	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.	<b>AFTER</b> observing the parameters and operational requirements listed in Attachment 1, <b>ROLL</b> the Main Turbine as follows:  A. <b>SELECT</b> <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. <b>VERIFY</b> the following: <ul style="list-style-type: none"> <li>• All CV's, IV's and MSV's are CLOSED</li> </ul>	Operator verifies that all CV's, IV's and MSV's are closed, and initials Step.		
	<ul style="list-style-type: none"> <li>• Valves are properly positioned per Attachment 7.</li> </ul>	Operator verifies the valves listed in Attachment 7 are positioned properly for a TURB RESET, and initials Step.		
	<ul style="list-style-type: none"> <li>• Valve Position Limiter - NOT LIMITING is displayed.</li> </ul>	Operator verifies Valve Position Limiter - NOT LIMITING is displayed, and initials Step.		
	<ul style="list-style-type: none"> <li>• Annunciator D3-D5, EHC Panel 10C363 is extinguished.</li> </ul>	Operator verifies Annunciator D3-D5, EHC Panel 10C363 is extinguished, and initials Step.		
	C. <u>IF EITHER</u> of the following occur during the performance of the following step, <u>THEN IMMEDIATELY TRIP</u> the turbine: <ul style="list-style-type: none"> <li>• Turbine speed increases rapidly beyond the 100 rpm hold point</li> <li>• CV's open before the IV's</li> </ul>	Operator reads and initials Step.		
	D. <b>SELECT</b> <u>Control</u> , <u>Speed-Load</u>	*Operator selects <u>Control</u> , <u>Speed-Load</u> on DEHC HMI, and initials Step.		
	E. <b>SELECT</b> Speed Cmd RPM Low (100), <u>AND OBSERVE</u> the following: <ul style="list-style-type: none"> <li>• MSV #2 opens immediately AND WHEN MSV #2 is full open, MSV #1, #3 and #4 open slowly.</li> </ul>	*Operator selects <b>Speed Cmd RPM</b> <u>Low (100)</u> , <u>AND</u> observes the following: <ul style="list-style-type: none"> <li>• MSV #2 opens immediately AND WHEN MSV #2 is full open, MSV #1, #3 and #4 open slowly, and initials Step.</li> </ul>		
	<ul style="list-style-type: none"> <li>• IV #1, #3, and #5 open slowly AND WHEN IV #1, #3 and #5 are full open, IV #4, #2 and #6 (respectively) open.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>		

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"> <li>Turbine Speed (RPM) is increasing as the Turbine accelerates.</li> </ul>	<ul style="list-style-type: none"> <li>SPEED INCREASING is ON as the Turbine accelerates, and initials Step.</li> </ul>		
	<ul style="list-style-type: none"> <li>Turbine rolls off of turning gear (TURNING GEAR - DISENGAGED).</li> </ul>	<ul style="list-style-type: none"> <li>Turbine rolls off of turning gear (TURNING GEAR - ENGAGED is OFF), and initials Step.</li> </ul>		
<b>CAUTION</b>	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.		
<b>CUE:</b>	If during the following the Operator requests directions, direct the operator to take any necessary actions.			
	F. <b>WHEN</b> Turbine Speed indicates 90-100 rpm at Digital EHC HMI panel, <b>CHECK</b> for any abnormal vibration, expansion, bearing temperatures, etc.			
<b>CUE:</b>	If during the following the Operator requests directions, direct the operator to take any necessary actions.			
	G. <b>PERFORM</b> the following: 1. <b>OBSERVE</b> 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. <b>OBSERVE</b> 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>	<p>Operator recognizes Point 15 in the "RED BAND", and/or CRIDS point A2531 in alarm.</p>		
CUE:	<p><b>ACKNOWLEDGE any report of Point 15 being in the RED BAND.</b></p>			
	<div data-bbox="365 1192 716 1297" style="border: 1px solid black; padding: 2px;"> <p>The "RED BAND" areas are defined as follows:            Point # 15: 0.00 - 0.30 AND 0.68 - 1.00            Point # 16: 0.00 - 0.15 AND 1.81 - 2.00</p> </div> <p>3. <u>IF</u> the First Stage Shell temperature is &lt; 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, and informs the CRS.</p>		
CUE:	<p><b>IF Operator reports the need to trip the turbine, THEN DIRECT the operator to take any necessary actions.</b></p>			

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, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

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

<u>          ON FILE          </u>	<u>          SRO          </u>	<u>          ON FILE          </u>	<u>          9/29/2017          </u>
Name	Qual	Signature	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  
**SYSTEM:** Emergency Diesel Generator  
**TASK NUMBER:** 2640030101  
**TASK:** Perform Non-Emergency Operation of the Diesel Generator

2018 NRC  
JPM - E

Copy \_\_\_\_ of \_\_\_\_

**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)
	D. <b>PLACE</b> the Normal (Alternate) FEED BRKR-SYNC KEYLOCK Switch in the ON position.	<b>*Operator places the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position,</b>  observes the Alternate FEED (40101) BRKR-SYNC KEYLOCK Switch in the ON position, the Sync Scope rotating, and initials Step.		
<b>NOTE</b>	The synchroscope indicator light goes out when near the 12 o'clock position.	Operator reads NOTE and initials NOTE.		
	E. <b>ENSURE</b> the DROOP MODE light for the Diesel <u>AND</u> the SYNC indicator lights are ON. <b>[PR 980401119]</b>	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. <b>ENSURE</b> that the Normal <u>AND</u> Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF. <b>INITIAL</b> Attachment 1 for the Alternate(Normal) Feeder Breaker. <b>[CD-056H]</b>	Operator ensures that the Normal and Alternate Feeder Breaker AUTO CLOSE BLOCK PB backlights are OFF and initials Step.		
	G. <b>PERFORM</b> the following to synchronize across <u>AND</u> <b>CLOSE</b> the Normal (Alternate) FEED BRKR:  1. <u>IF</u> desired, <b>TRANSFER</b> 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.		
<b>CUE:</b>	<b>If asked if it is desired to transfer the Diesel Generator Voltage Regulator to MANUAL, inform operator that it is NOT desired.</b>			
	2. <u>IF</u> necessary, <b>ADJUST</b> 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. <b>ADJUST</b> 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> <b>CLOSE</b> 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. <b>PRESS</b> the AUTO CLOSE BLOCK PB for the Normal(Alternate) Feed Breaker <u>AND</u> <b>VERIFY</b> 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. <b>PLACE</b> 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, <b>UNLOAD</b> <u>AND</u> <b>STOP</b> the Diesel Generator IAW HC.OP-SO.KJ-0001(Q).	Operator informs the CRS of the status of the EDG.		
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> <b>RECORD</b> the STOP TIME.</p> <p><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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.</p>				

**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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON-FILE	SRO	ON-FILE	6-28-13
Name	Qual	Signature	Date

ON-FILE	RO	ON-FILE	6-28-13
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: KJ008

REV#: 06

## INITIAL CONDITIONS:

I.C.

Initial	
	<p>_____ <b>INITIALIZE</b> the simulator to rated power, MOL.</p> <p>_____ <b>TRANSFER</b> 10A401 to the ALTERNATE FEED BRKR.</p> <p>_____ <b>START, PARALLEL, AND LOAD</b> EDG A.</p> <p>_____ <b>ENSURE</b> Isochronous light is ON.</p> <p>_____ <b>OPEN</b> breaker 40108.</p> <p>_____ <b>ACKNOWLEDGE</b> overhead <u>AND</u> local alarms.</p> <p>_____ <b>ADJUST</b> generator voltage for bus voltage ~4300 volts.</p> <p>_____ <b>ADJUST</b> bus frequency to 60 Hertz.</p> <p>_____ <b>SWAP</b> busses 10A402, 403, <u>AND</u> 404 to Alternate infeeds.</p> <p>_____ <b>ENSURE</b> AUTO CLOSE BLOCK is ON for closed infeed breakers, <u>AND</u> OFF for open infeed breakers.</p>

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

Initial	Description
	<p>_____ <b>MARKUP</b> HC.OP-SO.PB-0001 through step 5.7.4, <u>INCLUDING</u> Attachment 1.</p> <p>_____ <b>ENSURE</b> copies are available for pre-brief if desired.</p>

## EVENT FILE:

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

## MALFUNCTION SCHEDULE:

Initial	@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)@
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue <u>AND</u> <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	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.		
<b>CUE:</b>	<b>If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.</b>			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.		
<b>NOTE</b>	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.	<b>ENSURE</b> all prerequisites have been satisfied IAW Section 2.3.	Operator ensures that all prerequisites have been satisfied, and initials the Step.		
<b>CUE:</b>	<b>If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.</b>			
5.3.2.	<b>ENSURE</b> 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"> <li>• HX AE217 INLET red HV-2537A OPEN light is illuminated and green CLOSE light is extinguished</li> <li>• HX BE217 INLET red HV-2537B OPEN light is illuminated and green CLOSE light is extinguished,</li> </ul> and initials the Step.		
5.3.3.	<b>OBSERVE</b> the following lights are off for the RACS Pumps going in service: <ul style="list-style-type: none"> <li>• OVLD/PWR FAIL</li> <li>• INOP</li> <li>• REMOTE</li> </ul>	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, <b>ENSURE</b> 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.  <b>*#Operator presses the RACS PMP BP209 BRKR 52-42011 red CLOSE pushbutton,</b>  observes the red CLOSED light illuminates, and the green TRIPPED light extinguishes, and initials Step.		
<b>CUE:</b>	<b>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.</b>			
<b>CAUTION</b>	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, <b>PERFORM</b> the following steps as necessary to correct/prevent air binding, <u>OTHERWISE, PROCEED</u> 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.	<p><b>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 &lt; 180 amps AND is approximately the same as the other I/S RACS pumps' motor amps.</b></p>	<p><b>*#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP B BP209 START pushbutton,</b></p> <p>observes:</p> <ul style="list-style-type: none"> <li>• The red BP209 START light illuminates and the green STOP light extinguishes</li> <li>• AI-6461 is &lt;180 amps and settles at approximately the same value as the "A" and "C" RACS pumps' amps</li> </ul> <p>and initials Step.</p>		
5.3.7.	<p><b>PRESS REACTOR AUXILIARIES COOLING PUMP B(A)(C) STOP PB. STOP comes on.</b></p>	<p><b>*#Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A STOP pushbutton,</b></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"> <li>• OHA A2-E2, "RACS TROUBLE"</li> <li>• CRIDS D5762 RACS PUMP BP209 TRBL</li> <li>• Amber OVLD/PWR FAIL is flashing</li> <li>• Red BP209 START light is extinguished.</li> <li>• Green STOP light is flashing.</li> <li>• AI-6461 reads 0 amps.</li> </ul>		

JPM NUMBER: ED002  
 REV NUMBER: 11

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)@
<b>HC.OP-AR.ZZ-0002 ATTACHMENT E2</b>				
Examiner Note: Operator may proceed directly to HC.OP-AB.COOL-0003.				
	<b>OPERATOR ACTION:</b> 1. <b>REFER</b> to HC.OP-AB.COOL-0003(Q); Reactor Auxiliary Cooling System.	Operator refers to HC.OP-AB.COOL-0003, and initials Step.		
<b>CUE:</b>	<b>Direct the Operator to perform Condition A of HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling System.</b>			
<b>HC.OP-AB.COOL-0003</b>				
	<b>CONDITION</b> A. RACS Pump has tripped.  Date/Time: _____	Operator enters the current Date/Time in the spaces provided.		
	<b>ACTION</b> A.1 <b>PRESS</b> 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"> <li>• The red AP209 START light remains extinguished and the green STOP light remains illuminated.</li> <li>• Motor amps continue to indicate 0 amps</li> </ul>		
<b>CUE:</b>	<b>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.</b>			

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"> <li>• <u>IF</u> the Common Off-Gas Train is in service, <u>THEN CLOSE</u> HV-2577.</li> <li>• <u>IF</u> Unit 1 Off-Gas Train is in service, <u>THEN CLOSE</u> HV-7712A1.</li> </ul>	<p>Operator observes the OFFGAS RECOMB TRAIN SELECT:</p> <ul style="list-style-type: none"> <li>• COM TRAIN red OPEN light illuminated and green CLOSE light extinguished.</li> <li>• TRAIN 1 red OPEN light extinguished and green CLOSE light illuminated.</li> </ul> <p><b>*Operator presses the OFF GAS CLR CNDS COOLING, 10E306 UNIT 1, HV 2577, green CLOSE pushbutton,</b></p> <p>observes the green CLOSE light illuminates and red HV 2577 OPEN light extinguishes, and initials Step.</p>		
<p><b>CUE:</b></p>	<p><b>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.</b></p> <p>Examiner Note: Leaving the HV-7712A1 closed and/or causing an isolation of the Common Offgas Train is failure criteria.</p>			
<p><b>CUE:</b></p>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b>.</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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:  $\geq 3.0$  (LOR); or  $\geq 2.5$  (ILT); or justification is provided.
- X   3. License level identified. (SRO,RO,STA,NLO)
- X   4. Performance location specified (In-Plant, Control Room, Simulator, or Classroom).
- X   5. Initial setup conditions are identified.
- X   6. Initiating and terminating cues are properly identified.
- X   7. Task standards for successful completion are identified.
- X   8. Critical steps meet the criteria for critical steps and are identified with an asterisk (\*). Sequence Critical Steps are identified with a pound sign (#).
- X   9. JPM has multiple Critical Tasks, or justification of the basis for a single critical task.
- X   10. Procedure(s) referenced by this JPM match the most current revision of that procedure.
- X   11. Cues both verbal and visual are complete and correct.
- X   12. Performance standards are specific in exact control and indication nomenclature (switch position, meter reading) even if these criteria are not specified in the procedural step.
- X   13. Statements describing important actions or observations that should be made by the operator are included (if required.)
- X   14. Validation time is included.
- X   15. JPM is identified as Time Critical and includes Critical Time (if required).

**VALIDATED BY:**

Qualification Level Required:           RO          

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

<u>          ON FILE          </u>	<u>          SRO          </u>	<u>          ON FILE          </u>	<u>          9/29/2017          </u>
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  
**SYSTEM:** Control Area Ventilation  
**TASK NUMBER:** 4880030101  
**TASK:** Place The Control Equipment Room Supply System In-Service

**2018 NRC**  
**JPM - G**

COPY \_\_\_\_ OF \_\_\_\_

**JPM NUMBER:** 305H-JPM.GK003  
**SAP BET:** NOH05JPGK03E

**REVISION:** 00

**K/A NUMBER:** 290003 A2. Ability To (A) Predict The Impacts Of The Following On The CONTROL ROOM HVAC ; 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)  
A2.03 Initiation/reconfiguration failure

**IMPORTANCE FACTOR:** RO: 3.4 SRO: 3.6

**ALTERNATE PATH:**

**APPLICABILITY:** RO  SRO

**EVALUATION SETTING/METHOD:** Simulator/Perform

**REFERENCES:** HC.OP-SO.GK-0001, Rev. 22

**TOOLS, AND EQUIPMENT:** None

**ESTIMATED COMPLETION TIME:** 15 Minutes

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

**JPM PERFORMED BY:** \_\_\_\_\_ **GRADE:** SAT  UNSAT

**ACTUAL COMPLETION TIME:** \_\_\_\_\_ Minutes

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

**REASON IF UNSATISFACTORY:**

**EVALUATOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_  
Signature

# JOB PERFORMANCE MEASURE

**SYSTEM:** Control Area Ventilation

**TASK NUMBER:** 4880030101

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

**INITIAL CONDIITONS:**

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

**INITIATING CUE:**

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

JPM NUMBER:           GK003            
 REV NUMBER:           00          

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

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

JPM NUMBER: GK003  
 REV NUMBER: 00

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

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

**JPM NUMBER:** GK003  
**REV NUMBER:** 00

**NAME:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.8.4	<p><b>PLACE</b> the Control Area Exhaust System in service as follows <b>AND INITIAL</b> Attachment 1 (Local Panel 1EC485):</p> <p>A. <b>TURN</b> HS-9599A(B), CONTROL AREA EXHAUST FAN A(B)V402 to STOP <b>AND THEN</b> to RUN.</p> <p>B. <b>TURN</b> HS-9599B(A), CONTROL AREA EXHAUST FAN B(A)V402 to STOP <b>AND THEN</b> to AUTO.</p>	Operator contacts the Equipment Operator to perform Step 5.8.4, and following the report, initials the Step.		
<b>CUE:</b>	<b>Respond as Equipment Operator that Step 5.8.4 is complete.</b>			
<b>NOTE</b>	<p>It may be desired to place A(B)VH407 fans in-service based on outside air temperatures. <u>IF</u> not, refer to HC.OP-AB.HVAC-0001.</p> <p>Normal lineup is to have one Supply Fan in service <b>AND</b> the other in AUTO.</p> <p>Control Equipment Room Supply Fans 1AVH407 <b>AND</b> 1BVH407 are interlocked to operate in AUTO mode with Chilled Water Pumps AP400 <b>AND</b> BP400 respectively.</p>	Operator reads and initials NOTE.		
5.8.5	<p><u>IF</u> desired, <b>PLACE</b> the Control Equipment Room Supply System in service as follows:</p> <p>A. <b>ENSURE</b> CONT EQ RM SPLY FAN LOCKOUT/AUTO PBs in AUTO <b>AND INITIAL</b> Attachment 1:</p> <ol style="list-style-type: none"> <li>CONT EQ RM SPLY FAN AVH407.</li> </ol>	Operator ensures that AUTO is illuminated for CONT EQ RM SPLY FAN AVH407, initials Attachment 1, and initials Step.		
	<ol style="list-style-type: none"> <li>CONT EQ RM SPLY FAN BVH407.</li> </ol>	Operator ensures that AUTO is illuminated for CONT EQ RM SPLY FAN BVH407, initials Attachment 1, and initials Step.		

JPM NUMBER: GK003  
 REV NUMBER: 00

NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	B. <b>PERFORM</b> the following:  1. <b>PRESS</b> CONT EQ RM SPLY FAN A(B)VH407 START PB <b>AND</b> <b>OBSERVE</b> START is illuminated.	<b>*#Operator presses the CONT EQ RM SPLY FAN BVH407 START PB,</b>  observes START is illuminated, and initials Step.		
	2. <b>VERIFY</b> FIC-9603A (B) CONTROL EQ RM FAN A(B)VH407 FAN AIR FLOW indicates approximately 59,500 cfm (Local Panel C(D)C483).	Operator contacts the Equipment Operator to verify FIC-9603B indicates approximately 59,500 cfm (Local Panel DC483), and following report, initials the Step.		
<b>CUE:</b>	<b>Respond as Equipment Operator that FIC-9603B indicates approximately 59,500 cfm.</b>			
<b>CUE:</b>	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <b>THEN RECORD</b> the STOP TIME.  <b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b> .  <b>STOP TIME:</b> _____			
<b>Task Standard:</b> Operator places Control Area Ventilation Train B in-service without cooling, including the BVH407 fan, in accordance with Steps 5.8.1 through 5.8.5 of HC.OP-SO.GK-0001.				



# JOB PERFORMANCE MEASURE

JPM NUMBER: GK003

## REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/3/2014	Initial issue. Validated with RO and SRO. Incorporated comments. Validation time 15 minutes.	Y
00	1/21/2015	Corrected typographical errors in Initial Conditions.	N



# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** GK003

**REV#:** 00

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

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	11/7/2014
Name	Qual	Signature	Date

ON FILE	SRO	ON FILE	11/7/2014
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS

JPM NUMBER: GK003

REV#: 00

## INITIAL CONDITIONS:

I.C.

<i>Initial</i>	
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**INITIALIZE** the simulator to 100% power MOL.

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

<i>Initial</i>	Description
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**MARKUP** HC.OP-SO.GK-0001 Prerequisites and Attachment 1, Section 1.0 and 2.0

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

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

**ACKNOWLEDGE** Overhead Annunciators.

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

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

## EVENT FILE:

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

Description:

## MALFUNCTION SCHEDULE:

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

## REMOTE SCHEDULE:

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

## OVERRIDE SCHEDULE:

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

# JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

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

## INITIATING CUE:

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

# JOB PERFORMANCE MEASURE

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:	<b>PROVIDE</b> the operator the initiating cue; marked up copy of HC.OP-SO.AD-00001; <b>AND</b> <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations Section 2.3.		
CUE:	<b>IF excessive time is taken reviewing precautions and limitations, THEN INFORM</b> operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.		
<b>NOTE</b>	To prevent Reactor Feedpump ...	Operator reads and initials NOTE.		
5.3.1.	<b>ENSURE</b> 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.	<b>OBSERVE</b> 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.		
<b>CAUTION</b>	<b>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.</b>  <b>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.</b>		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.	<b>START</b> a Primary Condensate Pump as follows:  A. <b>ENSURE</b> 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,		
<b>CUE:</b>	<b>Respond as the Equipment Operator that PRI CNDS PUMP RM CLR 1CVH112 is in service.</b>			
		and initials Step.		
	B. <b>OPEN</b> 1-AP-V108 (1-AP-V109, 1-AP-V110) Seal Wtr to Pri Cond Pump A(B,C)P102. Rm. 1104A (1104B, 1104C).	<b>*#Operator contacts the Equipment Operator to open 1-AP-V110,</b>  Seal Wtr to Pri Cond Pump CP102. Rm. 1104C,		
<b>CUE:</b>	<b>Respond as the Equipment Operator that 1-AP-V110 is open.</b>			
		and initials Step.		
	C. <b>ENSURE</b> 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. <b>IF</b> required to vent the pump, <b>OPEN</b> 1-AD-V070 (V068, V066) - Pri Cond Pmp A(B,C)P102 Dsch Vnt V (Rm. 1104)valve for approximately five minutes, <b>THEN CLOSE</b> valve 1-AD-V070 (V068, V066).	<b>*#Operator contacts the Equipment Operator to open 1-AD-V066 for approximately 5 minutes, and then close,</b>		
<b>CUE:</b>	<b>Respond as the Equipment Operator that 1-AD-V066 was opened for approximately 5 minutes, and then closed.</b>			
		and Initials Step.		
	E. <b>IF</b> HV-1680A(B,C) PRI CNDS PMP DISCH VLV AUTO PB is not on, <b>PRESS</b> HV-1680A(B,C) PRI CNDS PMP DISCH VLV LOCKOUT/AUTO PB <b>AND VERIFY</b> 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. <b>OBSERVE</b> PRI CNDS PUMP A(B,C) START ENABLE is on.	Operator observes PRI CNDS PUMP C START ENABLE is on, and initials Step.		
	G. <b>PRESS</b> PRI CNDS PUMP A(B,C)P102 START PB.	<b>*#Operator presses PRI CNDS PUMP CP102 START pushbutton,</b>  observes the CP102 START illuminate and the STOP extinguish, and initials Step.		
	H. <b>OBSERVE</b> the following: <ul style="list-style-type: none"> <li>• HV-1680A(B,C) PRI CNDS PMP A(B,C) DISCH VLV OPEN is on.</li> </ul>	Operator observes HV-1680C OPEN pushbutton is illuminated, and initials Step.		
	<ul style="list-style-type: none"> <li>• AI-6318A(B), AI-6349, PRI CNDS PUMP A(B), C, MOT AMPS, indicates &lt; 120 amps. (&lt; 208 amps for CP102)</li> </ul>	Operator observes AI-6318C, AI-6349 indicates < 208 amps, and initials Step.		
		Operator observes/reports the following: <ul style="list-style-type: none"> <li>• Overhead Annunciator A3-F3, CONDENSATE TRAIN C TROUBLE, is in alarm</li> <li>• CRIDS D5418, PRI CNDS DISCH V C FAIL TO OPN OR SUCT V NOT OPN AND PUMP RUNNING, is in alarm</li> </ul> NOTE: Alarm will happen approximately 40 seconds after pump start.		
<b>CUE:</b>	<b>Respond/Acknowledge as the Control Room Supervisor, as appropriate.</b>			
	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".	<b>*#Operator presses the STOP pushbutton for CP102,</b>  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:	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p><b>STOP TIME:</b> _____</p>			

**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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** AD001

**REV#:** 00

**TASK:** Fill And Startup The Condensate System

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

**VALIDATED BY:**

Qualification Level Required:           RO          

ON FILE	RO	ON FILE	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: AD001

REV#: 00

## INITIAL CONDITIONS:

I.C.

Initial	
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\_\_\_\_\_ **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
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\_\_\_\_\_ **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 & fwv1680c >= 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.

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:	<p><b>PROVIDE</b> the operator the initiating cue <u>AND</u>  <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.</p> <p><b>START TIME:</b> _____</p>			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-EO.ZZ-0310		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	<p><b>IF excessive time is taken reviewing Precautions And Limitations, THEN INFORM</b> operator that "all Precautions And Limitations are satisfied."</p>			
	<p><u>EQUIPMENT REQUIRED</u></p> <p>Key # (G1) for EOP Locker on El. 102' diesel bldg. from either:</p> <ul style="list-style-type: none"> <li>• SM office <u>OR</u></li> <li>• From EOP Locker in OSC (Use Key #9 obtained from SM office or by breaking red key holder glass in OSC).</li> </ul> <p><u>AND</u></p> <p>Equipment located in EOP locker on El.102' diesel bldg. Contents:</p> <p>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</p>	<p><b>*#Operator obtains the following required equipment:</b></p> <p><b>Key #(G1) for EOP Locker on El.102' diesel bldg. From either:</b></p> <ul style="list-style-type: none"> <li>• <b>SM office <u>or</u></b></li> <li>• <b>From EOP Locker in OSC (use key #9 obtained from SM office or by breaking red key holder glass in OSC),</b></li> </ul> <p>and initials Step.</p> <p>Equipment located in EOP locker on El 102' diesel bldg.</p> <p>Examiner Note: After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.</p>		
<b>CAUTION</b>	<p>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.</p>	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	<b>ENSURE</b> all prerequisites of Section 2.1 are satisfied.	Operator ensures that all prerequisites have been satisfied, and initials Step.		
<b>CUE:</b>	<b>IF excessive time is taken reviewing Prerequisites, THEN INFORM operator that “all Prerequisites are satisfied.”</b>			
<b>CAUTION</b>	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	<b>CONNECT</b> hose to the appropriate flange adaptor <b>AND TIGHTEN.</b> <ul style="list-style-type: none"> <li>• 1.5" hose and adapter for fire hose station</li> <li>• 2.5" hose and adapter for yard fire hydrant or fire truck</li> </ul>	<b>*Operator accesses the EOP locker and identifies the 1.5" fire hose and correct adapter,</b> and initials Step.  Examiner Note: Based on the Initiating Cue, Operator determines the 1.5" hose and adapter is the correct equipment.		
<b>CUE:</b>	<b>Once the operator identifies the correct equipment, THEN INFORM the Operator “the remainder of the JPM will be simulated.”</b>			
		<b>*Operator connects the correct hose to the correct adapter,</b> and initials Step.		
<b>CUE:</b>	<b>“The hose is connected to the adapter.”</b>			
5.1.3	<b>REMOVE</b> fire hose fill connection blank flange on 1-BC-V426 (local, Diesel Building, Elev. 102', see Attachment 2)	<b>*Operator removes the four bolts on the 1-BC-V426 blank flange.</b> (Bolts removed and re-installed using the 1- 1/16" Box wrenches).  <b>*Operator removes the blank flange,</b> and initials Step.		
<b>CUE:</b>	<b>“The flange you indicated is removed.”</b>			

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	<b>INSTALL</b> hose to flange adapter AND ENSURE flexitallic gasket of the appropriate size is installed between the adapter and the wall.	<b>*Operator installs the 1.5" hose to flange adapter using the same four bolts.</b> (Bolts removed and re-installed using the 1- 1/16" Box wrenches).  and initials Step.		
<b>CUE:</b>	<b>"The hose to flange adapter has been installed in the place you indicated."</b>			
5.1.5	<b>IF</b> connecting to Fire Hose Station, <b>THEN REMOVE</b> the installed hose.	<b>*Operator removes the installed hose from the Fire Hose Station,</b>  and initials Step.		
<b>CUE:</b>	<b>"The hose identified has been removed from the place you indicated."</b>			
5.1.6	<b>CONNECT</b> fire hose to one of the following sources of Fire Water:  <ul style="list-style-type: none"> <li>• Fire Hose Station</li> <li>• Yard Fire Hydrant</li> <li>• Fire Truck</li> </ul>	Operator removes installed Fire Station hose from standpipe.  <b>*Operator installs free end of 1.5" fire hose to the Fire Hose Station standpipe,</b>  and initials Step.		
<b>CUE:</b>	<b>"The fire hose has been connected to the fire water source stated."</b>			
5.1.7	<b>OPEN</b> one of the following as applicable:  <ul style="list-style-type: none"> <li>• Fire Hose Station Isolation Valve</li> <li>• Fire Hydrant Line Valve (side) and Plug Valve (top)</li> <li>• Fire Truck Valves</li> </ul>	<b>*#Operator opens the Fire Hose Station Isolation Valve,</b>  and initials Step.  Examiner Note: It is critical that the hose be connected properly before the performance of this Step.		
<b>CUE:</b>	<b>"The valve you have indicated is open, flow noise can be heard past the valve and the fire hose is swelling."</b>			
<b>NOTE</b>	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', <b>OPEN</b> breaker 52-222082.	<b>*#Operator contacts RB Equipment Operator and directs the opening at breaker 52-222082,</b>  and initials Step.		
<b>CUE:</b>	<b>As the RB Equipment Operator, report that "breaker 52-222082 has been opened."</b>			
5.1.9	<b>OPEN</b> 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).	<b>*#Operator opens 1-BC-V426,</b>  and initials Step.		
<b>CUE:</b>	<b>"The valve you indicated is open; flow noise can be heard past the valve."</b>			
5.1.10	<b>OPEN</b> BC-HV-F075, SSWS TO RHR LOOP B SUP MOV (panel 10C650).	Operator requests that the Control Room operator open BC-HV-F075.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state <b>"This JPM is complete"</b>.</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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

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

**VALIDATED BY:**

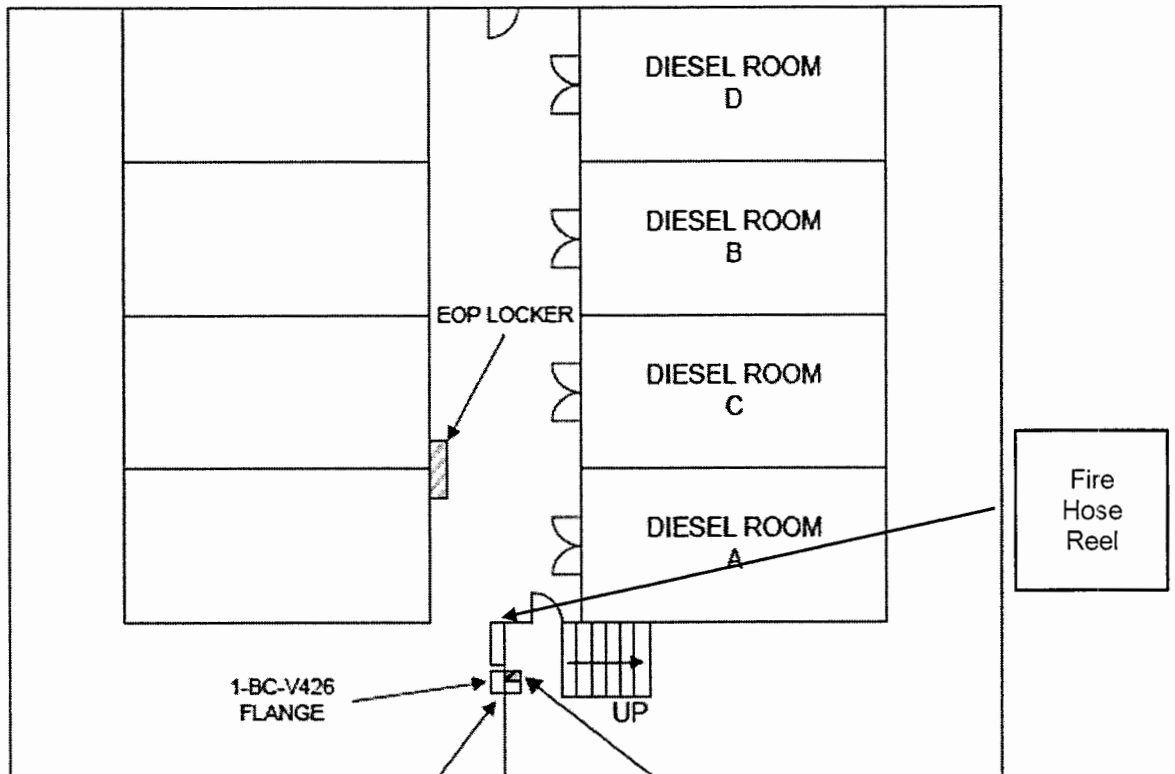
Qualification Level Required:           EO          

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

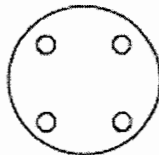
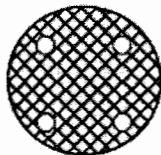
ON FILE	SRO	ON FILE	9/27/2017
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE

## AUX/DIESEL BUILDING 102 ELEV.



### FLANGE AREA VIEW



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

N-53-01-001

N-53-01-002

1-BC-V426

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

**2018 NRC**  
**JPM - J**

Copy \_\_\_\_ of \_\_\_\_

SYSTEM: DC Electrical Distribution

TASK NUMBER: 4000030404

TASK: Respond To A Loss Of Offsite Power

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 CONDITONS:**

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

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.		
<b>CUE:</b>	<b>Acknowledge as RP.</b>			
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "<b>This JPM is complete</b>".</p> <p><b>STOP TIME:</b> _____</p>			
<p><b>Task Standard:</b> 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

# JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

**JPM NUMBER:** NJ002

**REV#:** 00

**TASK:** Respond To A Loss Of Offsite Power

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

**VALIDATED BY:**

Qualification Level Required:           EO          

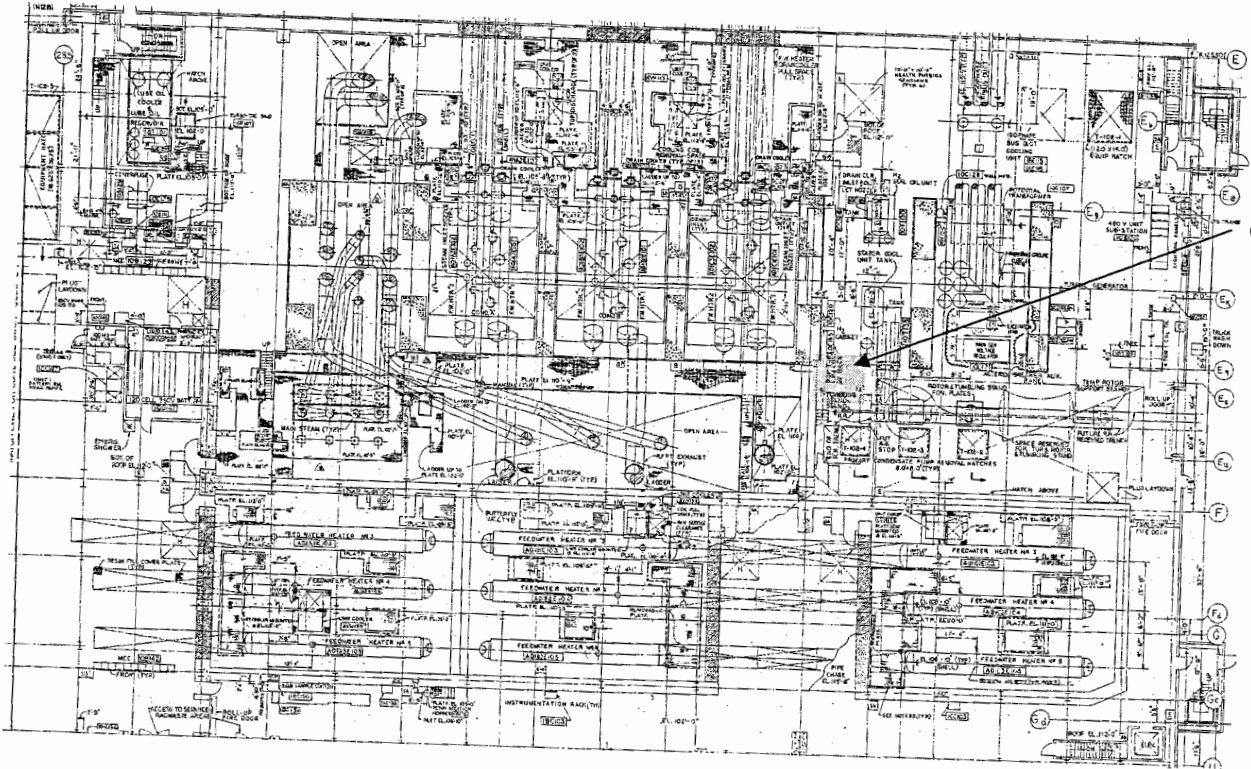
ON FILE	RO	ON FILE	9/27/2017
Name	Qual	Signature	Date

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



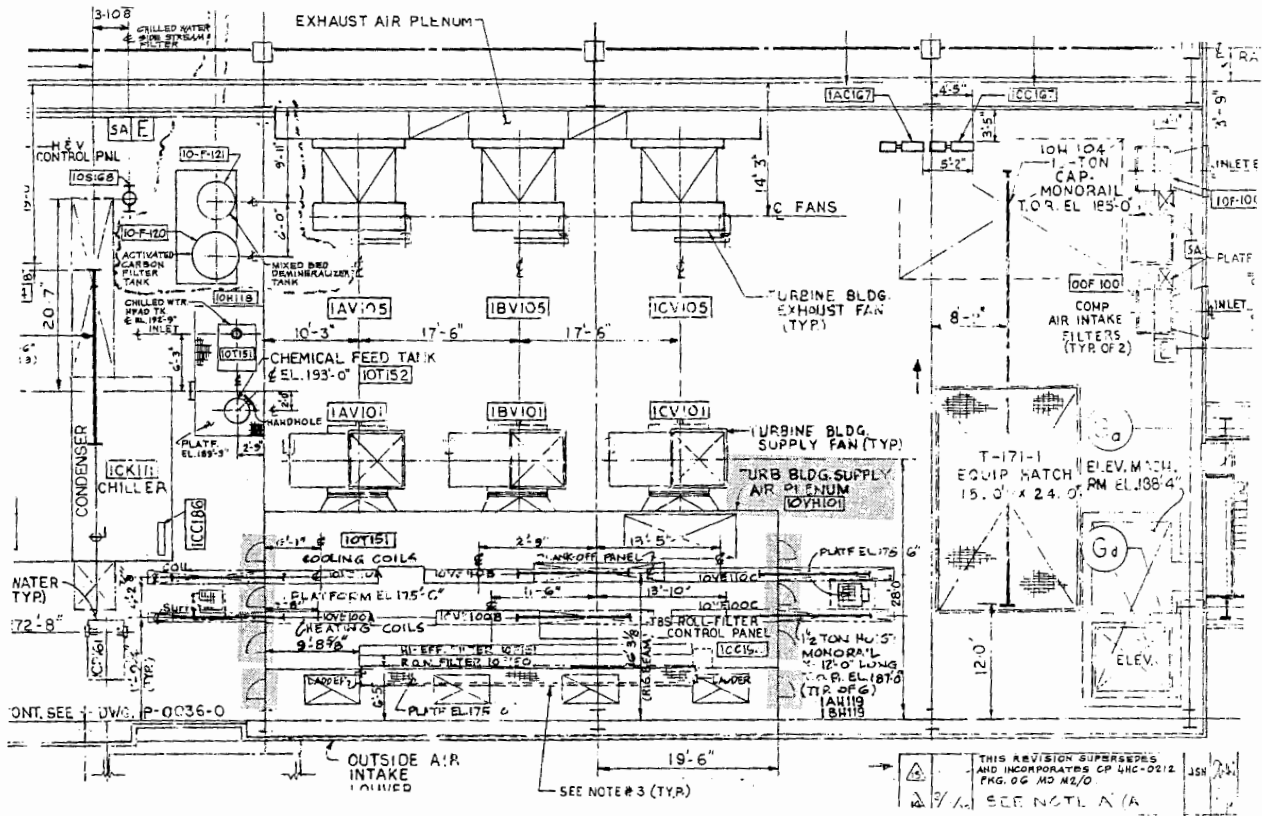
# JOB PERFORMANCE MEASURE

## 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.**

**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	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)@																				
<b>CUE:</b>	<b>PROVIDE</b> the operator the initiating cue; HC.OP-SO.SF-0001; AND <b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue.  <b>START TIME:</b> _____																							
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.																						
<b>CUE:</b>	<b>IF excessive time is taken reviewing Precautions And Limitations, THEN INFORM</b> 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.	<b>ENSURE</b> 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 <b>DETERMINE</b> control rod to be bypassed, <b>ANNOTATE AND INITIAL</b> on Attachment 3.	Operator observes that Rod 22-19 is annotated and initialed on Attachment 3. Then initials Step.																						
<b>CUE:</b>	<b>Complete Attachment 1. Enter 22-19 and initial Step 5.7.2 on Attachment 3.</b>																							
5.7.3.	<b>DETERMINE</b> Binary Code for rod to be bypassed from XX-YY coordinates on the FAULT LOCATION MAP <b>AND INITIAL</b> Attachment 3. (performer and verifier) (10C616)	<b>*#Operator determines the Binary Code for rod 22-19,</b> annotates on Attachment 3, and requests Verifier initials.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>X<sub>4</sub></td><td>X<sub>3</sub></td><td>X<sub>2</sub></td><td>X<sub>1</sub></td><td>X<sub>0</sub></td><td>Y<sub>4</sub></td><td>Y<sub>3</sub></td><td>Y<sub>2</sub></td><td>Y<sub>1</sub></td><td>Y<sub>0</sub></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 <sub>4</sub>	X <sub>3</sub>	X <sub>2</sub>	X <sub>1</sub>	X <sub>0</sub>	Y <sub>4</sub>	Y <sub>3</sub>	Y <sub>2</sub>	Y <sub>1</sub>	Y <sub>0</sub>	0	0	1	1	1	0	0	1	1	0		
X <sub>4</sub>	X <sub>3</sub>	X <sub>2</sub>	X <sub>1</sub>	X <sub>0</sub>	Y <sub>4</sub>	Y <sub>3</sub>	Y <sub>2</sub>	Y <sub>1</sub>	Y <sub>0</sub>															
0	0	1	1	1	0	0	1	1	0															
<b>CUE:</b>	<b>Initial as Verifier.</b>																							
		Operator initials Step.																						
<b>NOTE</b>	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.	<b>SET</b> Binary Code on BYPASSED ROD IDENTITY toggles for rod to be bypassed <b>AND INITIAL</b> Attachment 3. (performer and verifier) (10C616).	<p><b>*#Operator inserts the correct binary code using the BYPASSED ROD IDENTITY toggles as follows: (10C616)</b></p> <table border="1"> <tr> <td>X<sub>4</sub></td> <td>X<sub>3</sub></td> <td>X<sub>2</sub></td> <td>X<sub>1</sub></td> <td>X<sub>0</sub></td> <td>Y<sub>4</sub></td> <td>Y<sub>3</sub></td> <td>Y<sub>2</sub></td> <td>Y<sub>1</sub></td> <td>Y<sub>0</sub></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 <sub>4</sub>	X <sub>3</sub>	X <sub>2</sub>	X <sub>1</sub>	X <sub>0</sub>	Y <sub>4</sub>	Y <sub>3</sub>	Y <sub>2</sub>	Y <sub>1</sub>	Y <sub>0</sub>	DN	DN	UP	UP	UP	DN	DN	UP	UP	DN		
X <sub>4</sub>	X <sub>3</sub>	X <sub>2</sub>	X <sub>1</sub>	X <sub>0</sub>	Y <sub>4</sub>	Y <sub>3</sub>	Y <sub>2</sub>	Y <sub>1</sub>	Y <sub>0</sub>															
DN	DN	UP	UP	UP	DN	DN	UP	UP	DN															
<b>CUE:</b>	<b>The toggles indicated are in the positions stated.</b>																							
		Operator requests Verifier initials.																						
<b>CUE:</b>	<b>Initial as Verifier.</b>																							
		Operator initials Step.																						
<b>NOTE</b>	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.																						
<b>CAUTION</b>	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.	<b>SET</b> BYPASSED toggle up <b>AND INITIAL</b> Attachment 3. (performer and verifier) (10C616)	<b>*#Operator sets BYPASSED toggle up,</b>  and initials Attachment 3.																						
<b>CUE:</b>	<b>The indicated toggle is in the position stated.</b>																							
		Operator requests Verifier initials.																						
<b>CUE:</b>	<b>Initial as Verifier.</b>																							
		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.		
<b>CUE:</b>	<b>If asked, state "Resetting RMCS is required."</b>			
	A. <u>WITH</u> the pushbutton depressed, <b>OBSERVE</b> the status of the SCAN ERROR <u>AND</u> MASTER ERROR LEDs immediately to the right of the RDCS STATUS RESET Pushbutton.	<b>*#Operator depresses the RESET pushbutton,</b>		
<b>CUE:</b>	<b>The indicated pushbutton is depressed.</b>			
	1. <u>IF</u> both LEDs are <u>EXTINGUISHED</u> following a minimum of five seconds, <b>RELEASE</b> 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.		
<b>CUE:</b>	<b>The identified LEDs are extinguished.</b>			
	2. <u>IF</u> one <u>OR</u> both LEDs is <u>NOT</u> <u>EXTINGUISHED</u> after a minimum of five seconds, ...	Operator determines and marks Step as N/A.		
	3. <b>RECORD</b> which LED did <u>NOT</u> extinguish on Attachment 3 <u>WHEN</u> applicable.	Operator determines and marks Step as N/A.		
	B. <b>INITIAL</b> Attachment 3. (performer and verifier)	Operator initials Attachment 3 and requests Verifier initials.		
<b>CUE:</b>	<b>Initial as Verifier.</b>			



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.	<b>VERIFY</b> RDCS STATUS ROD BYPASSED is ON <u>AND</u> <b>INITIAL</b> Attachment 3. (performer and verifier) (10C651C)	Operator contacts the Main Control Room to verify RDCS STATUS ROD BYPASSED is ON.		
<b>CUE:</b>	<b>As NCO, acknowledge that RDCS ROD BYPASSED light is on.</b>			
		Operator initials Attachment 3, and requests Verifier initials.		
<b>CUE:</b>	<b>Initial as Verifier.</b>			
		Operator initials Step.		
<b>CUE:</b>	<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><b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p><b>STOP TIME:</b> _____</p>			
<b>Task Standard:</b> 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

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

**VALIDATED BY:**

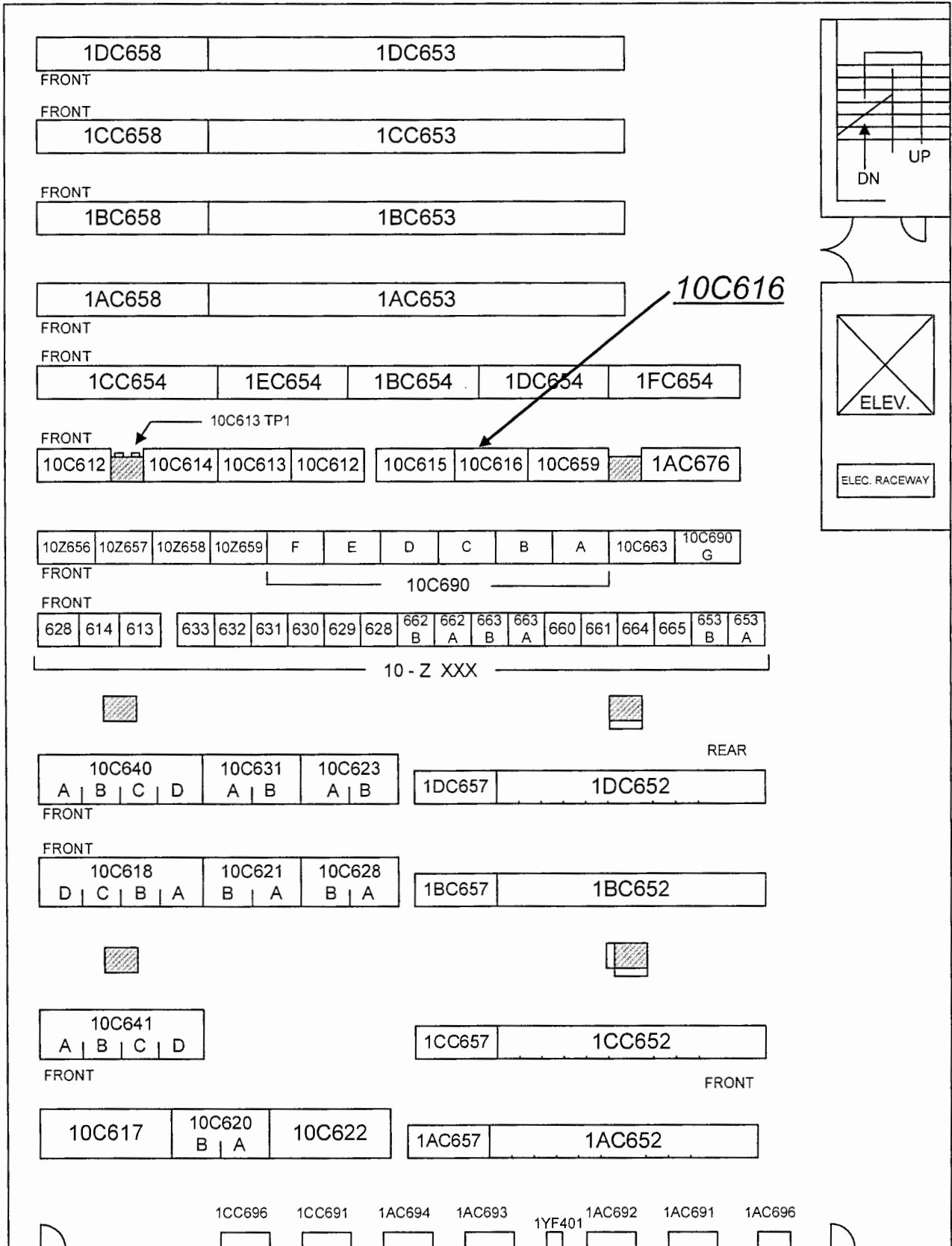
Qualification Level Required:           RO          

<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

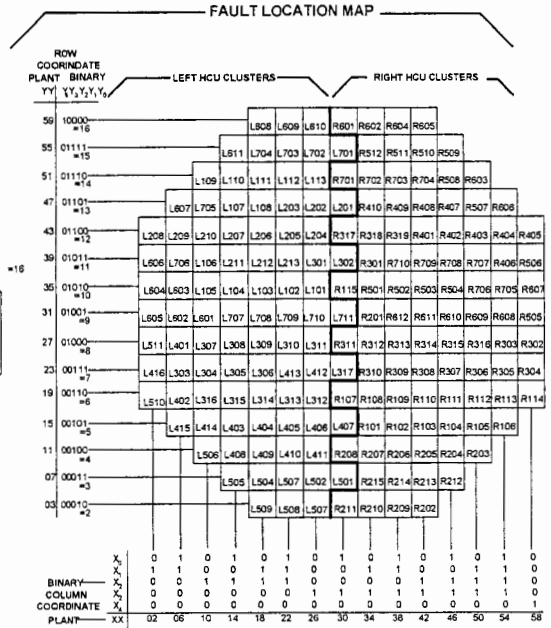
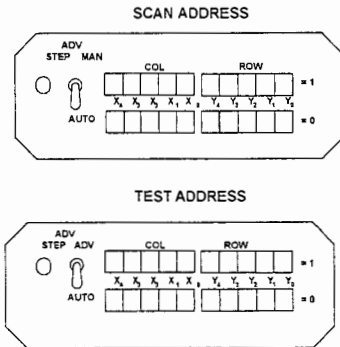
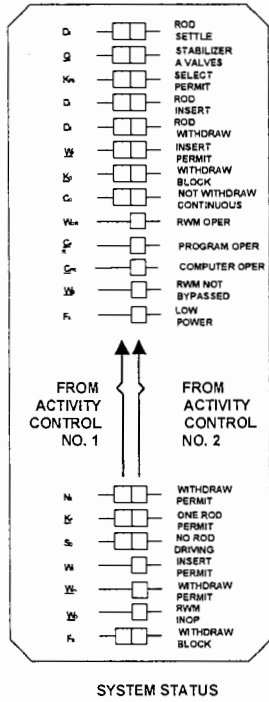
# JOB PERFORMANCE MEASURE

## LOWER RELAY ROOM PANEL LOCATIONS



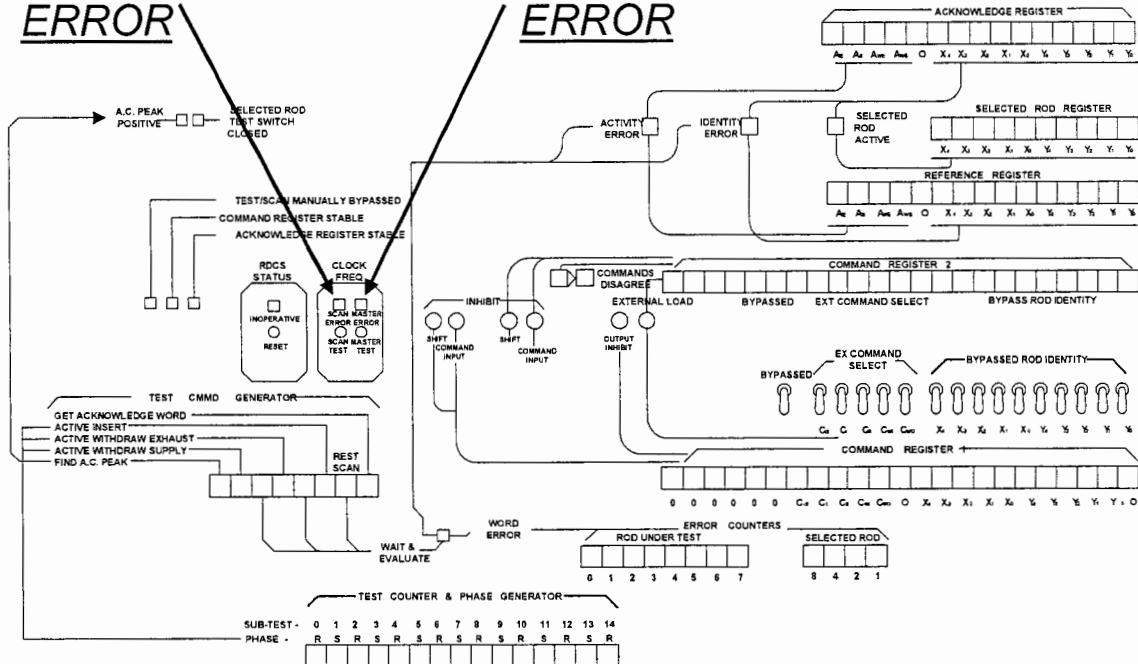
# JOB PERFORMANCE MEASURE

## ROD DRIVE CONTROL SYSTEM ANALYZER PAGE INDICATORS



### SCAN ERROR

### MASTER ERROR



# 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.

**EXAMINATION SCENARIO GUIDE**

**SCENARIO TITLE:** 2018 NRC-3  
**SCENARIO NUMBER:** ESG-2018 NRC-3  
**EFFECTIVE DATE:** Effective When Approved

**EXPECTED DURATION:**

**REVISION NUMBER:** 00

**PROGRAM:**  LICENSED OPERATOR REQUALIFICATION  
 INITIAL LICENSE  
 OTHER: \_\_\_\_\_

**REVISION SUMMARY:**

1.



## I. OBJECTIVE(S):

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### 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. 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:	<b>tc_trip   tuvib(8) &gt;= 12.5</b> Turbine tripped or vibration above the action level
	8	Event code: Description:	<b>mcpmca &gt;= 10</b> Main condenser pressure >= 10 psia
	9	Event code: Description:	<b>rrprv &lt;= 415</b> Reactor Pressure <= 400 psig
	16	Event code: Description:	<b>ZDADS4(9)</b> 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 300 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><b>RWCU Pump BP221 Trip:</b> After the Crew assumes the watch, and at the discretion of the Lead Examiner, <b>TRIGGER ET-1</b> (Trip of BP221 RWCU Pump).</p>	<ul style="list-style-type: none"> <li>• RO/PO recognizes trip of BP221 RWCU Pump by:               <ul style="list-style-type: none"> <li>⇒ OHA C1-C2 "RWCU SYSTEM TROUBLE"</li> <li>⇒ CRIDS D5359 "RWCU PUMP BP221 MOTOR MALF"</li> <li>⇒ Flashing STOP light for BP221</li> </ul> </li> </ul>	
<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>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"> <li>• RO/PO refers to OHA Response OP-AR.ZZ-0008 for C1-C2 and performs OPERATOR ACTION to:               <ul style="list-style-type: none"> <li>⇒ 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.</li> </ul> </li> </ul>	<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
<p>Support slowly removing RWCU FD from service by:</p> <ul style="list-style-type: none"> <li><b>INSERT Remote CU04(06)</b> to 0 over 120 seconds to remove FD A(B), OR per directions from the crew.</li> </ul>	<ul style="list-style-type: none"> <li>RO/PO refers to OHA Response OP-AR.ZZ-0028 for D5359 and performs OPERATOR ACTION to: <ul style="list-style-type: none"> <li>⇒ Direct chemistry to REMOVE 1 F/D from service IAW HC.OP-SO.BG-0001(Q); Reactor Water Cleanup System Operation.</li> <li>⇒ RO/PO DIRECTS Chemistry to slowly REDUCE demin flow and REMOVE the desired Filter Demin from service IAW HC.CH-SO.BG-0001(Q).</li> <li>⇒ RO/PO THROTTLES HV-F044, FLTR DEMIN BYPASS as necessary, to obtain a system flow of 140 – 160 gpm. (Computer Point A2856)</li> </ul> </li> </ul>	<p>Note: Removing a FD from service is not required to be observed.</p>
<p><b>SRV Opening:</b></p> <p>After the Crew has responded to the RWCU pump trip, and at the discretion of the Lead Examiner, <b>TRIGGER ET-15</b></p>	<ul style="list-style-type: none"> <li>Crew recognizes open SRV by: <ul style="list-style-type: none"> <li>⇒ OHA C1-A3 "ADS/SAFETY RELIEF VLV NOT CLOSED"</li> <li>⇒ Acoustic Monitor indication</li> <li>⇒ CRIDS D5009 "SAFETY RELIEF VALVE F013J"</li> <li>⇒ Total steam flow lowering</li> <li>⇒ Main Gen MWe lowering</li> <li>⇒ RPV level swell</li> <li>⇒ Elevated SRV tailpipe temperature</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>CRS implements AB.RPV-0006.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• RO reduces reactor power to 95% using Recirc.</li> </ul>	Immediate Operator Actions IAW AB.RPV-0006
<p><b>ENSURE</b> Malfunction AD02JO deletes.</p>	<ul style="list-style-type: none"> <li>• PO cycles SRV control switches in attempt to close the SRV.</li> </ul>	Immediate Operator Actions IAW AB.RPV-0006
	<ul style="list-style-type: none"> <li>• Crew recognizes SRV closed by:               <ul style="list-style-type: none"> <li>⇒ Acoustic Monitor indication</li> <li>⇒ Total steam flow rising</li> <li>⇒ Main Gen MWe rising</li> <li>⇒ RPV level shrink</li> <li>⇒ Lowering SRV tailpipe temperature</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.RPV-0006               <ul style="list-style-type: none"> <li>⇒ Condition E</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS/STA/IA recognize the following Tech Spec actions apply:               <ul style="list-style-type: none"> <li>⇒ Suppression Chamber-Drywell Vacuum Breakers 4.6.4.1.b.1</li> </ul> </li> </ul>	WITHIN 12 hours PERFORM ST.GS-0004.
	<ul style="list-style-type: none"> <li>• CRS/STA/IA evaluate the following Tech Specs for applicability:               <ul style="list-style-type: none"> <li>⇒ Safety/Relief Valves 3.4.2.1</li> </ul> </li> </ul>	F013J lifted outside of its specified code safety function lift setting IAW T/S 3.4.2.1. Tracking LCO.

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>Loss of 10D410 125VDC Bus:</b> After Tech Specs have been addressed for the SRV, and at the discretion of the Lead Examiner, <b>TRIGGER ET-2.</b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes Loss of 1E 125VDC by:               <ul style="list-style-type: none"> <li>⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE"</li> <li>⇒ CRIDS D4630 "125VDC SWGR 10D410 TRBL"</li> <li>⇒ CRIDS D4633 "125VDC BATT 1AD411 PWR AVAIL NO"</li> <li>⇒ Flashing INOP lights on all 10A401 bus breakers</li> <li>⇒ 'A' Channel ECCS "LOGIC PWR FAILURE" lights</li> <li>⇒ Flashing "OVLDPWR FAIL" lights on HPCI w/loss of position indication</li> <li>⇒ Charger and bus voltage indication on 10C650D</li> <li>⇒ CRIDS Page 166</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.ZZ-150.</li> </ul>	
<p><u>IF</u> dispatched to investigate loss of 10D410, <b>THEN REPORT:</b></p> <ul style="list-style-type: none"> <li>• Bus indicates 0 volts</li> <li>• Both battery chargers DC CKT BREAKER are tripped (AD413/AD414)</li> <li>• There is no indication of damage to any of the equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Crew dispatches ABEO and Maintenance to investigate loss of 10D410 bus.</li> </ul>	E-0009-1 Sheet 1
<p>Respond as Maintenance that an inspection of 10D410 will be required to troubleshoot failure.</p>	<ul style="list-style-type: none"> <li>• CRS recognizes the following Tech Specs actions apply:               <ul style="list-style-type: none"> <li>⇒ D.C. Sources - Operating 3.8.2.1 Action a</li> <li>⇒ Distribution – Operating 3.8.3.1 Action b</li> </ul> </li> </ul>	<p>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>



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>Turbine High Vibrations:</u></b> 15 minutes after the Loss of 10D410, <u>OR</u>, at the discretion of the Lead Examiner, <b>TRIGGER ET-3.</b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes Main Turbine High Vibration by:               <ul style="list-style-type: none"> <li>⇒ OHA D3-C5 "TURBINE GENERATOR VIB HI"</li> <li>⇒ CRIDS A2525 "MAIN TURB BRG 7 VIB X PROBE"</li> </ul> </li> </ul>	<p>#7 Bearing will reach 11 mils in about 9.5 minutes.</p>
	<ul style="list-style-type: none"> <li>• CRS implements AB.BOP-0002:               <ul style="list-style-type: none"> <li>⇒ Condition B</li> </ul> </li> </ul>	
<p><b>SUPPORT</b> requests to raise MTLO temperature using Remote Function <b>TU03</b>.</p>	<ul style="list-style-type: none"> <li>• Crew directs TBEO to raise MTLO temperature (110 – 120°F)</li> </ul>	
<p>As System Operator, <b>PROVIDE</b> guidance to lower MVARs as necessary.</p>	<ul style="list-style-type: none"> <li>• Crew co-ordinates with System Operator to adjust Main Generator MVAR loading.</li> </ul>	
<p><u>IF</u> contacted as Engineering, <b>THEN REPORT</b> the vibration readings appear valid and the limitations in the abnormal should be followed.</p>	<ul style="list-style-type: none"> <li>• Crew contacts Engineering for additional guidance.</li> </ul>	
<p><u>IF</u> contacted as Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004, <b>THEN CONCURR</b> with SM recommendation.</p>	<ul style="list-style-type: none"> <li>• Crew contacts Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> dispatched to the Turbine Building,  <u>THEN</u> wait until vibration reaches 15 mils and <b>REPORT</b> the floor was vibrating and it did not appear safe to approach the Main Turbine.</p>	<ul style="list-style-type: none"> <li>• <u>WHEN</u> bearing #7 reaches 11 mils,  <u>THEN</u> Crew:               <ul style="list-style-type: none"> <li>⇒ Reduces recirc pump speed to minimum.</li> <li>⇒ Locks the Mode Switch in SHUTDOWN.</li> <li>⇒ Immediately trips the Main Turbine.</li> </ul> </li> </ul>	
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION  <b>Reactor Scram Reports</b>            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.</p>	<ul style="list-style-type: none"> <li>• RO performs scram actions IAW AB.ZZ-0001 Attachment 1.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</b>  <b>EOP 101 RPV Control.</b>  <b>Level Leg</b>                      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"> <li>• CRS implements EOP-101.</li> </ul>	
	<ul style="list-style-type: none"> <li>• PO maintains RPV water level as directed by CRS IAW AB.ZZ-0001 Attachment 14.</li> </ul>	
<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"> <li>• Crew recognizes evidence of physical damage to Main Turbine by:                             <ul style="list-style-type: none"> <li>⇒ TBEO report</li> <li>⇒ Rising Offgas flow</li> <li>⇒ Degrading condenser vacuum</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.BOP-0002:                              ⇒ Condition C</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>If crew breaks vacuum before MC01A inserts, report the loud bang and turbine blades message.</p>	<ul style="list-style-type: none"> <li>• Crew performs the following:               <ul style="list-style-type: none"> <li>⇒ Closes MSIVs and drains</li> <li>⇒ Closes SJAE suction</li> <li>⇒ Closes SJAE steam supply</li> <li>⇒ Opens vacuum breakers</li> </ul> </li> </ul>	<p><b>NOTE:</b> Crew may not have time to take these actions due to severity of vacuum loss.</p>
	<ul style="list-style-type: none"> <li>• CRS directs RPV water level control with RCIC.</li> </ul>	<p>HPCI is unavailable due to the loss of 10D410.</p>
	<ul style="list-style-type: none"> <li>• PO controls RPV water level with RCIC IAW AB.ZZ-0001 Att. 6.</li> </ul>	
<p><b>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Pressure Leg</b>            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.</p>	<ul style="list-style-type: none"> <li>• CRS directs maintaining reactor pressure below 1037 psig with SRVs.</li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO control RPV pressure with SRVs as directed by CRS IAW AB.ZZ-0001 Att 13.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>LOP/LOCA:</u></b> 5 minutes after the MSIVs are closed, <u>OR</u>, at the direction of the of the Lead Examiner, <b>TRIGGER ET-4.</b></p> <p><b>ADVANCE</b> Fire Computer to alarm screen when OHA A2-A5 alarms. <u>WHEN</u> the crew announces the Fire Computer alarms displayed <b>ADVANCE</b> Fire Computer screen.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes Loss of Offsite Power by:               <ul style="list-style-type: none"> <li>⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers</li> <li>⇒ TRIP indication for all 500 KV breakers</li> <li>⇒ Flashing TRIP lights for all previously closed bus infeeds.</li> <li>⇒ Numerous OVLD/PWR FAIL lights.</li> </ul> </li> </ul>	
<p><b><u>EDG BG400 Failure to Auto-Start:</u></b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes failure of the 'B' EDG to start and load by:               <ul style="list-style-type: none"> <li>⇒ Engine STOP light</li> <li>⇒ Output breaker TRIP light</li> <li>⇒ OVLD/PWR lights on 'B' Channel components</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO starts the 'B' EDG and ensures it loads.</li> </ul>	Immediate Operator Action IAW AB.ZZ-0135.
<p><u>IF</u> directed to locally start the 'B' EDG, <u>THEN DELETE</u> Malfunction DG07B.</p>	<p>* <b><i>Crew starts the 'B' EDG by <u>EITHER:</u> Pressing the 'B' EDG START pushbutton in the Control Room, <u>OR</u> Directing an operator to locally start the 'B' EDG.</i></b></p>	
<p>As ESOC, <b>REPORT</b> it will take at least 10 hours to restore Offsite power to Artificial Island.</p>	<ul style="list-style-type: none"> <li>• Crew contacts ESOC for estimated time to restoration of Offsite power.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• CRS implements AB.ZZ-0135.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew recognizes loss of AD481/482 inverters by:               <ul style="list-style-type: none"> <li>⇒ Loss of 'A' Channel PAMS indications</li> <li>⇒ Loss of power to 'A' Channel electrical indications on 10C650D</li> </ul> </li> </ul>	Inverters are lost during LOP due to loss of 10D410.
	<ul style="list-style-type: none"> <li>• As time and resources permit, CRS implements AB.ZZ-0136 and AB.ZZ-170.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew recognizes LOCA condition:               <ul style="list-style-type: none"> <li>⇒ OHA D3-C3 "DRYWELL SUMP LVL HI/LO"</li> <li>⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL"</li> <li>⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm</li> <li>⇒ Rising Drywell Pressure</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.CONT-001:               <ul style="list-style-type: none"> <li>⇒ Condition A</li> </ul> </li> </ul>	Due to the pace of the LOCA, this may not be implemented.
	<ul style="list-style-type: none"> <li>• Crew observes DWT exceeds 135F.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS enters EOP-102 when Drywell Temperature exceeds 135F.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## 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,  <u>THEN PERFORM</u> the following:  <b>REFER</b> to SO.BF-0001 Sect 5.4.  <b>TRIGGER ET-5</b> (Suction filter).  <b>SET</b> Remote Function for Stby CRD pump discharge valve to 0% (CD01/CD02).  <b>REPORT</b> Stby CRD pump ready for start.  <u>WHEN</u> Stby CRD is running,  <u>THEN RAMP</u> discharge valve to 100% open.  <u>IF</u> directed to manually open HV-F003,  <u>THEN REPORT</u> you have opened the valve.                      (There is no function for this.)  <u>AFTER</u> HV-F003 is open,  <u>THEN TRIGGER ET-6</u>.  <u>WHEN</u> two minutes have elapsed,  <u>THEN MODIFY</u> Malfunctions CD09A/B to control injection.  <u>IF</u> instrument air pressure is zero,  <u>THEN REPORT</u> the FCVs do not seem to be responding.</p>	<ul style="list-style-type: none"> <li>CRS orders injection with two CRD pumps.</li> </ul>	<p>CRD pumps will trip on low suction pressure due to suction filter clogging.</p>
	<ul style="list-style-type: none"> <li>CRS orders injection with 'B' SLC pump.</li> </ul>	
<p>Crew may request EOP-323 implementation. If so, <b>TRIGGER ET-10</b>.</p>	<ul style="list-style-type: none"> <li><u>WHEN</u> RPV water level drops to -129",  <u>THEN</u> the Crew inhibits ADS.</li> </ul>	
<p><u>IF</u> Crew requests RCIC Hi Temp isolation bypass, <b>THEN INSERT</b> Remote RC11 to Bypass.</p>	<ul style="list-style-type: none"> <li><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.</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>RO/PO open ADS valves IAW AB.ZZ-0001 Attachment 13.</li> </ul>	
	<ul style="list-style-type: none"> <li>* <b><i>Crew determines that Emergency Depressurization is required before compensated RPV water level reaches -185", and subsequently opens 5 SRVs IAW EOP-202.</i></b></li> </ul>	<p><b>RECORD</b> RPV Level (compensated) when the crew determines ED is required.</p> <p>LEVEL: _____</p>
	<ul style="list-style-type: none"> <li>RO/PO inject with available ECCS IAW AB.ZZ-0001:               <ul style="list-style-type: none"> <li>⇒ Att. 4 for B/C/D RHR</li> <li>⇒ Att. 4 for 'B' Core Spray loop</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li><u>WHEN</u> RPV pressure is &lt;450 psig, <u>THEN</u> Crew recognizes failure of HV-F017D to open.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO opens HV-F017D IAW AB.ZZ-0001 Att. 4.</li> </ul>	
<p><b><u>Loss of RPV Water Level Indication:</u></b> The Loss of RPV Water Level Indication will automatically occur when RPV pressure drops to 400 psig.</p>	<ul style="list-style-type: none"> <li><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.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCCESSFUL 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"> <li>CRS exits EOP-101 and enters EOP-206.</li> </ul>	<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 SUCCESSFUL TRANSIENT MITIGATION</p> <p>EOP-206/EOP 206A RPV Flooding.</p> <p>This question should be answered strictly based on the present conditions. The direction to open additional SRVs is based on the number of ADS valves that can be opened, rather than the number that are open. The phrase "Can ADS valves be opened" is asking if the solenoids are energized and accommodates events in which the RPV is already depressurized. If the ADS valves remain closed only because RPV pressure is below the minimum SRV re-opening pressure, the question should be answered "yes" and the subsequent EOP steps implemented.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>Table RF-2 Flooded RPV Indications</b> 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"> <li>• Decreasing SRV tailpipe temperatures</li> <li>• Actuation of SRV tailpipe acoustic monitors</li> <li>• Increasing RPV pressure</li> <li>• Main steam line, HPCI, or RCIC high steam flow trips</li> <li>• Water leakage from the HPCI or RCIC turbine shaft seals</li> <li>• If MSIVs are open, two phase flow audible near main steam tunnel, main steam chest, or main turbine valves</li> <li>• 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</li> <li>• Instrument gross fail indication</li> </ul>	<p>* <b><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></b></p>	<p>It will take about 10 minutes for the RPV to fill above the Main Steam Lines.</p>
<p><b><u>Termination Requirement:</u></b> 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-000 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

### ESG-2018 NRC-3/ 00

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.

## 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:**

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

Crew Validation Rev.: 00 Date Validated: \_\_\_\_\_  
Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

Crew Validation Rev.: \_\_\_\_\_ Date Validated: \_\_\_\_\_  
Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

**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 \_\_\_\_

**SIMULATOR**

COPY \_\_\_\_\_ OF \_\_\_\_\_

**EXAMINATION SCENARIO GUIDE**

**SCENARIO TITLE:** 2018 NRC-2  
**SCENARIO NUMBER:** ESG-2018 NRC-2  
**EFFECTIVE DATE:** Effective When Approved

**EXPECTED DURATION:**

**REVISION NUMBER:** 00

**PROGRAM:**  LICENSED OPERATOR REQUALIFICATION  
 INITIAL LICENSE  
 OTHER: \_\_\_\_\_

**REVISION SUMMARY:**

1.

## **I. OBJECTIVE(S):**

### **Enabling Objectives:**

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

## **II. MAJOR EVENTS:**

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

**EVENT FILE:**

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



<b>MALFUNCTION SCHEDULE:</b>				
<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

<b>REMOTE SCHEDULE:</b>				
<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

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>Failure of RRCS Level Transmitter</u></b></p> <p>After Technical Specifications have been addressed, or at the Lead Examiners discretion, <b>TRIGGER ET 2.</b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes failure of RRCS transmitter by:               <ul style="list-style-type: none"> <li>⇒ OHA D1-E1, RRCS TROUBLE</li> <li>⇒ Logic B, RRCS LOGIC A TRBL warning light 10C651D</li> <li>⇒ CRIDS A3549 (N402B) reading 60 inches</li> </ul> </li> </ul>	
<p><b><u>IF</u></b> dispatched to RRCS, <b><u>THEN REPORT</u></b> there is an “ATM CAL/GROSS FAILURE” light lit on 10C602 and LT-N402B is reading 60 inches.</p> <p><b><u>IF</u></b> dispatched to transmitter at instrument rack C004, <b><u>THEN REPORT</u></b> no visible problem at instrument rack.</p>	<ul style="list-style-type: none"> <li>• Crew dispatches ABEO and/or Maintenance to RRCS cabinets 10C601/602.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS recognizes the following Tech Specs/actions apply:               <ul style="list-style-type: none"> <li>⇒ ATWS Recirculation Pump Trip System Instrumentation 3.3.4.1 action b OR action d.</li> </ul> </li> </ul>	<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>
<p><b><u>Trip of Fuel Pool Cooling Pump</u></b></p> <p>After Technical Specifications have been addressed, or at the Lead Examiners discretion, <b>TRIGGER ET 3.</b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes loss of AP211 by:               <ul style="list-style-type: none"> <li>⇒ OHA D1-D5 “FUEL POOL COOLING SYS TROUBLE</li> <li>⇒ OHA D1-A4 “BOP SAFETY SYS OUT OF SVCE”</li> <li>⇒ CRIDS D3830 “FUEL POOL COOLING PUMP AP211 TRBL</li> <li>⇒ CRIDS D4679 “FUEL POOL CLG OUT OF SERVICE</li> </ul> </li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>CRS implements AB.COOL-0004: ⇒ Condition I</li> </ul>	
<p><u>IF</u> dispatched, <u>THEN REPORT:</u></p> <ul style="list-style-type: none"> <li>Thermal Overload trip of Breaker for AP211 (52-212103).</li> <li>No abnormal indications observed through viewing window.</li> </ul> <p><b>DELAY</b> request for local operation of placing F/D 00F311 in service.</p>	<ul style="list-style-type: none"> <li>PO performs the following in accordance with OP-AB.COOL-4:               <ol style="list-style-type: none"> <li><b>ENSURE</b> Skimmer Surge Tank &gt; 22".</li> <li><b>OPEN</b> 1-EC-HV-4689A(B), FILTER DEMIN BYPASS VALVE.</li> <li><b>CLOSE</b> 1-EC-HV-4689B(A), FILTER DEMIN BYPASS VALVE.</li> <li><b>CLOSE</b> either 1-EC-HV-4676A OR 1-EC-HV-4676B, F/D INL ISLN.</li> <li><b>START</b> one Fuel Pool Cooling Pump BP211.</li> <li>Contacts Radwaste Operator to <b>PLACE</b> the FPCC Filter Demin in service (EC).</li> </ol> </li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>Pressure Leg</p> <p>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> <p>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.</p> <p>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"> <li>• PO controls level as directed by CRS with:               <ul style="list-style-type: none"> <li>⇒ Feedwater IAW AB.ZZ-0001 Attachment 14</li> <li>⇒ HPCI/RCIC IAW AB.ZZ-0001 Attachment 6</li> </ul> </li> </ul>	
<p><b>ENSURE</b> MSL Radiation Malfunctions <b>RM9509-RM9512</b> ramp down to &lt;20 when the Main Steam Lines <u>AND</u> drain lines are isolated.</p>	<ul style="list-style-type: none"> <li>• RO/PO close MSIVs, HV-F016 and HV-F019 steam line drains. (Note: HV-F019 should already be closed.)</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>* <b><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></b></p> <p>(Note: Closure of HV-F016 is not critical since HV-F019 is already closed.)</p>	<p>The Critical Task is satisfied as long as all lines are isolated. For instance, closing the inboard MSIV, but <b>NOT</b> the outboard MSIV satisfies isolation of the steam line.</p>
	<ul style="list-style-type: none"> <li>• <b><u>IF</u></b> directed by the CRS, <b><u>THEN</u></b> RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.</li> </ul>	
<p><b><u>Control Rods NOT Fully Inserted:</u></b></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"> <li>• Crew recognizes Reactor is NOT shutdown by:               <ul style="list-style-type: none"> <li>⇒ CRIDS page 249/OD-7</li> <li>⇒ RWM, NOT SHUTDOWN indication</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS exits EOP-101, and enters EOP-101A, ATWS-RPV CONTROL</li> </ul>	
<p>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.</p>	<ul style="list-style-type: none"> <li>• CRS directs manual rod insertion by bypassing the RWM and manually inserting Control Rods per AB.ZZ-0001.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• RO aligns CRD for rod insertion IAW AB.ZZ-0001:               <ul style="list-style-type: none"> <li>⇒ ENSURE FIC 600 is in MANUAL.</li> <li>⇒ ADJUST AND MAINTAIN Drive Water D/P between 260-450 psid by throttling HV-F003 AND adjusting FIC 600.</li> <li>⇒ IF required, BYPASS the RWM to insert Control Rods.</li> </ul> </li> </ul>	
<p>IF RO raises Drive Pressure to &gt;315 psig, <b>ENSURE</b> Malfunction CD033851 is deleted.</p>	<ul style="list-style-type: none"> <li>• RO inserts control rods to shutdown the reactor under all conditions and reports condition to the CRS.</li> </ul>	
	<p>* <b><i>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.</i></b></p>	
	<ul style="list-style-type: none"> <li>• CRS exits EOP-101A, and enters EOP-101.</li> </ul>	
<p><b><u>Loss of Condensate/Feedwater:</u></b> The 1&amp;2 Feedwater heaters will isolate shortly after the scram. <b>ENSURE ET-23</b> activates.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes 1&amp;2 FWH trip by:               <ul style="list-style-type: none"> <li>⇒ OHA A7-E2 "FEEDWATER HEATER TRIP"</li> <li>⇒ Flashing HTR TRIP lights for FWH #2A/B/C</li> <li>⇒ Condensate Inlet and Outlet valves stroking shut for FWH 1&amp;2A/B/C.</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• PO attempts to open 1&amp;2 FWHs bypass IAW AB.ZZ-0001 Att. 14.</li> </ul>	
	<ul style="list-style-type: none"> <li>• PO informs CRS of inability to inject with condensate.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>CRS directs level control with RCIC and CRD.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO control level as directed by CRS with:               <ul style="list-style-type: none"> <li>⇒ CRD IAW AB.ZZ-0001 Att.6</li> <li>⇒ RCIC IAW AB.ZZ-0001 Att 6</li> </ul> </li> </ul>	
<p><b><u>RCIC Failure To Auto Initiate:</u></b></p>	<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> <ul style="list-style-type: none"> <li>⇒ IF system initiation does NOT occur, THEN MANUALLY START the system as follows:           <ul style="list-style-type: none"> <li>• ENSURE OP219 RCIC VACUUM PUMP is running.</li> <li>• ENSURE BD-HV-F046 is OPEN.</li> <li>• SIMULTANEOUSLY PERFORM the following:               <ul style="list-style-type: none"> <li>▪ PRESS AND HOLD FC-HV-F045 OPEN PB UNTIL FC-HV-F045 is OPEN.</li> <li>▪ OPEN BD-HV-F013.</li> </ul> </li> <li>• ADJUST FIC-R600 setpoint, as necessary, to achieve desired flow.</li> </ul> </li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>Steam Leak in the HPCI Room:</b>  <u>AFTER</u> the Crew shuts the MSIVs <u>AND</u> places HPCI in service, <u>OR</u>, at the Lead Examiners discretion, <b>TRIGGER ET-5 AND PROVIDE</b> Fire Computer indication of point <b>FA015</b> (Fire Computer point may be provided by Examiner <u>or</u> by Fire Computer Simulation).</p>	<ul style="list-style-type: none"> <li>• Crew recognizes a steam line break in the HPCI room by:               <ul style="list-style-type: none"> <li>⇒ OHA B1-A5 "HPCI STEAM LINE DIFF PRESSURE HI"</li> <li>⇒ OHA A2-A5 "FIRE PROT PANEL 10C671"</li> <li>⇒ Fire Comp Pt FA015 "RM 4111 HPCI PUMP AND TURBINE ROOM"</li> <li>⇒ OHA B1-A4 "HPCI TURBINE TRIP"</li> <li>⇒ OHA D3-A1 "HPCI/RHR A AREA LEAK TEMP HI"</li> <li>⇒ Offsite release rate trending up</li> <li>⇒ HPCI room temperature trending up (Rm 4111)</li> <li>⇒ ISLN INIT status lights</li> <li>⇒ Turbine Inlet Pressure on PI-R602.</li> </ul> </li> </ul>	<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"> <li>• Crew recognizes failure of HPCI to automatically isolate by:               <ul style="list-style-type: none"> <li>⇒ HV-F002/F003 valve position</li> <li>⇒ HPCI room temperature trending up (Rm 4111)</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO closes HV-F002 and HV-F003 using Control Room keylock switches.</li> </ul>	<p>Immediate Operator Action IAW AB.CONT-0002.</p>
	<ul style="list-style-type: none"> <li>* <b><i>Crew isolates the steam leak in the HPCI room by placing the HV-F002 OR HV-F003 keylock switch in CLOSE.</i></b></li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• <u>IF</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> the CRS implements EOP-102.</li> </ul>	
	<ul style="list-style-type: none"> <li>• <u>IF</u> directed by the CRS, <u>THEN</u> RO/PO place additional RHR pump in Suppression Pool Cooling IAW AB.ZZ-0001 Att. 3.</li> </ul>	
<p><b><u>Termination Requirement:</u></b></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-0102 Primary Containment Control**
- BB. **HC.OP-EO.ZZ-0103 Reactor Building Control**
- CC. **HC.OP-ST.BB-0001 Jet Pump Operability - Daily**
- DD. Strategies For Successful Transient Mitigation

## VII. ESG CRITICAL TASK RATIONAL

### ESG-2018 NRC-2 / 00

1.

- \* ***Crew reduces power to  $\leq 3848$  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  $\pm 8$  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.

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

### OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>      </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-2

#### 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:

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

Crew Validation Rev.: 00 Date Validated: \_\_\_\_\_

Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

Crew Validation Rev.: \_\_\_\_\_ Date Validated: \_\_\_\_\_

Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

**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-1  
**SCENARIO NUMBER:** ESG-2018 NRC-1  
**EFFECTIVE DATE:** Effective When Approved  
**EXPECTED DURATION:** 1 Hour  
**REVISION NUMBER:** 0

**PROGRAM:**  LICENSED OPERATOR REQUALIFICATION  
 INITIAL LICENSE  
 OTHER: \_\_\_\_\_

**REVISION SUMMARY:**

1.

## I. OBJECTIVE(S):

### Enabling Objectives:

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

## II. MAJOR EVENTS:

- A. Swap SACS Pumps
- B. APRM Failure
- C. FWH Leak
- D. Loss Of Essential 480V Bus 10B420
- 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 1E 125VDC bus is lost. This, in itself, does not cause a transient, but 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:	<b>zcrprun &lt;= 0.0</b> // Mode Switch NOT in RUN Triggers remaining events if Crew scrams during loss of FWH.
	4	Event Code: Description:	<b>zcrprun &lt;= 0.0</b> // Mode Switch NOT in RUN Triggers remaining events if Crew scrams during loss of FWH.
	6	Event Code: Description:	<b>rhv021(1) &gt;= 0.01</b> // Drywell Spray Valve F021A opening Triggers failure of Drywell Spray valve
	7	Event Code: Description:	<b>rrprv &lt;= 750</b> // Reactor Pressure in psia Inserts downcomer break if Crew depressurizes to ensure PSP is reached.
	8	Event Code: Description:	<b>zdcwrrcx(3)</b> // 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 120 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
<p><b><u>SACS Pump Swap:</u></b> Crew swaps SACS pumps.</p>	<ul style="list-style-type: none"> <li>• CRS directs swap of SACS pumps.</li> </ul>	
	<ul style="list-style-type: none"> <li>• PO swaps SACS pump IAW HC.OP-SO.EG-0001:               <ul style="list-style-type: none"> <li>⇒ PLACE SACS PUMP D in MAN control.</li> <li>⇒ START SACS Pump D.</li> <li>⇒ ADJUST OPEN EG-HV-2512B to establish RHR HX flow of ≈ 9000 gpm.</li> <li>⇒ PLACE SACS PUMP B in MAN control.</li> <li>⇒ STOP SACS Pump B.</li> <li>⇒ ADJUST CLOSED EG-HV-2512B to establish RHR HX flow of ≈ 4500 gpm.</li> <li>INITIAL Attachment 1.</li> <li>⇒ PLACE SACS Pumps B and D in AUTO</li> </ul> </li> </ul>	
<p><b><u>APRM Failure:</u></b> After SACS pumps have been swapped, and at the discretion of the Lead Examiner, <b>TRIGGER ET-1</b> (APRM failure).</p>	<ul style="list-style-type: none"> <li>• Crew identifies "B" APRM downscale by:               <ul style="list-style-type: none"> <li>⇒ C3-E4 "APRM DOWNSCALE".</li> <li>⇒ C3-F3 "OPRM TRIP/BYP/INOP/TRBL.</li> <li>⇒ C6-D3 Rod Out Motion Block</li> <li>⇒ Amber "DNSC" Monitor Status lights.</li> <li>⇒ 'B' APRM reading 0%</li> <li>⇒ CRIDS C048, "ROD OUT BLOCK" in alarm</li> <li>⇒ CRIDS C021, "ANY APRM DOWNSCALE' in alarm</li> </ul> </li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• Crew identifies/verifies ROD BLOCK by:               <ul style="list-style-type: none"> <li>⇒ ROD SELECT MODULE “ROD MOTION BLOCK” amber warning.</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew enters HC.OP-AB.IC-0004, Condition B</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS directs:               <ul style="list-style-type: none"> <li>⇒ Bypassing the Malfunctioning APRM B</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS references Tech Spec sections 3.3.1 &amp; 3.3.6.</li> </ul>	Tracking T.S.

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>6B FWH Tube Rupture:</b> After the Crew assumes the watch and at the discretion of the Lead Examiner, <b>TRIGGER ET-2</b> (6B FWH Tube Rupture).</p>	<ul style="list-style-type: none"> <li>• Crew recognizes trip of 6B FWH and loss of Feedwater heating by:               <ul style="list-style-type: none"> <li>⇒ Lowering RPV Water Level</li> <li>⇒ RFP speeds and flow rise</li> <li>⇒ Low SCP suction pressure alarms</li> <li>⇒ CRIDS A2134, "FDW HTR 6B LEVEL LT-1558B" rising</li> <li>⇒ OHA A7-E2 "FEEDWATER HTR TRIP"</li> <li>⇒ 6B FWH Flashing HTR TRIP light</li> <li>⇒ CRIDS D2997 "Feedwater Heater BE106"</li> <li>⇒ 6B FWH Extraction Steam valve HV-1365B closing</li> <li>⇒ Lowering feed water line temperatures</li> </ul> </li> </ul>	<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"> <li>• Crew announces trip of the 6B FWH on the plant page.</li> </ul>	
<p>InSight Items:</p> <ul style="list-style-type: none"> <li>• FW Line Temp A <b>c91a1744</b></li> <li>• FW Line Temp B <b>c91a1746</b></li> </ul>	<ul style="list-style-type: none"> <li>• Crew recognizes leak in 6B FWH by:               <ul style="list-style-type: none"> <li>⇒ RFPTs speed increasing</li> <li>⇒ RFP discharge flows rising with lowering feed flow to reactor vessel</li> <li>⇒ Total Condensate flow rising</li> <li>⇒ 3/4/5B FWH drain flow rising</li> <li>⇒ 6B FWH level rising</li> </ul> </li> </ul>	<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"> <li>• <b>PLAY</b> the Earthquake Sound Effect (if available) at medium volume for about 15 seconds  <u>OR</u>  <b>ANNOUNCE</b> "You feel motion then it stops"</li> </ul> <p>Support actions to take Crossflow to Blocked/Not Applied via CRIDS if necessary.</p>	<ul style="list-style-type: none"> <li>• RO reduces and maintains reactor power to the Pre-Feedwater Heater Trip or Isolation Value IAW the SPRI.</li> </ul>	<p>Immediate Operator Action IAW AB.BOP-0001.</p>
	<p>* <b><i>Crew restores/maintains the Core Thermal Power 5 Minute Average to <math>\leq 3848</math> MWth.</i></b></p>	
<p><u>IF</u> dispatched to BC102,  <u>THEN REPORT:</u></p> <ul style="list-style-type: none"> <li>• 6B FWH level is high on all indicators</li> <li>• There is a 100% air signal on the drain valve</li> <li>• There is a 0% air signal on the dump valve</li> </ul>	<ul style="list-style-type: none"> <li>• Crew dispatched TBEO to BC102 panel.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.BOP-0001:  ⇒ Condition A  ⇒ Condition B</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• Crew ensures automatic actions occur:               <ul style="list-style-type: none"> <li>⇒ HV-1365B extraction steam isolation closes</li> <li>⇒ HV-1366B/1367B/1359B drains open</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• PO performs the following:               <ul style="list-style-type: none"> <li>⇒ Closes HV-1753B</li> <li>⇒ Closes HV-1768B</li> <li>⇒ Ensures extraction steam isolated to 6B FWH IAW SO.AF-0001 Section 5.6</li> </ul> </li> </ul>	
<p><u>IF</u> the RE is directed, TOGGLE CROSSFLOW to NOT APPLIED.</p>	<ul style="list-style-type: none"> <li>• <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</li> </ul>	
<p><u>IF</u> directed to monitor Recirc M/G Set temperatures, <u>THEN</u> MAINTAIN temperatures using <b>Remote Function CW15 &amp; CW16</b> as necessary.</p>	<ul style="list-style-type: none"> <li>• <u>IF</u> directed, <u>THEN</u> RO reduces and maintains reactor power.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements AB.RPV-0001:               <ul style="list-style-type: none"> <li>⇒ Condition A</li> <li>⇒ Condition B</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew contacts RE.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• <u>IF</u> reactor power was reduced by 15%, <u>THEN</u> CRS recognizes the following actions apply: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) &amp; (f) IAW OP-HC-108-115-1001.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew contacts ESOC and Trading Floor.</li> </ul>	
<p><b>Loss of 10D420:</b> 20 minutes after the Loss of #6 FWH, <u>OR</u> at the discretion of the Lead Examiner, <b>TRIGGER ET-3</b> (Loss of 10D420 bus).</p>	<ul style="list-style-type: none"> <li>• Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable.</li> </ul>	
	<ul style="list-style-type: none"> <li>• 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</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>CRS implements AB.ZZ-0150.</li> </ul>	
<p><u>IF</u> dispatched to investigate loss of 10D420, <u>THEN REPORT:</u></p> <ul style="list-style-type: none"> <li>Bus indicates 0 volts</li> <li>Both battery chargers DC CKT BREAKER are tripped (BD413/BD414)</li> <li>There is an acrid odor and indication of flash damage at the battery transfer switch (1BD412 Rm 5540)</li> <li>There is no indication of fire</li> </ul>	<ul style="list-style-type: none"> <li>Crew dispatches ABEO and Maintenance to investigate loss of 10D420 bus.</li> </ul>	E-0009-1 Sheet 2
	<ul style="list-style-type: none"> <li>CRS recognizes the following Tech Specs actions apply: ⇒ D.C. Sources - Operating 3.8.2.1 Action a</li> </ul>	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><b><u>Earthquake/Condensate Line Break:</u></b> 15 minutes after the loss of 10D420 bus, <u>OR</u> at the discretion of the Lead Examiner.</p> <ul style="list-style-type: none"> <li><b>PLAY</b> the Earthquake Sound Effect (if available) at medium volume for about 5 seconds <u>OR</u> <b>ANNOUNCE</b> "You feel motion then it stops"</li> <li><b>TRIGGER ET-4</b></li> </ul>	<ul style="list-style-type: none"> <li>Crew recognizes Seismic Event by: ⇒ Loud rumbling noise (if available)</li> </ul>	
	<ul style="list-style-type: none"> <li>Crew monitors critical parameters to determine if plant is stable.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• Crew recognizes Condensate Line Break by:               <ul style="list-style-type: none"> <li>⇒ RPV Level lowering</li> <li>⇒ RFP speed rising</li> <li>⇒ TB Exhaust Radiation levels rising</li> <li>⇒ Lowering SCP suction pressures</li> <li>⇒ Main Condenser In-Leakage rising</li> <li>⇒ Main Condenser levels lowering</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew implements HC.OP-AB.RPV-0004.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew implements HC.OP-AB.BOP-0006</li> </ul>	
	<ul style="list-style-type: none"> <li>• RO reduces Reactor Power with Recirc, as necessary, to Maintain above LEVEL 4</li> </ul>	Immediate Operator Action IAW AB.ZZ-0135
	<ul style="list-style-type: none"> <li>• CRS directs Reactor Scram when Reactor Water Level <math>\leq 15''</math>.</li> </ul>	

## 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"> <li>• RO Locks the Mode Switch in Shutdown</li> <li>• RO performs scram actions IAW AB.ZZ-0001 Att. 1.               <ul style="list-style-type: none"> <li>⇒ ANNOUNCE "Crew - Standby for Scram Report".</li> <li>⇒ LOCK the Mode Switch in Shutdown.</li> <li>⇒ ANNOUNCE Rod Motion status, APRM Downscale status, Reactor Shutdown status</li> <li>⇒ ANNOUNCE Reactor Water Level and trend, Reactor Pressure and trend</li> <li>⇒ ANNOUNCE "scram report complete".</li> <li>⇒ INSERT the SRM/IRM's</li> <li>⇒ SELECT IRM CHART RECORDERS.</li> <li>⇒ WHEN main generator output reaches approximately zero Mwe THEN TRIP the main turbine.</li> <li>⇒ ENSURE the Reactor Scram has been announced (over PA).</li> <li>⇒ REPORT "All Scram Actions Complete".</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• Crew recognizes RPV Level Below 12.5" EOP entry condition by:               <ul style="list-style-type: none"> <li>⇒ OHA A7-D5 "RPV LEVEL 3"</li> <li>⇒ Various water level indicators</li> </ul> </li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</b>  <b>EOP 101 RPV Control.</b>                      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"> <li>CRS implements EOP-101.</li> </ul>	
	<ul style="list-style-type: none"> <li>CRS directs maintaining RPV level -30" to +30" with HPCI.</li> </ul>	Due to the Loss of 10D420, RCIC is not available.
	<ul style="list-style-type: none"> <li>RO/PO maintains RPV level as directed by CRS with HPCI IAW AB.ZZ-0001 Att. 6.</li> </ul>	
<p><b>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</b>                      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"> <li>CRS directs manual pressure control to maintain RPV pressure below 1037 psig.</li> </ul>	Due to the loss of 10D420, only the 'P' Lo-Lo Set SRV will be automatically cycling (935-1047 psig)
	<ul style="list-style-type: none"> <li>PO maintains pressure as directed by the CRS IAW AB.ZZ-0001.</li> </ul>	

## 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 6.0 on Richter scale centered 12 miles east of Wilmington, DE.</p>	<ul style="list-style-type: none"> <li>CRS implements AB.MISC-0001:  ⇒ Condition E  ⇒ Condition F</li> </ul>	<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"> <li>RO/PO implements AR.ZZ-0011 Attachment C4.</li> </ul>	
<p><u>IF</u> dispatched to 10C673,  <u>THEN REPORT</u>:</p> <ul style="list-style-type: none"> <li>The Event Indicator is WHITE</li> <li>The tape machines have advanced but are not running</li> <li>The Amber Alarm light on the Seismic Switch Power Supply drawer is lit.</li> </ul>	<ul style="list-style-type: none"> <li>Crew dispatches ABEO to 10C673.</li> <li>Crew recognizes a seismic event &gt;0.1g has occurred</li> </ul>	
<p><u>IF</u> directed to reset 10C673,  <u>THEN DELETE</u> Malfunction PC07B.</p>	<ul style="list-style-type: none"> <li>RO/PO directs ABEO to reset 10C673 IAW SO.SG-0001.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>Failure of Primary Containment Penetration to Isolate:</u></b>                      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"> <li>• Crew recognizes failure of HV-2554 to isolate from:                             <ul style="list-style-type: none"> <li>⇒ SPDS Primary Containment Isolation Valves screen</li> <li>⇒ 10C650D Containment Isolation Valves indication</li> <li>⇒ CRIDS Page 231</li> <li>⇒ Indication on 10C651A</li> <li>⇒ Verification IAW AB.CONT-0001 Att. 3 or SO.SM-0001</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO closes HV-2554.</li> </ul>	Immediate Operator Action IAW AB.CONT-0002.
	<ul style="list-style-type: none"> <li>• Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by:                             <ul style="list-style-type: none"> <li>⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH"</li> <li>⇒ Flashing 95 degree status light on 10C650C</li> <li>⇒ RM11 9AX833/834 alarm</li> <li>⇒ Various Suppression Pool temperature indicators</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS re-enters EOP-102.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS directs placing AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## 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"> <li>• Crew prevents injection from Core Spray and LPCI pumps not required for adequate core cooling.</li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO open ADS valves IAW AB.ZZ-0001 Attachment 13.</li> </ul>	
	<p>* <b><i>Crew directs Emergency Depressurization in accordance with EOP-202 when Suppression Chamber pressure reaches the Action Required region of the PSP curve.</i></b></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"> <li>• CRS directs restoring PCIG to SRVs.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

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

## 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/ 0

1.

- \* **Crew restores/maintains the Core Thermal Power 5 Minute Average to  $\leq 3848$  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"/>	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"/>	Loss of Condenser Vacuum	<input type="checkbox"/>	Loss of SACS
<input checked="" type="checkbox"/>	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"/>	Condensate/Feedwater
<input checked="" type="checkbox"/>	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"/>	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: (continued)**

Crew Validation Rev.: 00 Date Validated: \_\_\_\_\_

Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

Crew Validation Rev.: \_\_\_\_\_ Date Validated: \_\_\_\_\_

Validate with operators from Crew .

Validation Comments	Disposition
1.	1.

**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 \_\_\_\_