

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Administrative

**TASK:** Conduct Weekly Power Distribution Lineup

**TASK NUMBER:** 2630010201

**JPM NUMBER:** 305H-JPM.ZZ024

**REV #:** 01

**SAP BET:** NOH05JPZZ24E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

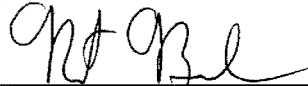
SRO ☐

**DEVELOPED BY:** Archie E. Faulkner  
**Instructor**

**DATE:** 1/12/12

**REVIEWED BY:**   
**Operations Representative**

**DATE:** 1/18/12

**APPROVED BY:**   
**Training Department**

**DATE:** 1/19/12

**STATION:** Hope Creek**JPM NUMBER:** ZZ024**REV:** 01**SYSTEM:** Administrative**TASK NUMBER:** 2630010201**TASK:** Conduct Weekly Power Distribution Lineup**ALTERNATE PATH:** ☐**K/A NUMBER:** 2.1.31**IMPORTANCE FACTOR:**

4.2	3.9
RO	SRO

**APPLICABILITY:**EO ☐ RO ☒ STA ☐ SRO ☐**EVALUATION SETTING/METHOD:** Simulator/Perform**REFERENCES:** HC.OP-ST.ZZ-0001, Revision 33**TOOLS, EQUIPMENT AND PROCEDURES:**

Partially completed HC.OP-ST.ZZ-0001

**ESTIMATED COMPLETION TIME:** 27 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 JPM UNSATISFACTORY:****EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Administrative

**TASK:** Conduct Weekly Power Distribution Lineup

**TASK NUMBER:** 2630010201

**INITIAL CONDITIONS:**

1. Emergency Diesel Generator AG400 has a mechanical problem and is declared inoperable. It is expected to return in 8 hours and is determined to be a short term outage.
2. Station Power Transformer 1T-60 was removed from service due to cooling fan malfunctions. The switchyard was re-aligned to support tagging.
3. HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, is due.
4. Salem Unit 3 Gas Turbine Generator is available.
5. This procedure is being performed to satisfy Technical Specification Surveillance requirement 4.8.1.1.1.a.

**INITIATING CUE:**

Perform HC.OP-ST.ZZ-0001, POWER DISTRIBUTION LINEUP – WEEKLY to satisfy Technical Specification 4.8.1.1.1.a only.

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
CUE	Provide the operator with a copy of the partially completed procedure HC.OP-ST.ZZ-0001(Q).				
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	<u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.			



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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.0	<b><u>Power Distribution Lineup</u></b>	N/A			
5.1	<b>LOG</b> test start time in the Control Room log(s).	Operator requests that the start time be logged in the Control Room log.			
<b>CUE</b>	<b>The test start time has been logged in the Control Room log.</b>				
		Operator initials the step.			

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.2	ENSURE that all prerequisites have been satisfied IAW Section 2.0 of this procedure.	Operator ensures that the prerequisites are satisfied:			
		<ul style="list-style-type: none"> <li>Observes that permission to complete the test has been given by the OS/CRS.</li> </ul>			
		<ul style="list-style-type: none"> <li>Operator completes Att. 1, Section 3.</li> </ul>			
		<ul style="list-style-type: none"> <li>Ensures no other testing or maintenance is in progress that will adversely affect the performance of this test.</li> </ul>			
		Operator initials the step.			
CUE	IF asked, "No other testing or maintenance is in progress that will adversely affect the performance of this test."	NA			

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3	<b>ENSURE</b> Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed and Regular Surveillance or Retest is indicated.	Operator observes that Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed and Regular Surveillance is indicated.			
		Operator initials the step.			
5.4	<u>IF</u> performing this procedure to satisfy T/S Surveillance 4.8.1.1.1.a ONLY, <b>PERFORM</b> the following sections: [T/S 4.8.1.1.1.a] <ul style="list-style-type: none"> <li>• 4.16KV SWITCHGEAR 10A401</li> <li>• 4.16KV SWITCHGEAR 10A402</li> <li>• 4.16KV SWITCHGEAR 10A403</li> <li>• 4.16KV SWITCHGEAR 10A404</li> <li>• OFFSITE TO ONSITE DISTRIBUTION</li> </ul>	Operator determines that these sections only are to be completed and initials step.			

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.1	When in an extended outage for A or B EDG, <b>VERIFY</b> , through Salem operations, that Salem Unit 3 Gas Turbine Generator is available to supply Hope Creek #2 Station Power Transformer AND <b>LOG ON</b> OFFSITE TO ONSITE DISTRIBUTION.	Operator determines the outage of A EDG is not an extended outage.  <b>Examiner Note:</b> The field on Attachment 2 for the Salem Unit 3 Gas Turbine is not required but may be filled in by the operator since the status is listed on the Initial Conditions sheet.			
5.5	<b>RECORD</b> M&TE identification numbers and calibration due dates for test equipment utilized for this test on Attachment 3 and the PSEG Nuclear Home Page.	Operator determines that this step is not required and marks step as N/A.			

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.6	PERFORM Power Distribution Lineup by completing Attachment 2.	Operator observes the breaker positions, (and bus Voltage for the 4.16KV busses) of those breakers listed in Attachment 2 for: <ul style="list-style-type: none"> <li>• 4.16KV SWITCHGEAR 10A401</li> <li>• 4.16KV SWITCHGEAR 10A402</li> <li>• 4.16KV SWITCHGEAR 10A403</li> <li>• 4.16KV SWITCHGEAR 10A404</li> <li>• OFFSITE TO ONSITE DISTRIBUTION</li> </ul>			
		The operator notes the positions/voltages on the attachment, enters SAT, and initials as the performer.			

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.7	<u>IF</u> any indication not specified in Attachment 2 was used to satisfy this surveillance <u>THEN DOCUMENT AND JUSTIFY</u> its use in Section 2.1.4 of Attachment 1.	Operator determines that the lineup specified in Attachment 2 was not in the REQUIRED positions used to satisfy this surveillance, marks those as UNSAT and informs the CRS.  <b>Examiner Note:</b> See attached grading key.	*		
		Operator initials the step.			
5.8	<b>LOG</b> test end time in Control Room log(s).				
<b>CUE</b>	<b>Log entry completed.</b>	Operator initials the step.			
5.9	<b>SUBMIT</b> this procedure to the SM/CRS for review <u>AND</u> completion of Attachment 1.				

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STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ024

TASK: Conduct Weekly Power Distribution Lineup

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

☐

UNSAT

☐



## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. Emergency Diesel Generator AG400 has a mechanical problem and is declared inoperable. It is expected to return in 8 hours and is determined to be a short term outage.
2. Station Power Transformer 1T-60 was removed from service due to cooling fan malfunctions. The switchyard was re-aligned to support tagging.
3. HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, is due.
4. Salem Unit 3 Gas Turbine Generator is available.
5. This procedure is being performed to satisfy Technical Specification Surveillance requirement 4.8.1.1.1.a.

## INITIATING CUE:

Perform HC.OP-ST.ZZ-0001, POWER DISTRIBUTION LINEUP – WEEKLY to satisfy Technical Specification 4.8.1.1.1.a only.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

I.C.

Initial	
	<b>INITIALIZE</b> the simulator to 100% power, MOL.
	<b>ENSURE</b> associated Schedule file open and running.
	<b>ENSURE</b> associated Events file open.

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

Initial	Description
	Complete Section 1 for Regular Surveillance and 4.8.1.1.1.a ONLY.
	Setup Electrical Distribution System as noted on page 24 of Attachment 2.
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

## EVENT FILE:

Initial	ET #	
		Event code: Description:
		Event code: Description:
		Event code: Description:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

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

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

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

## JOB PERFORMANCE MEASURE

**REVISION HISTORY**

JPM NUMBER: ZZ024

Rev #	Date	Description	Validation Required?
01	1/12/12	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers and step numbers. Validated with 2 ROs 1/3/12. Avg completion time is 27 minutes.	Y

**ATTACHMENT 2**  
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**INPLANT DATA SHEET**  
**POWER DISTRIBUTION LINEUP - WEEKLY**

**1.0 Power Distribution Lineup (Continued)**

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
<b><u>CHANNEL A</u></b>	<b><u>4.16KV SWGR 10A401</u></b>				
40101	ALTERNATE FEEDER BKR TO 10A401	OPEN	OPEN	SAT	Initials
40103	10A401 FEED TO 10B450	CLOSED	CLOSED	SAT	Initials
40107	EDG AG400 OUTPUT BKR TO 10A401	OPEN	OPEN	SAT	Initials
40108	NORMAL FEEDER BKR TO BUS 10A401	CLOSED	CLOSED	SAT	Initials
40110	10A401 FEED TO 10B410	CLOSED	CLOSED	SAT	Initials
IF IN A NORMAL 2 BUS ALIGNMENT [(2) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON EACH STATION SERVICE TRANSFORMER (SST) (1AX501, 1BX501)] WITH TAP CHANGER IN AUTO, RECORD THE FOLLOWING READING (USE CRIDS AS PRIMARY INDICATION (FLUKE SECONDARY)) (NOTES 2,3,4,&6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7061)	4173 - 4370	4272	SAT	Initials
10A401 Voltage	Fluke (Model 45)	119.09 - 125.0			
IF IN AN ABNORMAL BUS ALIGNMENT [(3) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON (1) SST; OR, (4) 4.16 KV CLASS 1E BUSES AND (2) 4.16 KV NON-1E BUS ON (1) SST) (NOTES 2, 3, 4, & 6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7061)	4245 - 4370			
10A401 Voltage	Fluke (Model 45)	121.14 - 125.0			

\* The asterisk indicates Acceptance Criteria - in order to satisfy the requirements of the acceptance criteria, the SAT/UNSAT block must be marked SAT.

- (2) Voltage outside MIN/MAX may be indicative of a malfunctioning Transformer Load Tap Changer when in automatic. **COMPARE** Bus Voltage with Station Service Transformer Sec. Voltage. IF Bus Voltage is outside the MIN/MAX take Manual control of Load Tap Changer and **ADJUST** until voltage is within range. Voltage > MAX with Load Tap Changer on 1 position is normal during certain conditions (i.e., HI grid voltage and/or no loads on bus.) (**NOTE:** If in a normal 2 bus alignment with tap changer in manual and voltage remains within established limits, tap changer should be returned to AUTO. (Refer to the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]
- (3) Instructions on the use of a Fluke (Model 45) to obtain Bus Voltage Values can be found in HC.OP-SO.MC-0001(Z), Fluke (Model 45) Hookup and Voltage Readings at PT Secondary.
- (4) IF Bus Voltage cannot be adjusted > MIN, **DECLARE** the respective offsite circuit of the A.C. electrical power source INOP AND **ENTER** T/S 3.8.1.1.a Action Statement.  
 IF Bus Voltage cannot be adjusted < MAX, **GENERATE** notification to Hope Creek Electrical / I&C, System Engineering **documenting** each voltage operating limit violation (start & stop times), so that 4.16 KV System Engineer can track and **analyze** voltage levels, IAW Notification 20184742. [70038770]
- (6) 4.16 KV Buses supplied from a common Station Service Transformer (1AX501, 1BX501) have the same voltage and **associated** CRIDS points should read the same discounting instrument loop inaccuracies. In normal 2 bus (or less) **alignment**, any of the following CRIDS points are considered equivalent and may be substituted for any other if one or more is a **failed** indicator: (For **1AX501**: A3209, A3484, A7061, A7066) (For **1BX501**: A3210, A3487, A7076, A7071)

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**POWER DISTRIBUTION LINEUP - WEEKLY**

**1.0 Power Distribution Lineup (Continued)**

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
<b><u>CHANNEL C</u></b>	<b><u>4.16KV SWGR 10A403</u></b>				
40301	ALTERNATE FEEDER BKR TO 10A403	OPEN	OPEN	SAT	Initials
40303	10A403 FEED TO 10B470	CLOSED	CLOSED	SAT	Initials *
40307	EDG CG400 OUTPUT BKR TO 10A403	OPEN	OPEN	SAT	Initials
40308	NORMAL FEEDER BKR TO BUS 10A403	CLOSED	CLOSED	SAT	Initials
40310	10A403 FEED TO 10B430	CLOSED	CLOSED	SAT	Initials *
IF IN A NORMAL 2 BUS ALIGNMENT [(2) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON EACH STATION SERVICE TRANSFORMER (SST) (1AX501, 1BX501) WITH TAP CHANGER IN AUTO, RECORD THE FOLLOWING READING (USE CRIDS AS PRIMARY INDICATION (FLUKE SECONDARY)) (NOTES 2,3,4,&6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7066)	4173 - 4370	4272	SAT	Initials *
10A403 Voltage	Fluke (Model 45)	119.09 - 125.0			
IF IN AN ABNORMAL BUS ALIGNMENT [(3) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON (1) SST; OR, (4) 4.16 KV CLASS 1E BUSES AND (2) 4.16 KV NON-1E BUS ON (1) SST) (NOTES 2, 3, 4, & 6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7066)	4245 - 4370			
10A403 Voltage	Fluke (Model 45)	121.14 - 125.0			

\* The asterisk indicates Acceptance Criteria - in order to satisfy the requirements of the acceptance criteria, the SAT/UNSAT block must be marked SAT.

- (2) Voltage out of MIN/MAX may be indicative of a malfunctioning Transformer Load Tap Changer when in automatic. **COMPARE** Bus Voltage with Station Service Transformer Sec. Voltage. IF Bus Voltage is outside the MIN/MAX take Manual control of Load Tap Changer and **ADJUST** until voltage is within range. Voltage > MAX with Load Tap Changer on 1 position is normal during certain conditions (i.e., HI grid voltage and/or no loads on bus.) (**NOTE:** If in a normal 2 bus alignment with tap changer in manual and voltage remains within established limits, tap changer should be returned to AUTO. (Refer to the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]
- (3) Instructions on the use of a Fluke (Model 45) to obtain Bus Voltage Values can be found in HC.OP-SO.MC-0001(Z), Fluke (Model 45) Hookup and Voltage Readings at PT Secondary.
- (4) IF Bus Voltage cannot be adjusted > MIN, **DECLARE** the respective offsite circuit of the A.C. electrical power source INOP AND **ENTER** T/S 3.8.1.1.a Action Statement.  
 IF Bus Voltage cannot be adjusted < MAX, **GENERATE** notification to Hope Creek Electrical / I&C, System Engineering **documenting** each voltage operating limit violation (start & stop times), so that 4.16 KV System Engineer can track and **analyze** voltage levels, IAW Notification 20184742. [70038770]
- (6) 4.16 KV Buses supplied from a common Station Service Transformer (1AX501, 1BX501) have the same voltage and **associated** CRIDS points should read the same discounting instrument loop inaccuracies. If in normal 2 bus (or less) **alignment**, any of the following CRIDS points are considered equivalent and may be substituted for any other if one or more is a **failed** indicator: (For **1AX501**: A3209, A3484, A7061, A7066) (For **1BX501**: A3210, A3487, A7076, A7071)

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**POWER DISTRIBUTION LINEUP - WEEKLY**

**1.0 Power Distribution Lineup (Continued)**

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/UNSAT	PERF
<b><u>CHANNEL B</u></b>	<b><u>4.16KV SWGR 10A402</u></b>				
40201	NORMAL FEEDER BKR TO 10A402	CLOSED	CLOSED	SAT	Initials
40203	10A402 FEED TO 10B460	CLOSED	CLOSED	SAT	Initials
40207	EDG BG400 OUTPUT BKR TO 10A402	OPEN	OPEN	SAT	Initials
40208	ALTERNATE FEEDER BKR TO BUS 10A402	OPEN	OPEN	SAT	Initials
40210	10A402 FEED TO 10B420	CLOSED	CLOSED	SAT	Initials
IF IN A NORMAL 2 BUS ALIGNMENT [(2) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON EACH STATION SERVICE TRANSFORMER (SST) (1AX501, 1BX501)] WITH TAP CHANGER IN AUTO, RECORD THE FOLLOWING READING (USE CRIDS AS PRIMARY INDICATION (FLUKE SECONDARY)) (NOTES 2,3,4,&6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7076)	4173 - 4370	4253	SAT	Initials
10A402 Voltage	Fluke (Model 45)	119.09 - 125.0			
IF IN AN ABNORMAL BUS ALIGNMENT [(3) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON (1) SST; OR, (4) 4.16 KV CLASS 1E BUSES AND (2) 4.16 KV NON-1E BUS ON (1) SST) (NOTES 2, 3, 4, & 6)]					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7076)	4245 - 4370			
10A402 Voltage	Fluke (Model 45)	121.14 - 125.0			

\* The asterisk indicates Acceptance Criteria - in order to satisfy the requirements of the acceptance criteria, the SAT/UNSAT block must be marked SAT.

- (2) Voltage outside MIN/MAX may be indicative of a malfunctioning Transformer Load Tap Changer when in automatic. **COMPARE** Bus Voltage with Station Service Transformer Sec. Voltage. IF Bus Voltage is outside the MIN/MAX take Manual control of Load Tap Changer and **ADJUST** until voltage is within range. Voltage > MAX with Load Tap Changer on 1 position is normal during certain conditions (i.e., HI grid voltage and/or no loads on bus.) (**NOTE:** If in a normal 2 bus alignment with tap changer in manual and voltage remains within established limits, tap changer should be returned to AUTO. (Refer to the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]
- (3) Instructions on the use of a Fluke (Model 45) to obtain Bus Voltage Values can be found in HC.OP-SO.MC-0001(Z), Fluke (Model 45) Hookup and Voltage Readings at PT Secondary.
- (4) IF Bus Voltage cannot be adjusted > MIN, **DECLARE** the respective offsite circuit of the A.C. electrical power source INOP AND **ENTER** T/S 3.8.1.1.a Action Statement.  
 IF Bus Voltage cannot be adjusted < MAX, **GENERATE** notification to Hope Creek Electrical / I&C, System Engineering **documenting** each voltage operating limit violation (start & stop times), so that 4.16 KV System Engineer can track and **analyze** voltage levels, IAW Notification 20184742. [70038770]
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**POWER DISTRIBUTION LINEUP - WEEKLY**

**1.0 Power Distribution Lineup (Continued)**

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
<b>CHANNEL D</b>	<b>4.16KV SWGR 10A404</b>				
40401	NORMAL FEEDER BKR TO 10A404	CLOSED	CLOSED	SAT	Initials
40403	10A401 FEED TO 10B480	CLOSED	CLOSED	SAT	Initials *
40407	EDG AG400 OUTPUT BKR TO 10A404	OPEN	OPEN	SAT	Initials
40408	ALTERNATE FEEDER BKR TO BUS 10A404	OPEN	OPEN	SAT	Initials
40410	10A401 FEED TO 10B440	CLOSED	CLOSED	SAT	Initials *
IF IN A NORMAL 2 BUS ALIGNMENT [(2) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON EACH STATION SERVICE TRANSFORMER (SST) (1AX501, 1BX501)] WITH TAP CHANGER IN AUTO, RECORD THE FOLLOWING READING (USE CRIDS AS PRIMARY INDICATION (FLUKE SECONDARY)) (NOTES 2,3,4,&6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7071)	4173 - 4370	4253	SAT	Initials *
10A404 Voltage	Fluke (Model 45)	119.09 - 125.0			
IF IN AN ABNORMAL BUS ALIGNMENT [(3) 4.16 KV CLASS 1E BUSES AND (1) 4.16 KV NON-1E BUS ON (1) SST; OR, (4) 4.16 KV CLASS 1E BUSES AND (2) 4.16 KV NON-1E BUS ON (1) SST] (NOTES 2, 3, 4, & 6)					
4.16 KV Bus	CIRCLE ONE: CRIDS (A7071)	4245 - 4370			
10A404 Voltage	Fluke (Model 45)	121.14 - 125.0			

\* The asterisk indicates Acceptance Criteria - in order to satisfy the requirements of the acceptance criteria, the SAT/UNSAT block must be marked SAT.

- (2) Voltage outside MIN/MAX may be indicative of a malfunctioning Transformer Load Tap Changer when in automatic. **COMPARE** Bus Voltage with Station Service Transformer Sec. Voltage. IF Bus Voltage is outside the MIN/MAX take Manual control of Load Tap Changer and **ADJUST** until voltage is within range. Voltage > MAX with Load Tap Changer on 1 position is normal during certain conditions (i.e., HI grid voltage and/or no loads on bus.) (**NOTE:** If in a normal 2 bus alignment with tap changer in manual and voltage remains within established limits, tap changer should be returned to AUTO. (Refer to the appropriate CRIDS point for the Station Service Transformer Sec. Voltage). [70038637]
- (3) Instructions on the use of a Fluke (Model 45) to obtain Bus Voltage Values can be found in HC.OP-SO.MC-0001(Z), Fluke (Model 45) Hookup and Voltage Readings at PT Secondary.
- (4) IF Bus Voltage cannot be adjusted > MIN, **DECLARE** the respective offsite circuit of the A.C. electrical power source INOP AND **ENTER** T/S 3.8.1.1.a Action Statement.  
 IF Bus Voltage cannot be adjusted < MAX, **GENERATE** notification to Hope Creek Electrical / I&C, System Engineering **documenting** each voltage operating limit violation (start & stop times), so that 4.16 KV System Engineer can track and **analyze** voltage levels, IAW Notification 20184742. [70038770]
- (6) 4.16 KV Buses supplied from a common Station Service Transformer (1AX501, 1BX501) have the same voltage and **associated** CRIDS points should read the same discounting instrument loop inaccuracies. If in normal 2 bus (or less) **alignment**, any of the following CRIDS points are considered equivalent and may be substituted for any other if one or more is a **failed** indicator: (For **1AX501**: A3209, A3484, A7061, A7066) (For **1BX501**: A3210, A3487, A7076, A7071)



**ATTACHMENT 2**  
**Page 24 of 33**  
**INPLANT DATA SHEET**  
**POWER DISTRIBUTION LINEUP - WEEKLY**

**1.0 Power Distribution Lineup (Continued)**

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF	
	<b><u>OFFSITE TO ONSITE DISTRIBUTION</u></b>					<b>+</b>
BS4-5	13KV BUS SECTION 4-5 BKR	CLOSED	CLOSED	SAT	Initials	*
BS6-7	13KV BUS SECTION 6-7 BKR	CLOSED	OPEN	UNSAT	Initials	*
2T60	STA XFMR T2 CIRCUIT SWITCHER	CLOSED	CLOSED	SAT	Initials	*
4T60	STA XFMR T4 CIRCUIT SWITCHER	CLOSED	CLOSED	SAT	Initials	*
BS3-4	500KV BUS SECTION 3-4 BKR	CLOSED	CLOSED	SAT	Initials	*
BS6-5	500KV BUS SECTION 6-5 BKR	CLOSED	CLOSED	SAT	Initials	*
BS7-8	13KV BUS SECTION 7-8 BKR	OPEN	CLOSED	UNSAT	Initials	*
BS2-3	13KV BUS SECTION 2-3 BKR	OPEN	CLOSED	UNSAT	Initials	*
BS1-2	13KV BUS SECTION 1-2 BKR	CLOSED	OPEN	UNSAT	Initials	*
BS9-0	13KV BUS SECTION 9-10 BKR	CLOSED	CLOSED	SAT	Initials	*
1T60	STA XFMR T1 CIRCUIT SWITCHER	CLOSED	OPEN	UNSAT	Initials	*
3T60	STA XFMR T3 CIRCUIT SWITCHER	CLOSED	CLOSED	SAT	Initials	*
BS1-3	500KV BUS SECTION 1-3 BKR	CLOSED	CLOSED	SAT	Initials	*
BS5-1	500KV BUS SECTION 5-1 BKR	CLOSED	CLOSED	SAT	Initials	*
BS2-6	500KV BUS SECTION 2-6 BKR	CLOSED	CLOSED	SAT	Initials	*
#	Salem Unit 3 Gas Turbine Generator	AVAILABLE				

**+** **NOTE:** The above alignment represents the normal lineup of the 500Kv/13.8Kv Switchyards. Deviations may exist while still maintaining two independent offsite power source separation. IF actual alignment deviates from the above, **CONSULT** Electrical Drawing E-0001-0 to determine if proper separation exists, and IAW the following criteria: 500Kv Bus Sections 1 & 2 energized by two offsite sources (Red Lion 5015, New Freedom 5023, or Salem X-Tie 5037). Two feeds (10X and 20X) into a split 13.8Kv Yard, with each feed supplying power to an energized separate Station Service Transformer (AX501 and BX501). An independent offsite feed is considered available to the safety related distribution system IF all four of the 1E infeed breakers are OPERABLE. IF less than 4 breakers are OPERABLE, **CONSIDER** the offsite feed inoperable and comply with ACTION 3.8.1.1 as appropriate.

**#** Salem Unit 3 Turbine Generator is only required when in an extended A or B EDG outage.

ATTACHMENT 1

Page 2 of 3

SM/CRS DATA AND SIGNATURE SHEET  
POWER DISTRIBUTION LINEUP - WEEKLY

2.0 POST TEST INFORMATION

2.1 The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 4.8.3.1, 4.8.3.2, or 4.8.1.1.1.a and the test is considered:

2.1.1 SATISFACTORY (All acceptance criteria is marked SAT)

\_\_\_\_\_  
SM/CRS DATE-TIME

2.1.2 UNSATISFACTORY AND  
IF necessary the CS ACTION statement has been implemented.

\_\_\_\_\_  
SM/CRS / DATE-TIME

2.1.3 Order No. \_\_\_\_\_

2.1.4 Remarks \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Administrative

**TASK:** Complete The Daily Surveillance Logs

**TASK NUMBER:** 4010010201

**JPM NUMBER:** 305H-JPM.ZZ016

**REV #:** 01

**SAP BET:** NOH05JPZZ16E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

SRO ☐

**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**  K Ketcher  
Operations Representative

**DATE:** 1/20/12

**APPROVED BY:**   
Training Department

**DATE:** 1/20/12

STATION: Hope Creek

JPM NUMBER: ZZ016

REV: 01

SYSTEM: Administrative

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

ALTERNATE PATH: ☐

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: 

3.6	3.8
-----	-----

APPLICABILITY:

EO ☐ RO ☒ STA ☐ SRO ☐

RO SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev. 129

TOOLS, EQUIPMENT AND PROCEDURES:

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Administrative

**TASK:** Complete The Daily Surveillance Logs

**TASK NUMBER:** 4010010201

**INITIAL CONDITIONS:**

1. The Plant has been in OPCON 1 at 100% power, steady state, for 7 days.

**INITIATING CUE:**

Complete the **Day Shift** Daily Surveillance Logs for 10C609, 10C611 AND MSL Radiation (Items 61-74 of Attachment 1a) IAW HC.OP-DL.ZZ-0026.

JPM: ZZ016

Rev: 01

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-DL.ZZ-0026			
3.1	<b>COMPLETE</b> Attachment 1 (all subsections) daily.	Operator records readings for Items 61-74 of Attachment 1a for the Day Shift.  <b>Examiner Note:</b> IAW the Initiating Cue, only Items 61-74 of Attachment 1a are required. Refer to Exhibit 1 for expected values. Values are typical and may not <i>exactly</i> match observed values. Readings are SAT if they are within $\pm 1$ meter division of actual reading.	*		

JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE Operator reading from Exhibit 1 for any missing or inoperable indicators	N/A			
3.2	IF in OP CON 4 or 5, THEN <b>COMPLETE</b> Attachment 2 as follows daily:	Operator determines this step does not apply.			
3.3	<b>COMPLETE</b> Attachment 4 to perform surveillances required by Special Test Exceptions as necessary.	Operator determines this step does not apply. <b>Examiner Note:</b> IAW the Initiating Cue, only Items 61-74 of Attachment 1a are required.			
3.4	<b>ENTER</b> the Operational Condition and date on each page of the log in the blanks provided.	Operator enters the Operational Condition and date in the blanks provided.			
3.5	<b>COMPLETE</b> the applicable subsections of Attachment 3 as directed by the SM/CRS to satisfy Surveillance Requirements which require accelerated surveillances due to off-normal conditions.	Operator determines this step does not apply. <b>Examiner Note:</b> IAW the Initiating Cue, only Items 61-74 of Attachment 1a are required.			

JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
3.6	<b>COMPLETE</b> all surveillances as indicated in each log. <u>IF</u> a Technical Specification Surveillance cannot be successfully completed <u>OR</u> is out-of-spec, <u>THEN IMMEDIATELY NOTIFY</u> the SM/CRS <u>AND</u> the Duty RO <u>AND</u> corrective action initiated shall be noted in the comments section.	<u>WHEN</u> the deviation for Item 65 (RPV LEVEL 3) is recognized to exceed the MAX DEVIATION of 4, <u>THEN</u> Operator notifies CRS of the unsatisfactory reading.	*		
<b>CUE</b>	<b>Repeat back message from Operator on Item 65 deviation.</b>	N/A			
3.6.1	<u>IF</u> a work order is issued to repair an abnormal reading, <u>THEN NOTE</u> the work order number in the comment section.	<b>Examiner Note:</b> Since no work order number will be provided to the operator, this step will not apply.			
3.6.2	<u>IF</u> an Action Statement Log Sheet is issued due to a failed surveillance, <u>OR</u> one is already issued that covers the failed surveillance, <u>THEN NOTE</u> the Action Statement Log Sheet Index Number in the comments section.	<b>Examiner Note:</b> Since no Action Statement Log Sheet Index Number will be provided to the operator, this step will not apply.			



JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
3.6.3	<u>IF</u> a surveillance item is out-of-spec or not successfully completed, <u>THEN REFER</u> to step 3.11 for T/S reference numbers and notes.	<u>WHEN</u> the deviation for Item 65 (RPV LEVEL 3) is recognized to exceed the MAX DEVIATION of 4, <u>THEN</u> Operator refers to Step 3.11 for Item 65 T/S reference numbers and notes.			
3.7	<u>IF</u> performing a channel check that requires a comparison between channels, <u>THEN RECORD</u> the difference between the high and low value and trip status.	Operator performs channels checks on Attachment 1a Items 61-74, recording the difference between the high and low value and trip status, and recognizes the value for Item 65 exceeds the MAX DEVIATION of 4.  <b>Examiner Note:</b> Critical portion is recognizing the Item 65 deviation exceeds the MAX DEVIATION.	*		
Note:	The trip status is indicated by the following: <ul style="list-style-type: none"> <li>The trip light for instruments supplied with trip lights</li> <li>The alarm(s) <u>AND/OR</u> automatic actions for instruments not supplied by trip lights.</li> </ul>				

JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
3.8	For checks which are performed after the logs have been taken for the time period, or, when a check is performed more than once during an 8 hour period: <b>OBTAIN</b> a blank copy of the respective sheet, <b>COMPLETE</b> surveillance, (including time and date) <b>ANNOTATE</b> on the sheet and in comments section , as necessary, why the additional check was performed <b>ATTACH</b> sheet to existing daily log package.	Operator determines this step does not apply.			

JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
3.9	<b>COMPLY</b> with the following requirements regarding log item numbers followed by an "at sign" (@):				
3.9.1	IF a surveillance log item number <u>DOES NOT</u> have an "at sign" (@) following it, <u>THEN</u> , instrument(s) or methods other than that designated in the log item may be used to satisfy that surveillance requirement as long as an assessment of the equivalency of the alternative instrument/method has been made and the results have been noted in the comments section. An example of what constitutes an "acceptable" equivalency review can be found under Activity 0140 of Order 70023885.	Operator takes all readings from the identified instrument.	*		
3.9.2	IF a surveillance log item number has an "at sign" (@) following it <u>THEN, ONLY</u> the instrument(s) specified in the log item may be used to satisfy that surveillance requirement, except that I&C can take voltage readings on the instrument(s) and the results compared before declaring the system inoperable.	Operator takes all readings from the identified instrument.	*		

JPM: ZZ016

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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>	N/A			

Surveillance Log - Control Room -Day Shift

Operational Condition 1

Date Today's Date

ITEM	SURVEILLANCE	OPER COND	INST	PANEL 10C609				PANEL 10C611				INST DEVIATION	MAX DEVIATION	ACCEPTABLE LIMITS			INST TRIPPED YES/NO
				VALUE	INST	VALUE	INST	VALUE	INST	VALUE				MIN	NORM	MAX	
61@	RPV PRESSURE	1,2	N678A	1010	N678C	1010	N678B	980	N678D	980	30	100	---	---	---	1037	NO
62@	DRYWELL PRESSURE	1,2,3 NOTE 29.	N650A	0.5	N650C	0.4	N650B	0.3	N650D	0.4	0.2	1	---	---	---	1.68	NO
63@	CONDENSER VACUUM	1,2,3	N675A	27.0	N675C	26.5	N675B	26.5	N675D	27.0	0.5	2.5	8.5	---	---	---	NO
64@	MSL PRESSURE	1	N676A	950	N676C	950	N676B	940	N676D	960	20	80	756	---	---	---	NO
65@	RPV LEVEL 3	1,2,3	N680A	42	N680C	34	N680B	34	N680D	35	7	4	12.5	---	---	---	NO
66@	NORTH SDV LEVEL (NOTE 61)	1,2,5	N/A	N/A	N601C	0	N/A	N/A	N601D	0	0	10	---	---	---	72	NO
67@	SOUTH SDV LEVEL (NOTE 61)	1,2,5	N601A	0	N/A	N/A	N601B	0	N/A	N/A	0	10	---	---	---	72	NO
68@	MSL A FLOW	1,2,3	N686A	79	N686C	80	N686B	79	N686D	69	11	18	---	---	---	162.8	NO
69@	MSL B FLOW	1,2,3	N687A	79	N687C	75	N687B	68	N687D	80	12	18	---	---	---	162.8	NO
70@	MSL C FLOW	1,2,3	N688A	72	N688C	78	N688B	68	N688D	77	10	18	---	---	---	162.8	NO
71@	MSL D FLOW	1,2,3	N689A	81	N689C	78	N689B	75	N689D	79	6	18	---	---	---	162.8	NO
72@	RPV LEVEL 2 (NOTE 27..)	1,2,3,* NOTE 29..	N681A	30		30	N681B	35	N681D	36	6	15	-38	---	---	---	NO
@	RPV LEVEL 1	1,2,3	N684A	N/A	N684C	N/A	N684B	N/A	N684D	N/A	N/A	N/A	-129	---	---	---	NO
73@	RWCU dF (NOTE 56., 57.)	1,2,3	XR11497	0	N/A	N/A	N/A	N/A	XR11499	0	0	20	---	---	---	56	NO
RM-11																	
74@	MSL RADIATION (NOTES 53.., 54..)	1,2,3 NOTE 55..	9RX509	37.5	9RX510	38.5	9RX511	35.8	9RX512	36.8	2.7	(NOTE 53.)	---	---	---	3 X NORM	NO

- NOTE: FOR ANY INSTRUMENT FOUND TRIPPED, PLACE A "T" IN THE VALUE BLOCK ALONG WITH THE INSTRUMENT VALUE AND RECORD "YES" IN THE INST TRIPPED COLUMN.  
 FOR NON-INDICATING TRIP UNITS, CIRCLE THE TRIP UNIT DESIGNATOR IN RED AND RECORD "YES" IN THE INST TRIPPED COLUMN.
- NOTE 61: WHEN IN OPER COND 5 - WITH ANY CONTROL ROD WITHDRAWN. NOT APPLICABLE TO CONTROL RODS REMOVED PER SPECIFICATION 3.9.10.1 OR 3.9.10.2.
- NOTE 27: (\*) - WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL.
- NOTE 29: ALSO REQUIRED WHEN SECONDARY CONTAINMENT REQUIRED TO BE IN EFFECT IAW T/S. [70021778]
- NOTE 53: RM-11 10 MINUTE AVERAGE SHOULD BE USED TO OBTAIN CHANNEL VALUES. MSL RADIATION MAX DEVIATION WITH THE H2 INJECTION SYS OUT OF SERVICE IS 20. WITH THE H2 INJECTION SYS IN SERVICE, MAX DEVIATION CALCULATED BY ADDING OPERABLE CHANNEL VALUES, DIVIDING RESULT BY NUMBER OF OPERABLE CHANNELS, THEN MULTIPLYING RESULT BY (0.4). IF RM-11 UNAVAILABLE, K610A, K610B, K610C, OR K610D (NUMAC) SHOULD BE USED AT PANEL 10C635/10C636. NUMAC READINGS SHOULD BE TAKEN 3 - 4 SECONDS INTO THE CPU SELF-TEST (PRESS ANY ^ KEY; PRESS "ETC" ^ KEY; PRESS "DISPLAY TEST STATUS" ^ KEY) WHEN ARROW HAS BEEN AT THE "CPU MODULE" LOCATION FOR 3 - 4 SECONDS. TO RESTORE NUMAC DISPLAY (PRESS EXIT ^ KEY; PRESS ETC ^ KEY; PRESS DISPLAY OFF ^ KEY). [70001230]
- NOTE 54: IF RM-11 IS AVAILABLE, AND, WHENEVER RX POWER IS ABOVE 94% RTP AND HAS BEEN CONSTANT FOR THE PREVIOUS 2 HOURS (NO TRANSIENT IN PROGRESS), PERFORM MSL AVERAGE FULL POWER BACKGROUND CHECK BELOW. FOR ANY VALUE OF  $c < 0.834$ , DECLARE THE CORRESPONDING MSLRMS INOPERABLE. IF ANY VALUE FOR  $c$  IS  $< 0.85$  OR  $> 1.2 (\pm 20\%)$  THEN A RE-EVALUATION OF THE 3X NORMAL SETPOINT MAY BE DESIRED USING HC.SE-GP.SP-0001(Q). NOTIFY RMS SYSTEM ENGINEER FOR SUPPORT IN RE-EVALUATION. KEEP IN MIND THAT THIS CHECK IS ONLY VALID WHEN RX POWER IS ABOVE 94%, AND CONSTANT FOR THE PREVIOUS 2 HOURS (NO TRANSIENT IN PROGRESS).
- NOTE 55: DURING OPERATIONAL CONDITIONS 1 AND 2 WITH MECHANICAL VACUUM PUMP(S) IN-SERVICE AND ANY MAIN STEAM LINE NOT ISOLATED, THE MSL RADIATION CHANNEL CHECK BETWEEN THE ALPHA AND BRAVO CHANNELS (9RX509/9RX510, K610A/K610B) ALSO SATISFIES A MECHANICAL VACUUM PUMP TRIP INSTRUMENTATION CHANNEL CHECK IAW T/S 4.3.10.a.
- NOTE 56: INITIATE NOTIFICATION WHEN DEVIATION BETWEEN CHANNELS A AND D REACHES 9 GPM TO ENSURE THAT THE PROBLEM CAUSING THE DEVIATION IS CORRECTED.
- NOTE 57: IF LEAK DETECTION MONITOR INDICATES "<<<" FOR FLOW, ADD FOUR FLOW VALUES UNDER "NORM" COLUMN TO OBTAIN READING. (MAY RESULT IN NEGATIVE VALUE)

MSL AVERAGE FULL POWER BACKGROUND CHECK		MIN	MSLRMS A	MSLRMS B	MSLRMS C	MSLRMS D
a	RM-11 LAST HOURLY AVERAGE		37.5	38.5	35.8	36.8
b	RM-11 HI SETPOINT		130	125	121	129
c	$c = a / b \times 3$ (RATIO OF ACTUAL TO BASELINE AFPB)	0.850	.865	.924	.887	.856

JOB PERFORMANCE MEASURE  
 OPERATOR TRAINING PROGRAM  
 EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ016

TASK: Complete The Daily Surveillance Logs

TASK NUMBER: 4010010201

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The Plant has been in OPCON 1 at 100% power, steady state, for 7 days.

## INITIATING CUE:

Complete the **Day Shift** Daily Surveillance Logs for 10C609, 10C611 AND MSL Radiation (Items 61-74 of Attachment 1a) IAW HC.OP-DL.ZZ-0026.

## JOB PERFORMANCE MEASURE

Surveillance Log - Control Room -Day Shift

Operational Condition \_\_\_\_\_

Date \_\_\_\_\_

ITEM	SURVEILLANCE	OPER COND	INST	PANEL 10C609			INST	PANEL 10C611			INST DEVIATION	MAX DEVIATION	ACCEPTABLE LIMITS			INST TRIPPED YES/NO
				VALUE	INST	VALUE		VALUE	INST	VALUE			MIN	NORM	MAX	
61@	RPV PRESSURE	1,2	N678A		N678C		N678B		N678D			100	---		1037	NO
62@	DRYWELL PRESSURE	1,2,3 NOTE 29.	N650A		N650C		N650B		N650D			1	---	---	1.68	NO
63@	CONDENSER VACUUM	1,2,3	N675A		N675C		N675B		N675D			2.5	8.5	---	---	NO
64@	MSL PRESSURE	1	N676A		N676C		N676B		N676D			80	756	---	---	NO
65@	RPV LEVEL 3	1,2,3	N680A		N680C		N680B		N680D			4	12.5	---	---	NO
66@	NORTH SDV LEVEL (NOTE 61)	1,2,5	N/A	N/A	N601C		N/A	N/A	N601D			10	---	---	72	NO
67@	SOUTH SDV LEVEL (NOTE 61)	1,2,5	N601A		N/A	N/A	N601B		N/A	N/A		10	---	---	72	NO
68@	MSL A FLOW	1,2,3	N686A		N686C		N686B		N686D			18	---	---	162.8	NO
69@	MSL B FLOW	1,2,3	N687A		N687C		N687B		N687D			18	---	---	162.8	NO
70@	MSL C FLOW	1,2,3	N688A		N688C		N688B		N688D			18	---	---	162.8	NO
71@	MSL D FLOW	1,2,3	N689A		N689C		N689B		N689D			18	---	---	162.8	NO
72@	RPV LEVEL 2 (NOTE 27)	1,2,3,* NOTE 29.	N681A				N681B		N681D			15	-38	---	---	NO
@	RPV LEVEL 1	1,2,3	N684A	N/A	N684C	N/A	N684B	N/A	N684D	N/A	N/A	N/A	-129	---	---	NO
73@	RWCU dF (NOTE 56., 57.)	1,2,3	XR11497		N/A	N/A	N/A	N/A	XR11499			20	---	---	56	NO
RM-11																
74@	MSL RADIATION (NOTES 53., 54.)	1,2,3 NOTE 55..	9RX509		9RX510		9RX511		9RX512			(NOTE 53.)	---	---	3 X NORM	NO

NOTE: FOR ANY INSTRUMENT FOUND TRIPPED, PLACE A 'T' IN THE VALUE BLOCK ALONG WITH THE INSTRUMENT VALUE AND RECORD "YES" IN THE INST TRIPPED COLUMN.

FOR NON-INDICATING TRIP UNITS, CIRCLE THE TRIP UNIT DESIGNATOR IN RED AND RECORD "YES" IN THE INST TRIPPED COLUMN.

NOTE 61 WHEN IN OPER COND 5 - WITH ANY CONTROL ROD WITHDRAWN. NOT APPLICABLE TO CONTROL RODS REMOVED PER SPECIFICATION 3.9.10.1 OR 3.9.10.2.

NOTE 27 (\*) - WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL.

NOTE 29 ALSO REQUIRED WHEN SECONDARY CONTAINMENT REQUIRED TO BE IN EFFECT IAW T/S. [70021778]

NOTE 53. RM-11 10 MINUTE AVERAGE SHOULD BE USED TO OBTAIN CHANNEL VALUES. MSL RADIATION MAX DEVIATION WITH THE H2 INJECTION SYS OUT OF SERVICE IS 20. WITH THE H2 INJECTION SYS IN SERVICE, MAX DEVIATION CALCULATED BY ADDING OPERABLE CHANNEL VALUES, DIVIDING RESULT BY NUMBER OF OPERABLE CHANNELS, THEN MULTIPLYING RESULT BY (0.4). IF RM-11 UNAVAILABLE, K610A, K610B, K610C, OR K610D (NUMAC) SHOULD BE USED AT PANEL 10C635/10C636. NUMAC READINGS SHOULD BE TAKEN 3 - 4 SECONDS INTO THE CPU SELF-TEST (PRESS ANY \* KEY; PRESS "ETC" \* KEY; PRESS "DISPLAY TEST STATUS" \* KEY) WHEN ARROW HAS BEEN AT THE "CPU MODULE" LOCATION FOR 3 - 4 SECONDS. TO RESTORE NUMAC DISPLAY (PRESS EXIT \* KEY; PRESS ETC \* KEY; PRESS DISPLAY OFF \* KEY). [70001230]

NOTE 54: IF RM-11 IS AVAILABLE, AND, WHENEVER RX POWER IS ABOVE 94% RTP AND HAS BEEN CONSTANT FOR THE PREVIOUS 2 HOURS (NO TRANSIENT IN PROGRESS), PERFORM MSL AVERAGE FULL POWER BACKGROUND CHECK BELOW. FOR ANY VALUE OF  $c < 0.834$ , DECLARE THE CORRESPONDING MSLRMS INOPERABLE. IF ANY VALUE FOR  $c$  IS  $< 0.85$  OR  $> 1.2$  ( $\pm 20\%$ ) THEN A RE-EVALUATION OF THE 3X NORMAL SETPOINT MAY BE DESIRED USING HC.SE-GP.SP-0001(Q). NOTIFY RMS SYSTEM ENGINEER FOR SUPPORT IN RE-EVALUATION. KEEP IN MIND THAT THIS CHECK IS ONLY VALID WHEN RX POWER IS ABOVE 94%, AND CONSTANT FOR THE PREVIOUS 2 HOURS (NO TRANSIENT IN PROGRESS).

NOTE 55: DURING OPERATIONAL CONDITIONS 1 AND 2 WITH MECHANICAL VACUUM PUMP(S) IN-SERVICE AND ANY MAIN STEAM LINE NOT ISOLATED, THE MSL RADIATION CHANNEL CHECK BETWEEN THE ALPHA AND BRAVO CHANNELS (9RX509/9RX510, K610A/K610B) ALSO SATISFIES A MECHANICAL VACUUM PUMP TRIP INSTRUMENTATION CHANNEL CHECK IAW T/S 4.3.10.a.

NOTE 56: INITIATE NOTIFICATION WHEN DEVIATION BETWEEN CHANNELS A AND D REACHES 9 GPM TO ENSURE THAT THE PROBLEM CAUSING THE DEVIATION IS CORRECTED.

NOTE 57: IF LEAK DETECTION MONITOR INDICATES "&lt;&lt;&lt;" FOR FLOW, ADD FOUR FLOW VALUES UNDER "NORM" COLUMN TO OBTAIN READING. (MAY RESULT IN NEGATIVE VALUE)

MSL AVERAGE FULL POWER BACKGROUND CHECK		MIN	MSLRMS A	MSLRMS B	MSLRMS C	MSLRMS D
a	RM-11 LAST HOURLY AVERAGE					
b	RM-11 HI SETPOINT					
c	$c = a / b \times 3$ (RATIO OF ACTUAL TO BASELINE AFPB)	0.850				



# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	Put Simulator in FREEZE.

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

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

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction RP18A to 43.00	RPS Level Xmitter LT-N080A Failure
	None	None	Insert malfunction RM9509 to 37.50000	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 to 38.50000	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 to 35.80000	9RX511, MSL 'C' - Main Steam Line Chan C
	None	None	Insert malfunction RM9512 to 36.80000	9RX512, MSL 'D' - Main Steam Line Chan D

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

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

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** ZZ016

Rev #	Date	Description	Validation Required?
1	1/14/12	Reference procedure change only. No changes to operator actions. No validation required.	N

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Reactor Recirculation

**TASK:** Perform a Reactor Recirculation Pump Quick Restart

**TASK NUMBER:** 2020160101

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

**REV #:** 01

**SAP BET:** NOH05JPZZ11E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

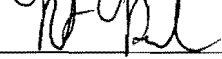
SRO ☐

**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**   
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**   
Training Department

**DATE:** 1/18/12

STATION: Hope Creek

JPM NUMBER: ZZ011

REV: 01

SYSTEM: Reactor Recirculation

TASK NUMBER: 2020160101

TASK: Perform a Reactor Recirculation Pump Quick Restart

ALTERNATE PATH: ☐

K/A NUMBER: 2.2.40

IMPORTANCE FACTOR: 3.4 4.7

APPLICABILITY:

RO SRO

EO ☐ RO ☒ STA ☐ SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.RPV-0003 Rev 23

TOOLS, EQUIPMENT AND PROCEDURES:

Steam Tables/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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Reactor Recirculation

**TASK:** Perform a Reactor Recirculation Pump Quick Restart

**TASK NUMBER:** 2020160101

**INITIAL CONDITIONS:**

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

**INITIATING CUE:**

Complete HC.OP-AB.RPV-0003 step G.12 as necessary for restart of A Reactor Recirc Pump.

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<b>PROVIDE</b> the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	<b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.RPV-0003.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be G.12.			
G.12	<b>ENSURE</b> Differential Temperature requirements are met by completing Attachment 2. [T/S 4.4.1.4]	Operator obtains HC.OP-AB.RPV-0003 Attachment 2.			

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
HC.OP-AB-RPV-0003 Attachment 2					
1.0	REACTOR VESSEL TO BOTTOM HEAD DRAIN LINE DIFFERENTIAL TEMPERATURE CRITERIA	NA			
1.1	Rx Pressure Vessel Steam Space Coolant Saturation Temperature. (Rx Pressure and Steam Tables) (Note 1)	Operator reads Note 1.			
		Operator determines RPV pressure 885 psig. (900 psia)			
		Operator determines Steam space Coolant Saturation Temperature to be 900 psia = <b>532 degF</b> (Steam Tables)	*		
		Operator records value in space provided on Attachment 1.			



JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
Note 1	Steam Table as part of this attachment may be utilized to determine temperature rounding the numbers in a conservative fashion. For a more accurate conversion from pressure to temperature a more detailed set of steam tables should be utilized.	NA			
1.2	Bottom Head Drain Coolant Temperature. (Note 2) (Computer Point A2942)	Operator accesses CRIDS terminal.			
Note 2	RWCU Flow required for accurate Bottom Head Drain Coolant Temperature indication.	Operator reads Note 2.			
		Operator determines RWCU is in service and the Bottom Head Drain Coolant Temperature is valid.			
		Operator obtains value of <b>467 degF</b> from CRIDS point A2942.	*		

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.3	< 145°F between Rx Pressure Vessel Steam Space Coolant AND Bottom Head Drain Line Coolant (A – B). [T/S 4.4.1.4]	Operator subtracts value of step 1.2 from value of step 1.1. and determines value of <b>65 degF</b> $\pm$ 1F.	*		
		Operator records value in space provided.			
1.4	Time Readings taken: _____	Operator records current time in space provided.	*		
2.0	REACTOR VESSEL TO RECIRCULATION LOOP DIFFERENTIAL TEMPERATURE CRITERIA.	NA			

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1	Temperature of the Rx Coolant within the idle loop to be started up. (Note 3)	Operator reads Note 3.			
Note 3	Use TR-650-B31 Recirc Pump Suction Loop A(B) (if available) OR if above 400° F - CRIDS points A221 and A222 for A loop (A223 and A224 for B loop). IF below 400°F AND TR-650-B31 not available, THEN have I&C obtain temperatures using RTD ohm values (reference RTD ohm values to calibration data in TDR using HC.OP-GP.ZZ-0008(Q))	NA			

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines Idle Recirc Loop Temp for A Loop is above 400 F.			
		Operator obtains value of <b>510 degF</b> from CRIDS point A221 or A222.			
2.2	Temperature of coolant in the Rx Pressure Vessel. (RX Pressure and Steam Tables) (Note 1)	Operator reads Note 1.			
		Operator determines RPV pressure is 885 psig. (900 psia)	*		
		Operator determines Steam space Coolant Saturation Temperature to be: 900 psia = 532 degF (Steam Tables)			
		Operator records value in space provided on Attachment 1.			

JPM: ZZ011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Recirculation

TASK: Perform a Reactor Recirculation Pump Quick Restart

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.3	< 50°F between the Rx Coolant within the loop not in operation AND the Coolant in the Rx Pressure Vessel (A-B). [T/S 4.4.1.4]	Operator determines differential temp is < 50 F. <b>Examiner Note:</b> Actual value is <b>22 degF ± 1F</b> .	*		
2.4	Time Readings taken: _____	Operator records current time in space provided.	*		
HC.OP-AB-RPV-0003					
G.12	ENSURE Differential Temperature requirements are met by completing Attachment 2. [T/S 4.4.1.4]	Operator initials step G.12.	*		
CUE	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.  <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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ011

TASK: Perform a Reactor Recirculation Pump Quick Restart

TASK NUMBER: 2020160101

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

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

**INITIATING CUE:**

Complete HC.OP-AB.RPV-0003 step G.12 as necessary for restart of A Reactor Recirc Pump.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## **I. INITIAL CONDITIONS:**

### **I.C.**

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	Trip both Reactor Recirc Pump Drive Motor Breakers.
	Take appropriate Scram actions IAW HC.OP-AB.ZZ-0001.
	IMPLEMENT EOP-101 to stabilize plant at 885 psig RPV pressure on DEHC.
	IMPLEMENT HC.OP-AB.RPV-0003 up to and including step G.11.
	Acknowledge alarms.
	Put Simulator in FREEZE.

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

Initial	Description
	<b>MARKUP</b> a copy of HC.OP-AB.RPV-0003 up to and including step G.11.
	<b>ENSURE</b> Mode Switch key is removed.
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

## **EVENT FILE:**

Initial	ET #	
		Event code: Description:
		Event code: Description:
		Event code: Description:



JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

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

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

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

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: ZZ011

Rev #	Date	Description	Validation Required?
1	1/14/12	Converted JPM ZZ011 to new JPM format. Modified all temperature values. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. JPM completely re-written to to changes in the procedure. Validated with 2 ROs on 1/3/12. Avg completion time was 8 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Administrative

**TASK:** Respond To An Abnormal Release Of Gaseous  
Radioactivity - Calculate Noble Gas Release Release  
Rates

**TASK NUMBER:** 4000270401

**JPM NUMBER:** 305H-JPM.ZZ019

**REV #:** 01

**SAP BET:** NOH05JPZZ19E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO

☐

RO

☒

STA

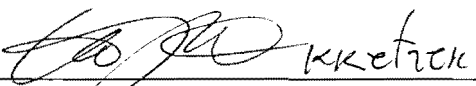
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SRO

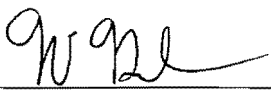
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**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**   
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**   
Training Department

**DATE:** 1/18/12

**STATION:** Hope Creek**JPM NUMBER:** ZZ019**REV:** 01**SYSTEM:** Administrative**TASK NUMBER:** 4000270401**TASK:** Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release Release Rates**ALTERNATE PATH:** ☐**K/A NUMBER:** 295938 EA1.01**IMPORTANCE FACTOR:** 3.9 4.2**APPLICABILITY:**EO ☐RO ☒STA ☐SRO ☐**RO****SRO****EVALUATION SETTING/METHOD:** Simulator/Perform**REFERENCES:** HC.OP-AB.CONT-0004 Rev. 5

HC.OP-DL.ZZ-0026 Rev. 128

**TOOLS, EQUIPMENT AND PROCEDURES:** Calculator**ESTIMATED COMPLETION TIME:** 10 Minutes**TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:** N/A Minutes**JPM PERFORMED BY:** \_\_\_\_\_**GRADE:** ☐ SAT ☐ UNSAT**ACTUAL COMPLETION TIME:** \_\_\_\_\_ Minutes**ACTUAL TIME CRITICAL COMPLETION TIME:** N/A Minutes**REASON, IF JPM UNSATISFACTORY:****EVALUATOR'S SIGNATURE:** \_\_\_\_\_**DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Administrative

**TASK:** Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release Release Rates

**TASK NUMBER:** 4000270401

**INITIAL CONDITIONS:**

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

**INITIATING CUE:**

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

JPM: ZZ019

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release Release Rates

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue:  START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0004.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.4			
A.4	DETERMINE the Total Release Rates of Noble Gas and Iodine as follows: USE the SPDS Noble Gas Total.  OR USE one of the Formulas in Table "A".	Operator determines that to calculate the Noble Gas release from the NPV the formulas in Table "A" must be used.			

JPM: ZZ019

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release Release Rates

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	IF the effluent (µCi/sec) channel on the RM-11 is NOT operating for a specific plant vent, THEN <b>CALCULATE</b> the Noble Gas release rate for that vent using the following:				
	$\frac{\text{µCi/cc (n.g.)}}{\text{Plant Vent Exh Flow in cfm}} \times 472 = \text{µCi/sec (n.g.)}$ <p>Where:</p> <p>µCi/sec (n.g.) - the calculated release rate from the specified plant vent (Noble Gas)</p> <p>µCi/cc (n.g.) - The concentration of Noble Gas obtained from the RM-11 (the operable channel will be highlighted in GREEN) OR from an actual sample of the plant vent</p> <p>472 - The conversion factor in units of cc/sec/cfm</p>				
		Operator manipulates the RM-11 terminal to obtain the value of NPV Noble Gas release from the 9RX602 Low Range detector and enters the value into the formula. <b>3.65E-7 uCi/cc.</b>	*		
		Operator transfers the Plant Vent Exh Flow value from Attachment 3u of HC.OP-DL.ZZ-0026 (provided). <b>49613.9 CFM</b>	*		

JPM: ZZ019

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release Release Rates

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator calculates the NPV Noble Gas release rate. Calculated Value =  $3.65\text{E-}7 \text{ }\mu\text{Ci/cc} * 49613.9 \text{ CFM} * 472$ $= \underline{8.547 \text{ }\mu\text{Ci/sec}} (\pm 0.5)$	*		
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>	N/A			



JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ019

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity - Calculate Noble Gas Release  
Release Rates

TASK NUMBER: 4000270401

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

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

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RESULT:

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

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

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RESULT:

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UNSAT

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## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

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

## INITIATING CUE:

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

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

Page 1 of 1

If the North Plant Vent Flow Rate Monitor is Inoperable,  
then Effluent Releases via this pathway may continue for up to 30 days provided flow rate is estimated at least once per 4 hours.

Readings are taken every 3 hours to ensure that the 4 hour Tech Spec Action limit is not exceeded per administrative requirements and after a change in the ventilation line-up.

If flow indication(s) become unavailable, then the "NORM" flow value may be logged for the specific fan alignment.

HCGS

DATE: \_\_\_\_\_ Today's Date

Location Aux/Turb/Radwaste

PARAMETER		NORM	now	ENTER TIME OF EACH READING BELOW						COMMENTS
SOLID RADWASTE EXH FAN	A318	17,000	17358							
SOLID RADWASTE EXH FAN	B318	17,000	17163							
CHEM LAB EXH	A307	7,500	7528							
CHEM LAB EXH	B307	7,500	7519							
OFFGAS DISCHARGE	HA-XR-10022 OR HA-F15665	---	45:9							
TOTAL FLOW			49613.9							
ESTIMATED TOTAL FLOW REPORTED TO RAD PRO – (YES)			Yes							

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	INSERT Malfunctions:
	<ul style="list-style-type: none"> <li>• RM9590 @ 0.0E+00</li> <li>• RM9591 @ 0.0E+00</li> <li>• RM9602 @ 3.65E-7</li> <li>• RM9603 @ 0.0E+00</li> <li>• CC03 SPDS CRT Failure</li> </ul>
	Acknowledge alarms.
	Put Simulator in FREEZE.

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

Initial	Description
	ENSURE SPDS and CRIDS Displays are off.
	ENSURE MARKUP copy of HC.OP-DL.ZZ-0026 Attachment 3u available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

### EVENT FILE:

Initial	ET #	
		Event code: Description:
		Event code: Description:
		Event code: Description:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction RM9590 to 0.00000	9RX590, NPV EFF - North Plant Vent Noble Gas Effluent
	None	None	Insert malfunction RM9591 to 0.00000	9RX591, NPV HIGH - North Plant Vent High Range Noble Gas
	None	None	Insert malfunction RM9602 to 3.65E-7	9RX602, NPV LOW - North Plant Vent Range Noble Gas
	None	None	Insert malfunction RM9603 to 0.00000	9RX603, NPV MID - North Plant Vent Mid Range Noble Gas
	None	None	Insert malfunction CC03	SPDS CRT failure

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

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

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** ZZ019

Rev #	Date	Description	Validation Required?
1	1/14/12	Converted JPM ZZ019 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. JPM Modified values for new results. Validation performed with 2 ROs on 1/3/12. Avg completion time was 10 minutes.	Y

## JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

TASK NUMBER: H303000015

JPM NUMBER: 305H-JPM.ZZ045

REV #: 01

SAP BET: NOH05JPZZ45E

ALTERNATE PATH: ☐

APPLICABILITY:

EO

☐

RO

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STA

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SRO

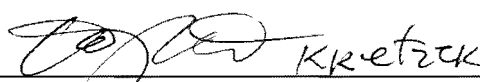
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DEVELOPED BY: Archie E. Faulkner

Instructor

DATE: 1/16/12

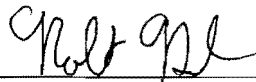
REVIEWED BY:

  
Operations Representative

DATE:

1/18/12

APPROVED BY:



Training Department

DATE:

1/18/12

**STATION:** Hope Creek

**JPM NUMBER:** ZZ045

**REV:** 01

**SYSTEM:** Administrative

**TASK NUMBER:** H303000015

**TASK:** Perform On-Line Risk Controls Evaluation

**ALTERNATE PATH:** ☐

**K/A NUMBER:** 2.1.25

**IMPORTANCE FACTOR:** 4.2

**APPLICABILITY:**

**RO**

**SRO**

**EO** ☐

**RO** ☐

**STA** ☐

**SRO** ☒

**EVALUATION SETTING/METHOD:** Classroom/Perform

**REFERENCES:** WC-HC-105 Rev. 0  
M-103-1

**TOOLS, EQUIPMENT AND PROCEDURES:** WC-HC-105 Rev. 0

Marked up copy of M-103-1

**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 JPM UNSATISFACTORY:**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_



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

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

TASK NUMBER: H303000015

**INITIAL CONDITIONS:**

1. The plant is at 100 percent power.
2. Channel D Work week.
3. On-line risk color is Green.
4. Stator Water Cooling System CE-FISL-3597 is reading erratically in the field.
5. The 12 Hour Maintenance Supervisor wants Operations to manipulate the following valves:
  - a. 1-CE-V9955 – close
  - b. 1-CE-V9956 – close
  - c. 1-CE-V9950 - open
6. EOOS is not available.
7. The Site Risk Management Engineer (SRME) is not available.
8. All other equipment is operable.
9. No other work is scheduled.
10. The "Description of Task" is: "**Isolate CE-FISL-3597**"
11. The WO number is "**12345678**"

**INITIATING CUE:**

The SM has directed you to:

- 1) Review the activity against the pre-defined Medium, High, and Very High risk activities listed in Exhibit 1, Prescreened Work Activities IAW WC-HC-105 Step 4.2.3.2,

AND

- 2) State the Production Risk Level here: \_\_\_\_\_

AND

- 3) 2) Complete the Production Risk Evaluation Data Sheet Exhibit 5 Page 1.

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure WC-HC-105.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.2.			
WC-HC-105 WORK ACTIVITY RISK MANAGEMENT					
4.2.3	Classify the risk (Work Activity Owner)				

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.2.3.2	Review the activity against the pre-defined Medium, High and Very High risk activities listed in Exhibit 1, Prescreened Work Activities.	Operator reviews Exhibit 1 Pre-Screened Work Activities for Regulatory Compliance and Production Risk.			
		Operator recognizes: "An activity that has been screened as a Production Risk activity by Operations". System "CE" is listed in Exhibit 5 (Production Risk)			
		Operator determines the Risk is <b>High</b>	*		
<b>Exhibit 5 Page 1 of 4 Production Risk Evaluation Data</b>					
	<b>Description of Task:</b>	Operator obtains task description from Initial Conditions sheet.			
		Operator fills in "Isolate CE-FISL-3597."			
	<b>WO No:</b>	Operator obtains WO number from Initial Conditions sheet.			
		Operator fills in "12345678"			

JPM: ZZ045

Rev: 01

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Work activities that are entirely bounded and contained within a Work Clearance Document (WCD) boundary including Worker Blocking Tags and are <b>not</b> in the same or adjacent panel or near systems on the Station Production Risk System Matrix are not a production risk. This means that work activities <b>cannot</b> cause relay or component actuation, in systems or components outside of the WCD boundary other than control room alarms or position indication changes.	Operator determines this work is NOT within a WCD boundry.			
	<b>Production Risk Activity Screening:</b>				
1.	Is the work activity on a system that is on the Station Production Risk System Matrix (attached) or near production sensitive equipment?  Y _____ N _____	Operator checks YES.	*		

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	If question 1 above is answered Yes, then continue at Question 2.				
2.	Could the activity cause equipment actuators that could cause a loss of planned generation? Y _____ N _____	Operator checks YES.	*		
3.	Does the activity involve instrument, fuse, circuit board removal/installations that could cause a loss of planned generation? Y _____ N _____	Operator checks NO.			
4.	Will the activity cause a 1/2 scram or 1/2 trip that could cause a loss of planned generation? Y _____ N _____	Operator checks NO.			

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.	Does the activity involve pressurization of common sensing lines that could cause a loss of planned generation? Y _____ N _____	Operator checks YES.			
6.	Does the activity involve placing of jumpers or disconnection of "daisy chains" that could cause a loss of planned generation? Y _____ N _____	Operator checks NO.			
7.	Could the activity cause vibration near vibration sensitive equipment that could cause a loss of planned generation? Y _____ N _____	Operator checks NO.			
8.	Is a special procedure or JIT training required to mitigate the threat to generation? Y _____ N _____	Operator checks NO.			

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
9.	During the activity, could a single human error or omission cause a loss of planned generation? Y _____ N _____	Operator checks YES.	*		
10.	Is the activity a non-routine activity in the switchyard? Y _____ N _____	Operator checks NO.			
	If any question 2 through 10 is answered YES, then include this completed form in a sub operation in the work order. The activity is a Production Risk activity.	Operator determines the activity is a production risk.			
	Performed By:	Operator signs in Performed By: space.			
	Production Risk? Y _____ N _____	Operator checks YES.	*		

JPM: ZZ045

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

TASK: Perform On-Line Risk Controls Evaluation

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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>	N/A			



## JOB PERFORMANCE MEASURE

WC-HC-105  
Revision 1  
Page 32 of 41

Exhibit 5  
Page 1 of 4

## Production Risk Evaluation Data

Description of Task: Isolate CE-FISL-3597 WO No.: 12345678

Work activities that are entirely bounded and contained within a Work Clearance Document (WCD) boundary including Worker Blocking Tags and are not in the same or adjacent panel or near systems on the Station Production Risk System Matrix are not a production risk. This means that work activities cannot cause relay or component actuation, in systems or components outside of the WCD boundary other than control room alarms or position indication changes.

## Production Risk Activity Screening:

1. Is the work activity on a system that is on the Station Production Risk System Matrix (attached) or near production sensitive equipment? Y ☒ N ☐

IF question 1 is NO, THEN this is NOT Production Risk Activity.

If question 1 above is answered Yes, then continue at Question 2.

2. Could the activity cause equipment actuations that could cause a loss of planned generation? Y ☒ N ☐

3. Does the activity involve instrument, fuse, circuit board removal/installations that could cause a loss of planned generation? Y ☐ N ☒

4. Will the activity cause a 1/2 scram or 1/2 trip that could cause a loss of planned generation? Y ☐ N ☒

5. Does the activity involve pressurization of common sensing lines that could cause a loss of planned generation? Y ☒ N ☐

6. Does the activity involve placing of jumpers or disconnection of "daisy chains" that could cause a loss of planned generation? Y ☐ N ☒

7. Could the activity cause vibration near vibration sensitive equipment that could cause a loss of planned generation? Y ☐ N ☒

8. Is a special procedure or JIT training required to mitigate the threat to generation? Y ☐ N ☒

9. During the activity, could a single human error or omission cause a loss of planned generation? Y ☒ N ☐

10. Is the activity a non-routine activity in the switchyard? Y ☐ N ☒

If any question 2 through 10 is answered YES, then include this completed form in a sub operation in the work order. The activity is a Production Risk activity.

Performed By: Operator Name

Production Risk? Y ☒ N ☐

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ045

TASK: Perform On-Line Risk Controls Evaluation

TASK NUMBER: H303000015

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

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UNSAT

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## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The plant is at 100 percent power.
2. Channel D Work week.
3. On-line risk color is Green.
4. Stator Water Cooling System CE-FISL-3597 is reading erratically in the field.
5. The 12 Hour Maintenance Supervisor wants Operations to manipulate the following valves:
  - a. 1-CE-V9955 – close
  - b. 1-CE-V9956 – close
  - c. 1-CE-V9950 - open
6. EOOS is not available.
7. The Site Risk Management Engineer (SRME) is not available.
8. All other equipment is operable.
9. No other work is scheduled.
10. The "Description of Task" is: **"Isolate CE-FISL-3597"**
11. The WO number is **"12345678"**

## INITIATING CUE:

The SM has directed you to:

- 1) Review the activity against the pre-defined Medium, High, and Very High risk activities listed in Exhibit 1, Prescreened Work Activities IAW WC-HC-105 Step 4.2.3.2,

AND

- 2) State the Production Risk Level here: \_\_\_\_\_

AND

- 3) Complete the Production Risk Evaluation Data Sheet Exhibit 5 Page 1.

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER: ZZ045**

Rev #	Date	Description	Validation Required?
0	11/7/11	New Admin JPM. Validation required. Validated with 2 SROs. Validated avg time 20 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Conduct of Operations

**TASK:** Complete The Daily Surveillance Logs

**TASK NUMBER:** 4010010201

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

**REV #:** 02

\*\*\*NRC ADMIN JPM SRO A2\*\*\*

**SAP BET:** NOH05JPZZ17E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO

☐

RO

☐

STA

☐

SRO

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**DEVELOPED BY:** Archie Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**   
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**   
Training Department

**DATE:** 1/18/12

STATION: Hope Creek

JPM NUMBER: ZZ017

REV: 02

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

ALTERNATE PATH: ☐

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: 3.6 3.8

APPLICABILITY:

RO

SRO

EO ☐RO ☐STA ☐SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev 129

## TOOLS, EQUIPMENT AND PROCEDURES:

Paper copies of HC.OP-DL.ZZ-0026 Attachment 1 Page 1 of 1

ESTIMATED COMPLETION TIME: 7 Minutes

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

JPM PERFORMED BY: \_\_\_\_\_

GRADE: ☐ SAT ☐ UNSAT

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

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Conduct of Operations

**TASK:** Complete The Daily Surveillance Logs

**TASK NUMBER:** 4010010201

**INITIAL CONDITIONS:**

1. The Plant is in OPGON 1 at 35% power
2. A plant startup from a forced outage is in progress IAW HC.OP-IO.ZZ-0003.
3. RCIC IST is in progress and being turned over.
4. River level is at 95.1 feet due to recent heavy rains.
5. River temperature is 83 degF but is NOT expected to exceed 85 degF.
6. All EDGs, SACS, and SSW pumps are operable.
7. The SPV Effluent RMS is inoperable and has been C/T for repairs.

**INITIATING CUE:**

You are the Control Room Supervisor.

**IMPLEMENT** the Daily Surveillance Logs for today IAW HC.OP-DL.ZZ-0026 AND  
**IDENTIFY** all required Attachments for current plant conditions.

JPM: ZZ017

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: **Conduct of Operations**TASK: **Complete The Daily Surveillance Logs**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<b>PROVIDE</b> the operator the initiating cue AND a paper copy of HC.OP-DL.ZZ-0026(Q).	Operator repeats back initiating cue.			
CUE	<b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue:  <b>START TIME:</b>	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.1.			



JPM: ZZ017

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Conduct of Operations

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1	Shift Manager/Control Room Supervisor - the SM/CRS is responsible to implement, review, and ensure completion of the log including (CRS has primary responsibility for all log reviews and documentation):  2.1.1 The SM/CRS shall implement the log at the beginning of each day by completing Attachment 1, Section A; Log Initiation, listing those Attachments that require performance due to present conditions. Also, the present Operational Condition shall be listed.	<b>Examiner Note:</b> Examiner Copy Exhibit 1 is provided for reference.  Operator determines Attachment 1 is required due to current Operational Condition.			
		Operator checks Attachment <b>1</b> on Attachment 1 Section A Log Initiation.	*		
		Operator determined Attachment 3m is required due to RCIC IST adding heat to the Suppression Pool.			
		Operator checks Attachment <b>3m</b> on Attachment 1 Section A Log Initiation.	*		
		Operator determines Attachment 3k is required IAW Item 1 and T/S 4.7.3 due to current River Water level.			
		Operator checks Attachment <b>3k</b> on Attachment 1 Section A Log Initiation.	*		

JPM: ZZ017

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Conduct of Operations

TASK: Complete The Daily Surveillance Logs

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines Attachment 3h is required IAW Item 1 and T/S 4.7.1.3.b.1 due to current River Water temperature.			
		Operator checks Attachment <b>3h</b> on Attachment 1 Section A Log Initiation.	*		
		Operator determines Attachment 3t is required IAW Item 42 due to SPV RMS Inoperable.			
		Operator checks Attachment <b>3t</b> on Attachment 1 Section A Log Initiation.	*		
		Operator places a "1" in the Operational Condition blank.			

JPM: ZZ017

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: **Conduct of Operations**TASK: **Complete The Daily Surveillance Logs**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1	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.	Operator checks Attachment <b>5</b> on Attachment 1 Section A Log Initiation. <b>Examiner Note:</b> Although not <i>specifically</i> required by the <i>current</i> 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.			
<b>CUE</b>	<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.  <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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ017

TASK: Complete The Daily Surveillance Logs

TASK NUMBER: 4010010201

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

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

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RESULT:

SAT

☐

UNSAT

☐

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

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

**B. LOG PERFORMANCE**

- Ensure compliance with T/S by using procedure steps 3.11 thru 3.15 T/S reference numbers and surveillance item note(s), as applicable, for any log item(s) requiring additional action.
- Operators signature below indicates appropriate subsection of Attachment 1 and any Attachment checked (✓) have been completed.

Attachment 1a

Control Room

Attachment 1b

Auxiliary Bldg

Attachment 1c

Reactor Bldg

Attachment 1d

Turbine Bldg

DAY

EVE

MID

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

## 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 95.1 feet due to recent heavy rains.
5. River temperature is 83 degF but is NOT expected to exceed 85 degF.
6. All EDGs, SACS, and SSW pumps are operable.
7. The SPV Effluent RMS is inoperable and has been C/T for repairs.

## INITIATING CUE:

You are the Control Room Supervisor.

**IMPLEMENT** the Daily Surveillance Logs for today IAW HC.OP-DL.ZZ-0026 AND IDENTIFY all required Attachments for current plant conditions.

## JOB PERFORMANCE MEASURE

**REVISION HISTORY**

JPM NUMBER: ZZ017

Rev #	Date	Description	Validation Required?
01	11/8/08	Converted ZZ017 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Removed reference to T-Factor and Attachment 3b due to deletion of T-Factor from Tech Specs. Replaced with Severe Storm Warning and Attachment 3j.	Y
02	1/3/12	Updated reference procedure revision numbers. Deleted Storm Warning and added River Level and RCIC IST Attachments 3k and 3m. Validated with 2 SROs on 1/3/12. Avg completion time is 7 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Administrative

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

**TASK NUMBER:** 2990060302

**JPM NUMBER:** 305H-JPM.ZZ027

**REV #:** 02

**SAP BET:** NOH05JPZZ27E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**


EO ☐ RO ☐ STA ☐ SRO ☒

**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**  K Retick  
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**   
Training Department

**DATE:** 1/19/12



STATION: Hope Creek

JPM NUMBER: ZZ027

REV: 02

SYSTEM: Administrative

TASK NUMBER: 2990060302

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

ALTERNATE PATH: ☐

K/A NUMBER: 2.2.12

IMPORTANCE FACTOR: 3.4

APPLICABILITY:

RO

SRO

EO ☐RO ☐STA ☐SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-IS.BC-0003 Rev. 43  
ER-AA-321 Rev. 11TOOLS, EQUIPMENT AND PROCEDURES: Marked up copy of HC.OP-IS.BC-0003 Rev. 43  
Calculator

ESTIMATED COMPLETION TIME: 27 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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Administrative

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

**TASK NUMBER:** 2990060302

**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:**

Perform the CRS review of the completed HC.OP-IS.BC-0003.

## JOB PERFORMANCE MEASURE

JPM: ZZ027

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<b>PROVIDE</b> the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	<b>PROVIDE</b> marked up copy of HC.OP-IS.BC-0003 and Vibration data sheet.	N/A			
CUE	<b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
5.43	<b>SUBMIT</b> the procedure to the OS/CRS for review <u>AND</u> completion of Attachment 1.	Operator commences the review.			
2.0	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 2.0.			

## JOB PERFORMANCE MEASURE

JPM: ZZ027

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines that the Discharge Pressure recorded on Attachment 3, Steps 5.23.3.B, for the pump is incorrect:  • The wrong Discharge Pressure was used. It should be 146.6 psig.			
CUE	Make the necessary corrections and continue with the review.	N/A			
		Operator corrects the error	*		
		Operator determines that the Delta Pressure recorded on Attachment 3, Steps 5.23.4.B and C, for the pump is incorrect:  • A math error was made. It should be 140.1 psig.			
CUE	Make the necessary corrections and continue with the review.	N/A			
		Operator corrects the error.	*		

## JOB PERFORMANCE MEASURE

JPM: ZZ027

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines that the differential pressure is within the REQUIRED ACTION range.			
CUE	Make the necessary corrections and continue with the review.	N/A			
		Operator changes the SAT to UNSAT.	*		
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.			

## JOB PERFORMANCE MEASURE

JPM: ZZ027

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.1.2	<b>UNSATISFACTORY</b> (Any test evaluations are marked UNSAT). TAKE action IAW Technical Specifications and GENERATE a Notification.	Operator completes the review.			
		Operator notes that data flagged as ACCEPTANCE CRITERIA was marked UNSAT.			
		Operator signs in Step 2.1.2.	*		
		Operator determines B RHR Pump is INOPERABLE for Technical Specifications.	*		
		Operator determines the most limiting Tech Spec is 3.6.2.3 Action a. (Suppression Pool Cooling 72 hours)	*		

## JOB PERFORMANCE MEASURE

JPM: ZZ027

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines that a NOTIFICATION must be generated.	*		
CUE	A Notification will be written by another operator.	N/A			
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>	N/A			

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ZZ027

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

TASK NUMBER: 2990060302

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RESULT:

SAT

☐

UNSAT

☐



## 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:**

Perform the CRS review of the completed HC.OP-IS.BC-0003.

## 1.0 1BP-202 RHR PUMP

---

Report printed on: TODAY

### 2.0 Vibration monitoring system results:

---

Report generated on: TODAY 09:00 AM

Acquired: TODAY 07:10 AM 1xM = 1187 RPM Averages: 14

A. Maximum level: 0.2182 in/s at M1V

### RECOMMENDATIONS:

2.2 THERE ARE NO RECOMMENDATIONS

### DIAGNOSES:

2.3 NO FAULTS HAVE BEEN DETECTED

### POSITION LEGEND:

POSITION M1 IS: MOTOR TOP

POSITION M2 IS: MOTOR BOTTOM

POSITION P1 IS: PUMP

### 2.3.1 OVERALL LEVEL READINGS

OK: 0.119 in/s at M1H Alarm level: 0.213 in/s  
OK: 0.218 in/s at M1V Alarm level: 0.240 in/s  
OK: 0.076 in/s at M1A Alarm level: 0.110 in/s  
OK: 0.193 in/s at M2H Alarm level: 0.400 in/s  
OK: 0.211 in/s at M2V Alarm level: 0.400 in/s  
OK: 0.114 in/s at M2A Alarm level: 0.400 in/s  
OK: 0.108 in/s at P1H Alarm level: 0.300 in/s  
OK: 0.126 in/s at P1V Alarm level: 0.300 in/s  
OK: 0.081 in/s at P1A Alarm level: 0.300 in/s

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: ZZ027

Rev #	Date	Description	Validation Required?
2	11/7/11	Modified Admin JPM due to changes in reference procedure. Validation required. Validated with 2SROs on 1/3/12. Avg completion time 27 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Radiation Control

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

**TASK NUMBER:** 2990420302

**JPM NUMBER:** 305H-JPM.ZZ003

**REV #:** 02

**SAP BET:** NOH05JPZZ03E

**ALTERNATE PATH:**

☐

**APPLICABILITY:**

EO

☐

RO

☐

STA

☐

SRO

☒

**DEVELOPED BY:** Archie Faulkner

**Instructor**

**DATE:** 1/14/12

**REVIEWED BY:**

 K. K. Erickson

**Operations Representative**

**DATE:**

1/18/12

**APPROVED BY:**



**Training Department**

**DATE:**

1/18/12

**STATION:** Hope Creek**JPM NUMBER:** ZZ003**REV:** 02**SYSTEM:** Radiation Control**TASK NUMBER:** 2990420302**TASK:** Verify Compliance with Gaseous Release Permit**ALTERNATE PATH:** ☐**K/A NUMBER:** 2.3.6**IMPORTANCE FACTOR:**

2.0	3.8
-----	-----

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

RO	SRO
----	-----

**EVALUATION SETTING/METHOD:** Classroom/Perform**REFERENCES:** OP-HC-103-105 Rev 1**TOOLS, EQUIPMENT AND PROCEDURES:**

Prepared OP-HC-103-105 Form 2, Calculator

**ESTIMATED COMPLETION TIME:** 9 Minutes**TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:** N/A Minutes**JPM PERFORMED BY:** \_\_\_\_\_**GRADE:** ☐ SAT ☐ UNSAT**ACTUAL COMPLETION TIME:** \_\_\_\_\_ Minutes**ACTUAL TIME CRITICAL COMPLETION TIME:** N/A Minutes**REASON, IF JPM UNSATISFACTORY:****EVALUATOR'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Radiation Control**TASK:** Verify Compliance with Gaseous Release Permit**TASK NUMBER:** 2990420302**INITIAL CONDITIONS:**

1. A plant shutdown is in progress for a Refueling outage.
2. The Reactor is shutdown.
3. At 0200 today Purging of the Primary Containment commenced.
4. At 0436, 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 0800, Purging of Primary Containment re-commenced.
6. At 1252 today Operational Condition 4 was entered.
7. At 1548 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

**INITIATING CUE:**

Review AND Close Out today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit and Log in accordance with OP-HC-103-105.

JPM: ZZ003

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Radiation Control

TASK: Verify Compliance with Gaseous Release Permit

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<b>PROVIDE</b> the operator the initiating cue <u>AND</u> : <input type="checkbox"/> Prepared OP-HC-103-105 log Forms 1 & 2 (Attached) <input type="checkbox"/> Copy of OP-HC-103-105	Operator repeats back initiating cue.			
CUE	<b>ENTER START TIME <u>AFTER</u></b> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.4.6.			

JPM: ZZ003

## OPERATOR TRAINING PROGRAM

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

Rev: 02

## JOB PERFORMANCE MEASURE

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

SYSTEM: Radiation Control

TASK: Verify Compliance with Gaseous Release Permit

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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 Form 2.			
		Operator recognizes NCO incorrectly rounded down from 2.6 to 2.5 instead of rounding up to 3.0 IAW 4.4.3 during calculation of first purge period.	*		
		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.	*		
CUE	<u>IF</u> the operator requests the NCO to make changes, <u>THEN DIRECT</u> the operator to make any required changes.	N/A			



JPM: ZZ003

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Radiation Control

TASK: Verify Compliance with Gaseous Release Permit

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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 makes corrections to Form 2 Stop times and Total Hours.  <b>Examiner Note:</b> Refer to Examiners Copy for appropriate corrections.	*		
CUE	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.  <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>	N/A			

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

JPM Number: ZZ003

TASK: Verify Compliance with Gaseous Release Permit

TASK NUMBER: 2990420302

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

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

RESULT:                      SAT ☐                      UNSAT ☐

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

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

RESULT:                      SAT ☐                      UNSAT ☐

## JOB PERFORMANCE MEASURE

## 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 #:

020020001

## SECTION B

## HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open  
During Previous Year (Note 1)

NUMBER OF HOURS

DATE

4/3/115.56/25/113.58/30/1124.08/31/112.5

(1) Max. allowed for 365 days (Admin Limit)

**452 hrs**

(2) Total previous year (NOTE 1)

(-) 35.5Hours available this date (line 1 minus line 2  
OR 24, whichever is less)(=) 24

Hours authorized this date (max 24 hours)

24

NCO performing calculation

Date/Time

John SmithToday/0100

SM/CRS verification and authorization

Date/Time

Andrew JonesToday/0130

## SECTION C

## VALVE/LINE OPEN TIME (Note 2)

## START TIME

## STOP TIME

## TOTAL HOURS

Time at which valve/line was open or  
Condition 1, 2, or 3 was entered with valve/line  
openTime at which valve/line was closed or  
Condition 4 or 5 was entered with valve/line  
openedTotal number of hours valve/line  
opened this cycle

(NOTE 3)

020004362.5 3.008001548 12528.0 5.0

Total number of hours valves/line open this permit:

10.5 8.0

NCO performing calculations

Andy Granatelli

Date/Time

Today/Now

SM/CRS Closing permit

Operator Signature

Date/Time

Date/Time

Note 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

Note 2: Completed Form 2 should be filed in the AP-104 binder in the control room.

Note 3: When computing the total hours (round up to the nearest 0.5 or to the nearest 1.0 hr.)

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. A plant shutdown is in progress for a Refueling outage.
2. The Reactor is shutdown.
3. At 0200 today Purging of the Primary Containment commenced.
4. At 0436, 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 0800, Purging of Primary Containment re-commenced.
6. At 1252 today Operational Condition 4 was entered.
7. At 1548 today the purge lineup was secured in accordance with HC.OP-SO.GS-0001, Containment Atmosphere Control System Operation.

**INITIATING CUE:**

Review AND Close Out today's Containment Prepurge Cleanup, Inerting, Or Pressure Control Valve Permit and Log in accordance with OP-HC-103-105.

**TRAINING ONLY**  
**OPERATOR COPY**  
**FORM 1**

**OP-HC-103-105**  
Revision 0  
Page 7 of 8

Page \_\_\_\_ of \_\_\_\_

**CONTAINMENT PREPURGE CLEANUP, INERTING, OR PRESSURE CONTROL VALVE PERMIT LOG**

DATE	HOURS PREV. YEAR (Note 1)	HOURS AUTH. THIS PERMIT	NAME OF SM/CRS AUTHORIZING THIS PERMIT	NCO INITIAL	HOURS USED THIS PERMIT	TOTAL HOURS PREVIOUS YEAR (Note 1)	NAME OF SM/CRS CLOSING THIS PERMIT	NCO INITIAL
4/3/11	22.5	24	H. David	<i>SD</i>	5.5	28.0	S. West	<i>SD</i>
6/25/11	18.5	24	G. Williams	<i>TRW</i>	3.5	22.0	G. Cloon	<i>TRW</i>
8/30/11	22.0	24	W. Holmes	<i>R</i>	24.00	46.0	P. Price	<i>R</i>
8/31/11	46.0	24	B. Lee	<i>E</i>	2.5	48.5	V. Bonovan	<i>E</i>
Today	35.5	24	A. Jones	<i>JS</i>				

Note 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

# TRAINING ONLY OPERATOR COPY

OP-HC-103-105

Revision 0

Page 8 of 8

## 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 #: 020020001

#### SECTION B

##### HOURS VALVES/LINES OPEN PREVIOUS YEAR (Note 1)

Calculate Total Hours Open  
During Previous Year (Note 1)

DATE      NUMBER OF HOURS

4/3/11      5.5

6/25/11      3.5

8/30/11      24.0

8/31/11      2.5

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(1) Max. allowed for 365 days (Admin Limit)      **452 hrs**

(2) Total previous year (NOTE 1)      (-) 35.5

Hours available this date (line 1 minus line 2  
OR 24, whichever is less)      (=) 24

Hours authorized this date (max 24 hours)      24

NCO performing calculation

Date/Time

John Smith

Today/0100

SM/CRS verification and authorization

Date/Time

Andrew Jones

Today/0130

#### SECTION C

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

###### START TIME

Time at which valve/line was open or  
Condition 1, 2, or 3 was entered with valve/line  
open

0200

0800

###### STOP TIME

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

0436

1548

###### TOTAL HOURS

Total number of hours valve/line  
opened this cycle

(NOTE 3)

2.5

8.0

Total number of hours valves/line open this permit: 10.5

NCO performing calculations

Andy Granatelli

Date/Time

Today/Now

SM/CRS Closing permit

Date/Time

Note 1: The previous year includes the period from 2400 on today's date back to 0001 on the same date one year earlier.

Note 2: Completed Form 2 should be filed in the AP-104 binder in the control room.

Note 3: When computing the total hours (round up to the nearest 0.5 or to the nearest 1.0 hr.)

**REVISION HISTORY****JPM NUMBER: ZZ003**

Rev #	Date	Description	Validation Required?
01	12/6/08	Converted JPM ZZ003 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial, validation not required. Removed references to checking off/initialing steps in procedure. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial, validation not required. Governing procedure changed methodology for calculating hours. Requires validation.	Y
02	1/14/12	Updated reference procedure revision. Changed names on Attachments. Updated dates to be relevant to current year. Validated with 2 SROs on 1/3/12. Average completion time was 9 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Administrative Duties/Reporting Requirements

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

**TASK NUMBER:** 2000500302/2000020505

**JPM NUMBER:** 305H-JPM.ECG003

**REV #:** 05

**SAP BET:** NOH05JPCL03E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO

☐

RO

☐

STA

☒

SRO

☒

**DEVELOPED BY:** Archie E. Faulkner

Instructor

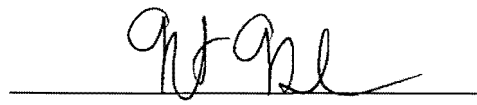
**DATE:** 1/14/12

**REVIEWED BY:**

  
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**

  
Training Department

**DATE:** 1/18/12



**STATION:** Hope Creek**JPM NUMBER:** ECG003**SYSTEM:** Administrative Duties/Reporting Requirements**TASK NUMBER:** 2000500302/2000020505**TASK:** Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**ALTERNATE PATH:** ☐**K/A NUMBER:** 2.4.38**IMPORTANCE FACTOR:**

2.2	4.0
-----	-----

**APPLICABILITY:**EO ☐RO ☐STA ☒SRO ☒

RO

SRO

**EVALUATION SETTING/METHOD:** Simulator/Perform or In Plant/Simulate**REFERENCES:** Hope Creek Event Classification Guide, TOC Rev 98**TOOLS, EQUIPMENT AND PROCEDURES:****ESTIMATED COMPLETION TIME:** 13 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'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Administrative Duties/Reporting Requirements**TASK:** Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**TASK NUMBER:** 2000500302/2000020505**INITIAL CONDITIONS:**

1. With the plant operating at 100% power, Hope Creek experiences an earthquake which indicates a magnitude of  $> 0.1g$ .
2. Control Room Annunciator C6-C4 is in.
3. ON Panel 10C673:
  - The SMA-3 Event Indicator is White.
  - The Strong Motion Accelerograph Tape Machines have advanced but are not currently running.
  - The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit.
4. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
5. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to  $-180''$ ; then stabilizing between  $-150''$  and  $-180''$ , being maintained using all available ECCS.
6. Drywell Pressure peaked at 44 psig, then dropped to  $< 2$  psig over the next 90 seconds, and continues to slowly drop.
7. The current 33 ft. elevation wind direction is from  $224^\circ$  at 21 mph.
8. Plant Effluent activity is  $1.59E+04$   $\mu\text{Ci/sec}$  Noble Gas and  $1.59E+01$   $\mu\text{Ci/sec}$  I-131.

**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 this event is now.

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative Duties/Reporting Requirements

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains Hope Creek Event Classification Guide.			
ECG Section i.IV.C	Classification: To use this ECG volume, follow this sequence: 1. ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.	Operator assesses the initial conditions, and determines that Table 3, Fission Product Barriers, 6.1 Radiological Releases/Occurrences, and 9.0, Hazards-Internal/External, are the appropriate ECG sections.			
ECG Section i.IV.C	2. REFER to Section EAL Flowchart diagram(s), and identify the Initiating Conditions that are related to the event/condition that has occurred or is ongoing.	Operator refers to Table 3.0 and Flowchart Diagrams and identifies that the Initial Conditions for Table 3.0, EALs 6.1.2.d and 9.5.2 are related to the event that has occurred.			

ECG003

OPERATOR TRAINING PROGRAM

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

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative Duties/Reporting Requirements

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C	<p>3. REVIEW the associated EALs as compared to the event and SELECT the <u>highest</u> appropriate emergency or reportable action level. If identification of an EAL is questionable, refer to paragraph IV.A above.</p> <p>If there is any doubt with regard to assessment of a particular EAL, the <u>ECG Technical Basis Document</u> should be reviewed. Words contained in an EAL that are bold face are either threshold values associated with that action level or are words that are defined in the basis for that specific EAL.</p>	Operator reviews the EALs in section 6.1 and 9.5, and determines that EAL # 6.1.2.d and 9.5.2 is the highest emergency action level met or exceeded (ALERT).			
ECG Section i.IV.C	<p>4. If an EAL has been entered, then equal level EALs or lower level EALs and RALs are not required to be reported as long as the applicable information is communicated to the NRC using Attachment 5, NRC Data Sheet.</p>	<b>Examiner Note:</b> Filling out the NRC Data Sheet is beyond the scope of this JPM.			

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

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

SYSTEM: **Administrative Duties/Reporting Requirements**TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
Table 3.0 NOTE	If the Loss or Potential Loss is considered IMMINENT (may occur within 2 hours), USE judgement and classify as if the threshold is exceeded.	Operator reads NOTE.			
Table 3.0 1.	In the table review the Emergency Action Levels of all columns and identify which need further review.	Operator reviews the EALs of all columns, and determines that all columns need further review.			
Table 3.0 2.	For each of the three barriers, determine the EAL with the highest point value. No more than one EAL should be selected for each barrier.	Operator determines that the following EALs have been exceeded and represent the highest value met or exceeded for the respective column: 3.1.1.a; 3.2.2.b or 3.2.1.b; and 3.3.2.b or 3.3.2.d.			
Table 3.0 3.	Add the point values for the three barriers and enter the total below:  _____	Operator adds the values, and enters the value <b>9</b> in the appropriate space. <b>Examiners Note:</b> Determining this value for future use is critical; marking it on Table 3.0 is not.			

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

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

SYSTEM: **Administrative Duties/Reporting Requirements**TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)															
Table 3.0 4.	Classify based on the point value sum as follows: <table><tr><td>If the sum is:</td><td>Classify as:</td><td>Refer to:</td></tr><tr><td>1,2</td><td>UNUSUAL EVENT</td><td>ATT. 1</td></tr><tr><td>3,4</td><td>ALERT</td><td>ATT. 2</td></tr><tr><td>5,6,7,8</td><td>SITE AREA</td><td>ATT. 3</td></tr><tr><td>9,10</td><td>GENERAL</td><td>ATT. 4</td></tr></table>	If the sum is:	Classify as:	Refer to:	1,2	UNUSUAL EVENT	ATT. 1	3,4	ALERT	ATT. 2	5,6,7,8	SITE AREA	ATT. 3	9,10	GENERAL	ATT. 4	Operator determines that this classification is higher than the classification on EALs 6.1.2.d or 9.5.2 and classifies the event as a General Emergency based on Table 3.0.			
If the sum is:	Classify as:	Refer to:																		
1,2	UNUSUAL EVENT	ATT. 1																		
3,4	ALERT	ATT. 2																		
5,6,7,8	SITE AREA	ATT. 3																		
9,10	GENERAL	ATT. 4																		

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

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

SYSTEM: **Administrative Duties/Reporting Requirements**TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C	5. The 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.	<p><u>IF</u> time permits, <u>THEN</u> Operator requests STA/IA verification of classification.</p> <p><b>Examiner Note:</b> Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.</p>			
<b>CUE</b>	<u>IF</u> the Operator requests the STA/IA to independently verify the EAL Classification, <u>THEN INFORM</u> the Operator the STA/IA is not available.	N/A			

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

SYSTEM: **Administrative Duties/Reporting Requirements**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C	6. IDENTIFY and IMPLEMENT the referenced Attachment under Action Required. Refer to Section iv, HC Emergency Classification Description Table, which is a guide for correct description wording for entry on the ICMF for all EALs.	Operator identifies and implements ECG Attachment 4.			
ECG Att. 4	<b>I. <u>EMERGENCY COORDINATOR (EC) LOG SHEET</u></b>				
	<b>A.</b> If a security event is in progress, THEN, IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.	Operator determines this step is not applicable.			



**SYSTEM: Administrative Duties/Reporting Requirements**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	<b>B. DECLARE A GENERAL EMERGENCY AT HOPE CREEK</b>  EAL #(s) _____, _____, _____ DECLARED AT _____ hrs on _____ time                      date	<p>Operator declares a General Emergency, places the EAL # s 3.1.1.a; and 3.2.1.b or 3.2.2.b; and 3.3.2.b or 3.3.2.d, time and date in the appropriate spots in attachment 4, and initials the step as the EC.</p> <p><b>Examiners Note:</b> ENTER the declaration time that the operator entered on Att. 4. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time_(15 min.) Initialing the step is not critical.</p>	*		
ECG Att. 4	<b>C. NOTIFICATIONS</b> 1. CALL the communicators to the Control Room	Operator calls the communicator using the plant page.			
CUE	<b>After 2 minutes, report as the communicators and give your name as CM1 and CM2.</b>	N/A			

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative Duties/Reporting Requirements

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	2. ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation" (EP96-003)	Operator activates the ERO per posted instructions titled Training Use Emergency Callout Activation.  <b>Examiner Note:</b> <u>ENSURE</u> the operator is using the <u>Simulator Training</u> Activation instructions.			
Caution	A Protective Action Recommendation (PAR) SHALL be made on the Initial Contact Message Form (ICMF).	Operator reads CAUTION.			
ECG Att. 4	3. MAKE A PAR as follows: a. REFER to Predetermined PAR Flowchart on Pg. 3 and DETERMINE the appropriate PAR. b. <u>IF</u> a Radiologically Based PAR is <u>IMMEDIATELY</u> available, <u>THEN</u> COMPARE the two PARs and choose the most appropriate for inclusion on the ICMF.	Operator Refers to APPENDIX 1, determines that a GE Based <b>9 Points</b> PAR is appropriate <b>[EVACUATE ALL SECTORS 0-5 MILES]</b> .  <b>Examiner Note:</b> Shelter Sectors and Distance is left blank for a 9 point GE.	*		

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

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

SYSTEM: Administrative Duties/Reporting Requirements

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	If asked, a Radiologically Based PAR is not available.	N/A			
ECG Att. 4	4. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	Operator Completes the ICMF. <b>Examiners Note:</b> 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 EALs 3.1.1.a; and 3.2.1.b or 3.2.2.b; and 3.3.2.b or 3.3.2.d. The operator may place the Examiner's name as the Communicator or tell the Examiner to place his/her name as the Communicator.	*		
	5. IF time allows, OBTAIN an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF.			

ECG003

OPERATOR TRAINING PROGRAM  
JOB PERFORMANCE MEASURE

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

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

SYSTEM: **Administrative Duties/Reporting Requirements**TASK: **Utilize The ECG To Determine The Emergency Classification And/Or Reportability Of An Event And/Or Plant Condition**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	IF the Operator requests a Peer Check, <b>THEN INFORM</b> the Operator a Peer Check has been performed as requested.	N/A			
	6. PROVIDE the ICMF to the Primary Communicator (CM1) and DIRECT the Communicator to implement <b>ECG Attachment 6.</b>	Operator provides the ICMF to CM1 and directs implementation of Att.6.	*		
CUE	<b>LOG</b> the time the ICMF is provided to CM1. <b>LOG TIME:</b> _____ <b>Role-play as CM1 and repeat back the direction as given.</b>	<b>Examiners Note:</b> The difference between the "DECLARED AT" TIME and this LOG TIME is the <b>second</b> critical time (13 min.)			

ECG003

OPERATOR TRAINING PROGRAM

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

JOB PERFORMANCE MEASURE

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

SYSTEM: Administrative Duties/Reporting Requirements

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 4	7. DIRECT the Secondary Communicator (CM2) to implement <b>ECG Attachment 8</b> for a GENERAL EMERGENCY.	Operator directs CM2 to implement Att. 8 for a GENERAL EMERGENCY.			
CUE	ROLE-PLAY as CM2 and REPEAT BACK the direction as given.	N/A			
CUE	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> <b>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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

JPM Number: ECG003

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

TASK NUMBER: 2000500302/2000020505

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

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

RESULT:

SAT

☐

UNSAT

☐

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

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

RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

ECG  
ATT 4  
Pg. 5 of 5

## INITIAL CONTACT MESSAGE FORM

I. THIS IS (Not Required), COMMUNICATOR IN THE ☒ CONTROL ROOM  
(NAME) ☐ TSC  
☐ EOF  
AT THE HOPE CREEK NUCLEAR GENERATING STATION.

IIa. ☒ THIS IS NOTIFICATION OF A GENERAL EMERGENCY WHICH WAS  
DECLARED AT Today's Time ON Today's Date  
(TIME - 24 HOUR CLOCK) (DATE)  
EAL #(s) 3.1.1.a, 3.2.1.b or 3.2.2.b, 3.3.2.b or 3.3.2.d  
DESCRIPTION OF EVENT: Potential Loss of Fuel Clad Barrier,  
Loss of Reactor Coolant System Barrier, and Loss of Containment Barrier.

IIb. ☐ THIS IS NOTIFICATION OF A PROTECTIVE ACTION RECOMMENDATION  
UPGRADE WHICH WAS MADE AT \_\_\_\_\_ HRS ON \_\_\_\_\_  
(24 HOUR CLOCK) (DATE)  
Reason for PAR Upgrade: \_\_\_\_\_

III.

**NOTE:**

Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 1.20E+04  $\mu$ Ci/sec Noble Gas or 1.70E+01  $\mu$ Ci/sec I-131.

- ☐ NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE  
☒ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS. } for release  
definition

IV. ☒ 33 FT. LEVEL WIND DIRECTION (From): 224 WIND SPEED: 21  
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ WE RECOMMEND EVACUATION AS FOLLOWS Sectors All Dist.- Miles 0-5  
☐ WE RECOMMEND SHELTERING AS FOLLOWS \_\_\_\_\_  
☒ WE RECOMMEND THE USE OF KI IN ACCORDANCE WITH STATE PROCEDURES

Performer's Initials \_\_\_\_\_  
EC Initials (Approval to Transmit ICMF) \_\_\_\_\_

## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. With the plant operating at 100% power, Hope Creek experiences an earthquake which indicates a magnitude of  $> 0.1g$ .
2. Control Room Annunciator C6-C4 is in.
3. ON Panel 10C673:
  - The SMA-3 Event Indicator is White.
  - The Strong Motion Accelerograph Tape Machines have advanced but are not currently running.
  - The AMBER alarm light on the Seismic Switch Power Supply Drawer is lit.
4. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
5. A LOCA results. The Reactor is successfully scrammed, with RPV level dropping rapidly to  $-180''$ ; then stabilizing between  $-150''$  and  $-180''$ , being maintained using all available ECCS.
6. Drywell Pressure peaked at 44 psig, then dropped to  $< 2$  psig over the next 90 seconds, and continues to slowly drop.
7. The current 33 ft. elevation wind direction is from  $224^\circ$  at 21 mph.
8. Plant Effluent activity is  $1.59E+04$   $\mu\text{Ci/sec}$  Noble Gas and  $1.59E+01$   $\mu\text{Ci/sec}$  I-131.

## 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 this event is now.



## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: ECG003

Rev #	Date	Description	Validation Required?
05	1/14/12	<p>Updated Reference procedure revision number. This change is editorial.</p> <p>Converted JPM ECG003 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial.</p> <p>Removed references to checking off/initialing steps in procedure. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial.</p> <p>Modified conditions to change PAR to 9 point.</p> <p>Modified MET data for wind speed and direction</p> <p>Modified ICMF release rate data to indicate a release is in progress, but at an ALERT level. Validated with 2 SROs on 1/3/12. Avg completion time was 13 minutes.</p>	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Feedwater

**TASK:** Respond To Rising Drywell Pressure

**TASK NUMBER:** 4000510401

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

**REV #:** 05

**SAP BET:** NOH05JP AE04E

**ALTERNATE PATH:** ☒

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

SRO ☒

**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 1/14/12

**REVIEWED BY:**  KR 2/20/12  
Operations Representative

**DATE:** 1/18/12

**APPROVED BY:**   
Training Department

**DATE:** 1/18/12

STATION: Hope Creek

JPM NUMBER: AE004

REV: 05

SYSTEM: Feedwater

TASK NUMBER: 4000510401

TASK: Respond To Rising Drywell Pressure

ALTERNATE PATH: ☒

K/A NUMBER: 223001 A2.01

IMPORTANCE FACTOR: 4.3 4.4

APPLICABILITY:

RO

SRO

EO ☐RO ☒STA ☐SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0001 Rev 2

HC.OP-SO.AE-0001 Rev 66

## TOOLS, EQUIPMENT AND PROCEDURES:

Keys for RCIC HV-F013, HPCI HV-8278, FW Cross-Tie HV-4144

ESTIMATED COMPLETION TIME: 12 Minutes

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

JPM PERFORMED BY: \_\_\_\_\_

GRADE: ☐ SAT ☐ UNSAT

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

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_

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

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

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

**SYSTEM:** Feedwater

**TASK:** Respond To Rising Drywell Pressure

**TASK NUMBER:** 4000510401

**INITIAL CONDITIONS:**

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

**INITIATING CUE:**

You are the Plant Operator.

Place a water seal on both the 'A' AND 'B' feedwater headers IAW HC.OP-SO.AE-0001.

JPM: AE004

Rev: 05

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue:  START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.AE-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.17.1.			

JPM: AE004

Rev: 05

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	The HPCI <u>AND</u> the RCIC Jockey Pump Loops are used to maintain a water seal in the Feedwater lines between the inboard <u>AND</u> outboard containment isolation valves following a LOCA.	N/A			
5.17.1	<b>ENSURE</b> all prerequisites of Section 2.17 are satisfied.	Operator ensures that all prerequisites have been satisfied.  <b>Examiner Note:</b> The Initial Conditions state that the HPCI and RCIC jockey pumps are available.			
CUE	<u>IF</u> excessive time is taken reviewing prerequisites, <u>THEN</u> <b>INFORM</b> operator that all are satisfied.	N/A			
5.17.2	<b>ENSURE</b> the following valves are closed:				
	• BJ-HV-8278, HPCI DSCH THRU FW ISLN MOV	Operator observes the HPCI DSCH THRU FW ISLN MOV HV8278 OPEN light is illuminated and CLSD light is extinguished.			

JPM: AE004

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator presses the HV8278 CLOSE pushbutton.  <b>Examiner note:</b> 30 seconds after pressing the HV8278 CLOSE pb, the AP228 HPCI Jockey Pump will trip.	*		Y N Flagging
		Operator observes the HV8278 CLSD light illuminates and the OPEN light extinguishes.			
		Operator recognizes HPCI Jockey Pump trip by OHAs and OVLD/PWR FAIL indication.			
		Operator informs CRS of HPCI Jockey pump trip.			
<b>CUE</b>	<b>INFORM</b> the Operator the trip of the HPCI Jockey pump will be investigated by another operator.  <b>DIRECT</b> the Operator to place a water seal on the 'A' & 'B' Feedwater lines using the RCIC jockey pump.	N/A			

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

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Operator determines step 5.17.3 of the procedure is now applicable.	Operator continues to complete step 5.17.2.			
	• BD-HV-F013, RCIC PUMP DSCH TO FW	Operator observes the F013 CLSD light illuminated and the OPEN light extinguished.			
	• HV-F032A, FW INLET CHK VLV	Operator observes the FW INLET CHK VLV HVF032A OPEN light is illuminated and the CLOSE light is extinguished.			
		Operator presses the HVF032A CLOSE pushbutton.	*		Y N Flagging
		Operator observes the HVF032A CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-F032B, FW INLET CHK VLV	Operator observes the FW INLET CHK VLV HV-F032B OPEN light is illuminated and CLOSE light is extinguished.			



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SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator presses the HVF032B CLOSE pushbutton.	*		Y N Flagging
		Operator observes the HVF032B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-4144, FW LINE CROSS-TIE ISL VLV	Operator observes the HV-4144, FW LINE CROSS-TIE ISL VLV CLOSE light is illuminated and OPEN light is extinguished.			
5.17.3	IF AP228, HPCI JOCKEY PUMP will be used to seal the B Feedwater Line, OR BP228, RCIC JOCKEY PUMP will be used to seal the A Feedwater Line, THEN PERFORM the following:	Based on current conditions, Operator determines that this step now applies.			

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.17.3. A.	PLACE the keylock switch for HV-4144, FW LINE CROSS-TIE ISLN VLV, in the ON position to arm the control switch.	Operator inserts key and places the Keylock switch for the HV-4144, FW CROSS TIE LINE ISLN, in the ON position  <b>Examiner Note:</b> OHA B3-D2 FEEDWATER LINE FILL ALT MODE will alarm.	* #		
5.17.3. B	OPEN HV-4144, FW LINE CROSS-TIE ISL VLV.	Operator observes the HV-4144, FW LINE CROSS-TIE ISL VLV CLOSE light is illuminated and OPEN light is extinguished.			
		Operator presses the FW CROSS TIE LINE ISLN HV-4144 OPEN pushbutton.	*		Y N Flagging
		Operator observes the OPEN light illuminates and the CLOSED light extinguishes.			

JPM: AE004

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.17.4.	IF AP228, HPCI JOCKEY PUMP is to be used to seal one or both Feedwater lines,  THEN PERFORM the following:	Based on current conditions, Operator determines that this step does not apply and continues at step 5.17.5.			
5.17.5	IF the BP228, RCIC JOCKEY PUMP is to be used to seal one or both Feedwater lines,  THEN PERFORM the following:				
5.17.5. A	<b>PLACE</b> the NORM/BYPASS Keylock Switch for BD-HV-F013, RCIC PUMP DSCH TO FW, in the BYPASS position to arm the Control Switch.	Operator inserts key and places the Keylock switch for the RCIC HVF013 in the BYPASS position.  <b>Examiner Note:</b> OHA B3-D2 FEEDWATER LINE FILL ALT MODE will alarm.	* #		Y N Flagging

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.17.5. B	<b>OPEN</b> BD-HV-F013, RCIC PUMP DSCH TO FW.	Operator observes the RCIC PUMP DSCH TO FW HVF013 CLSD light is illuminated and OPEN light is extinguished.			
		Operator presses the HVF013 OPEN pushbutton.	*		Y N Flagging
		Operator observes the OPEN light illuminates and the CLSD light extinguishes.			
5.17.5. C	<b>OPEN</b> BD- HV-F012, RCIC PUMP DSCH VLV.	Operator observes the HVF012 OPEN light is illuminated and CLSD light is extinguished.			
5.17.5. D	<u>WHEN</u> required, <u>THEN</u> <b>START</b> BP228, RCIC JOCKEY PUMP.	Operator observes the RCIC JOCKEY PUMP red RUNNING light is illuminated and green STOPPED light is extinguished.			

JPM: AE004

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JOB PERFORMANCE MEASURE

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

SYSTEM: Feedwater

TASK: Respond To Rising Drywell Pressure

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: AE004

TASK: Respond To Rising Drywell Pressure

TASK NUMBER: 4000510401

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

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

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RESULT:

SAT

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UNSAT

☐

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

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

**INITIATING CUE:**

You are the Plant Operator.

Place a water seal on both the 'A' AND 'B' feedwater headers IAW HC.OP-SO.AE-0001.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial

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

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

WHEN MSL Radiation levels reach 3xNFPB,  
THEN **INSERT** Malfunction **MS01** at 100% using **ET-2**.

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

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

**ENSURE** MSIVs are closed.

**TRIP** all PCPs and SCPs.

**ESTABLISH** RPV water level control with Core Spray.

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

**ENSURE** associated Events file open.

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

Initial

Description

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

**ENSURE** Mode Switch key is removed.

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

### EVENT FILE:

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



JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction CR01 to 100.00000 on event 1	Fuel cladding leak
	None	None	Insert malfunction MS01 to 100.00000 on event 2	Steam line break in drywell
	None	None	Insert malfunction RM9635 to 5211.00000 on event 3	9RX635, DAPA 'A' - Drywell Atmos Post-Accident Chan 'A'
	None	None	Insert malfunction RM9636 to 5185.00000 on event 3	9RX636, DAPA 'B' - Drywell Atmps Post-Accident Chan 'B'
	None	None	Insert malfunction AN-B1E4 after 30 on event 4	CRYWOLF ANN B1E4 HPCI JOCKEY PUMP 1AP228 TROUBLE
	None	None	Insert malfunction AN-B1F3 after 30 on event 4	CRYWOLF ANN B1F3 HPCI COMPONENT O/PF

**REMOTE SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote IA10 to RUN	IA10 Temporary station air compressor
	None	None	Insert remote ET066 to FAIL_OPEN on event 2	ET066 HV-8278 HPCI to FW
	None	None	Remove remote ET066 to FAIL_OPEN on event 4	ET066 HV-8278 HPCI to FW

**OVERRIDE SCHEDULE:**

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

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: AE004

Rev #	Date	Description	Validation Required?
01	12/3/07	Revision 53 of HC.OP-SO.AE-0001 renumbered former Feedwater Line Fill section from 5.16 to 5.17 with NO change in action steps. JPM AE004 updated to reflect this re-numbering of steps. No change in actions, validation not required. Converted JPM AE004 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial, validation not required. Added procedure Note text to Element section. This is for examiner reference only and has no associated student actions. This change is editorial, validation not required.	N
02	9/29/09	Complete revision due to procedure section revision. Validated with 2 operators from 'A' Shift. Average completion time was 12 minutes.	Y
03	8/12/10	Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
04	8/2/11	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Added Override to HV-8278 to maintain valve operation as before DCP. Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
05	1/14/12	Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N

## JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown  
Cooling Loop

TASK NUMBER: 2050120101

JPM NUMBER: 305H-JPM.BC015

REV #: 03

SAP BET: NOH05JPBC15E

ALTERNATE PATH: ☒

APPLICABILITY:

EO ☐

RO ☒

STA ☐

SRO ☒

DEVELOPED BY: Archie E. Faulkner  
Instructor

DATE: 9/13/11

REVIEWED BY:   
Operations Representative

DATE: 9/21/11

APPROVED BY:   
Training Department

DATE: 9/20/11

STATION: Hope Creek

JPM NUMBER: BC015

REV: 03

SYSTEM: Residual Heat Removal

TASK NUMBER: 2050120101

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

ALTERNATE PATH: ☒

K/A NUMBER: 205000 A4.03

IMPORTANCE FACTOR: 3.6 3.5

APPLICABILITY:

EO ☐RO ☒STA ☐SRO ☒

RO

SRO

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.BC-0002 Rev. 27

TOOLS, EQUIPMENT AND PROCEDURES: None.

ESTIMATED COMPLETION TIME: 33 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'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Residual Heat Removal**TASK:** Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop**TASK NUMBER:** 2050120101**INITIAL CONDITIONS:**

1. The plant is in OPCIION 4.
2. The reactor has been shutdown for 200 hours.
3. 'B' RHR pump has been in shutdown cooling at 10,000 gpm for several hours.
4. RCS temperature is 100 degF.
5. A SACS and SSW loops are aligned to support the evolution.
6. BC-HV-F007A and BC-HV-F027A have been tagged closed to support the evolution.
7. Flush of A RHR Loop is not required.
8. Field operators have been briefed and are standing by on location.

**INITIATING CUE:**

You are an extra NCO.

Transfer RHR Shutdown Cooling to the A RHR loop.

The required shutdown cooling flow for the 'A' RHR pump is between 9500 -10,000 gpm.

JPM: BC015

OPERATOR TRAINING PROGRAM

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

Rev: 03

JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:				
	Operator obtains procedure HC.OP-SO.BC-0002	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.			

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OPERATOR TRAINING PROGRAM

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

Rev: 03

JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.1	<b>ENSURE</b> all Prerequisites have been satisfied IAW Section 2.3.	Operator reviews prerequisites.			
	<b>NOTE</b> BC-HV-F027A(B) RHR LOOP A(B) SUPP POOL SPRAY HDR ISLN MOV will drain the Reactor Vessel to the Suppression Pool IF opened while the associated RHR pump is in shutdown cooling.	Operator reads NOTE.			

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OPERATOR TRAINING PROGRAM

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	<b>CAUTION</b> While in shutdown cooling, the following valves shall be closed to prevent uncontrolled drainage from the Reactor Vessel: [CD-389B, CD-608D, CD-157E, CD-567E] • BC-HV-F004A(B) RHR PMP A(B) SUPP POOL SUCT MOV • BC-HV-F024A(B) RHR LOOP A(B) TEST RET MOV • BC-HV-F010A(B) RHR LOOP C(D) TEST RET MOV • BC-HV-F007A(B) RHR PMP A(B) MIN FLOW MOV • BC-HV-F027A(B) RHR LOOP A(B) SUPP POOL SPRAY HDR ISLN  IF the Reactor is in Mode 4 or Refuel or if a mode change is not desired, the delay in starting the second RHR Loop after having secured the first Loop should not approach the "Time to Boil" value. [PR 971028283]	Operator reads CAUTION.			



JPM: BC015

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SYSTEM: Residual Heat Removal

OPERATOR TRAINING PROGRAM

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

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

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.2	<b>PERFORM</b> the following to prepare loop to be placed in Shutdown Cooling:				
5.3.2. A	IF a flush on the loop to be placed in Shutdown Cooling is required, THEN <b>REFER TO</b> Steps 5.2.5 through 5.2.14.	Operator determines step 5.3.2.A. does not apply.			
5.3.2. B	<b>ENSURE</b> the following Valves are CLOSED:				
	BC-HV-F003A(B) RHR HX A(B) OUTLET VLV	Operator observes the BC-HV-F003A RHR HX A OUTLET VLV CLSD light illuminated and OPEN is extinguished.			
	BC-HV-F004A(B) A(B) RHR PMP SUPP POOL SUCT MOV	Operator observes the BC-HV-F004A A RHR PMP SUPP POOL SUCT MOV CLSD light illuminated and OPEN is extinguished.			

JPM: BC015

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	BC-HV-F007A(B) RHR PUMP A(B) MIN FLOW MOV	Operator observes the BC-HV-F007A is TAGGED CLOSED and breaker 52- 212041 OPEN AND <b>INITIAL</b> Attachment 1.			
	BC-HV-F024A(B) RHR LOOP A(B) TEST RET MOV	Operator observes the BC-HV-F024A RHR LOOP A TEST RET MOV CLSD light illuminated and OPEN is extinguished.			
	BC-HV-F027A(B) RHR LOOP A(B) SUPP POOL SPRAY HDR ISLN MOV	Operator observes the BC-HV-F027A is TAGGED CLOSED and breaker 52- 212081 OPEN AND <b>INITIAL</b> Attachment 1.			
	<b>NOTE</b>  This section may be continued once the valve is re-positioned and its breaker opened (step completion signoff after safety tagging completed).	Operator reads NOTE.			

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.2. C	<b>VERIFY</b> BC-HV-F007A(B) is CLOSED THEN <b>TAG</b> breaker 52- 212041(52-222041) OPEN AND <b>INITIAL</b> Attachment 1.	Operator observes the BC-HV-F007A is TAGGED CLOSED and breaker 52- 212041 OPEN AND <b>INITIAL</b> Attachment 1.			
	<b>NOTE</b> 1-BC-V315 (V314) SUP POOL SPRY HDR MAN ISLN VLV may be tagged CLOSED instead of tagging the associated breaker for the BC-HV- F027A(B) (if required to support outage activities), although BC-HV- F027A(B) must still be closed.  This section may be continued once the valve is re-positioned and its breaker opened (step completion signoff after safety tagging completed).	Operator reads NOTE.			
5.3.2. D	<b>VERIFY</b> BC-HV-F027A(B) is CLOSED AND <b>TAG</b> breaker 52- 212083 (52-222083) OPEN AND <b>INITIAL</b> Attachment 1.	Operator observes the BC-HV-F027A is TAGGED CLOSED and breaker 52- 212081 OPEN AND <b>INITIAL</b> Attachment 1.			

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JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.3.	<b>OPEN</b> BC-HV-F006A(B) RHR PMP A(B) SUCT FROM RECIRC for the RHR Loop to be placed in S/D Cooling.	Operator presses BC-HV-F006A RHR PMP A SUCT FROM RECIRC OPEN pb.	*		
		Operator observes the BC-HV-F006A RHR PMP A SUCT FROM RECIRC OPEN light illuminated and CLSD extinguishes.			
	<b>NOTE</b> RHR Loop B OR RHR Loop A prewarming is required IF the differential temperature between the Reactor Vessel water AND the RHR Loop to be utilized is greater than 100°F.	Operator reads NOTE.			

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JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.	IF prewarming of the Loop of RHR to be placed in S/D Cooling is required THEN, <b>PERFORM</b> Steps 5.2.26 OR 5.2.27 of this procedure to equalize temperatures; OTHERWISE <b>PROCEED</b> .	Operator determines step 5.3.4 does not apply.			
5.3.5.	<b>SECURE</b> the inservice Shutdown Cooling Loop as follows:				
5.3.5. A	<b>ENSURE</b> 1-BC-V262 (1-BC-V212), ECCS Jockey Pmp D(C) DISCH to RHR Loop B(A) is LOCKED OPEN (local), AND <b>INITIAL</b> Attachment 1.	Operator contacts Equipment Operator and directs opening 1-BC-V262.			
<b>CUE</b>	<b>The valve is in the position requested.</b>				
	<b>NOTE</b> Steps 5.3.5.B through 5.3.5.C should be performed in rapid succession.	Operator reads NOTE.			

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JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.5. B	<b>CLOSE</b> BC-HV-F015B(A) RHR LOOP B(A) RET TO RECIRC AND <b>INITIAL</b> Attachment 1.	Operator presses and holds the BC-HV-F015B RHR LOOP B RET TO RECIRC CLSD pb.	*		
5.3.5. C	WHEN BC-HV-F015B(A) RHR LOOP B(A) RET TO RECIRC is fully closed, THEN, IMMEDIATELY <b>STOP</b> B(A)P202 RHR PUMP.	Operator observes the BC-HV-F015B RHR LOOP B RET TO RECIRC CLSD light illuminated and OPEN is extinguished.			
		Operator presses BP202 RHR PUMP STOP pb.	*		

JPM: BC015

OPERATOR TRAINING PROGRAM

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

Rev: 03

JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.5. D	CLOSE BC-HV-F006B(A) RHR PMP B(A) SUCT FROM RECIRC AND INITIAL Attachment 1.	Operator presses the BC-HV-F006B RHR PMP B(A) SUCT FROM RECIRC CLSD pb.			
		Operator observes the BC-HV-F006B RHR PMP B(A) SUCT FROM RECIRC CLSD light illuminated and OPEN is extinguished.			
5.3.6.	<b>ENSURE</b> SACS is in service to the RHR Heat Exchanger for the RHR loop to be placed in service IAW HC.OP-SO.EG-0001(Q).	Operator observes the HV-2512A OPEN light illuminated and CLSD light extinguished.			
		Operator observes RHR A HX SACS Flow approximately 9000 gpm.			

JPM: BC015

Rev: 03

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	<p><b>CAUTION</b> Manual OR automatic opening of BC-HV-F007A(B) RHR PMP A(B) MIN FLOW MOV will drain Reactor Vessel to Suppression Pool.</p> <p>If BC-HV-F015 A(B) RHR LOOP A(B) RET TO RECIRC does NOT open immediately to establish flow, then the RHR pump should be secured.</p> <p>BC-HV-F027A(B) RHR LOOP A(B) SUPP POOL SPRAY HDR ISLN MOV will drain the Reactor Vessel to the Suppression Pool if opened while the associated RHR pump is in shutdown cooling.</p>	Operator reads CAUTION.			



JPM: BC015

OPERATOR TRAINING PROGRAM

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

Rev: 03

JOB PERFORMANCE MEASURE

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.7.	<b>START</b> RHR PUMP A(B)P202 AND IMMEDIATELY <b>THROTTLE</b> OPEN BC-HV-F015A(B) RHR LOOP A(B) RET TO RECIRC LOOP UNTIL FI-R603A(B) OR FR-R608A(B) - CRIDS A3137(A3139), LOOP A(B) FLOW indicates $\approx$ 3000 gpm.	Operator presses the AP202 START pb.	*		
		Operator observes the AP202 START light illuminated and STOP light extinguishes.			
	<b>Examiner Note:</b> F015A will fail closed and not establish flow. Operator should secure the pump.	Operator immediately presses and holds the BC-HV-F015A RHR LOOP A RET TO RECIRC LOOP OPEN pb.			
		Operator observes the CLSD light remains illuminated.			
		Operator observes the FI-R603A OR FR-R608A - CRIDS A3137, LOOP A FLOW indicates 0 gpm.			

JPM: BC015

Rev: 03

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

SYSTEM: Residual Heat Removal

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator determines CAUTION applies.			
		Operator presses AP202 STOP pb.	*		
<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>				

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: BC015

TASK: Transfer Shutdown Cooling to the Standby Shutdown Cooling Loop

TASK NUMBER: 2050120101

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

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UNSAT

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## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The plant is in OPCON 4.
2. The reactor has been shutdown for 200 hours.
3. 'B' RHR pump has been in shutdown cooling at 10,000 gpm for several hours.
4. RCS temperature is 100 degF.
5. A SACS and SSW loops are aligned to support the evolution.
6. BC-HV-F007A and BC-HV-F027A have been tagged closed to support the evolution.
7. Flush of A RHR Loop is not required.
8. Field operators have been briefed and are standing by on location.

## INITIATING CUE:

You are an extra NCO.

Transfer RHR Shutdown Cooling to the A RHR loop.

The required shutdown cooling flow for the 'A' RHR pump is between 9500 -10,000 gpm.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial	
	<b>INITIALIZE</b> the simulator to an OPCON 4 IC with 'B' RHR in Shutdown Cooling at 10,000 gpm and an RCS temp of $\approx 100$ degF.
	<b>OPEN</b> BC-HV-F007B breaker
	<b>OPEN</b> BC-HV-F027B breaker
	<b>ENSURE</b> BC-HV-F003A is closed.
	<b>ENSURE</b> BC-HV-F004A is closed.
	<b>ENSURE</b> BC-HV-F007A is closed.
	<b>ENSURE</b> EG-HV-2512A is open.
	<b>ENSURE</b> associated Schedule File is loaded.
	<b>OPEN</b> BC-HV-F007A breaker using ET-1.
	<b>OPEN</b> BC-HV-F027A breaker using ET-2.

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

Initial	Description
	<b>PLACE</b> red bezel covers on the BC-HV-F007B <u>AND</u> the BC-HV-F027B.
	<b>PLACE</b> red bezel covers on the BC-HV-F007A <u>AND</u> the BC-HV-F027A.

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**REMOTE SCHEDULE:**

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert remote RH30B to TAGGED	RH30 HV-F007B RHR Pump A Min Flow Valve
	None	None	Insert remote ET006 to RACK_CLOSE	ET006 GROUP 3B HV-F027B RHR Supp. Pool Spray
	None	None	Insert remote RH30A to TAGGED on event 1	RH30 HV-F007A RHR Pump A Min Flow Valve
	None	None	Insert remote ET005 to RACK_CLOSE on event 2	ET005 GROUP 3B HV-F027A RHR Supp. Pool Spray
	None	None	Insert remote RH29A to FAIL_CLOSE	RH29 GROUP 3E HV-F015A RHR SDC Return Isol

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: BC015

Rev #	Date	Description	Validation Required?
3	5/3/11	Converted to new JPM format. Old JPM was a duplicate of JPM BC-009. Completely rewrote JPM for new task. Validated with 2 operators from "C" Shift. Avg completion time 33 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Condenser Air Removal

**TASK:** Respond To A Main Condenser Low Vacuum

**TASK NUMBER:** 4000580401

**JPM NUMBER:** 305H-JPM.CG003

**REV #:** 01

**SAP BET:** NOH05JPCG03E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO

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RO

☒

STA

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SRO

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**DEVELOPED BY:** Archie E. Faulkner

**Instructor**

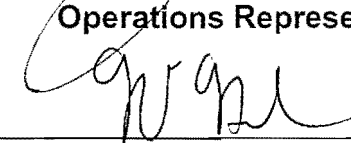
**DATE:** 1/14/12

**REVIEWED BY:**

  
**Operations Representative**

**DATE:** 1/18/12

**APPROVED BY:**



**Training Department**

**DATE:** 1/18/12



STATION: Hope Creek

JPM NUMBER: CG003

REV: 01

SYSTEM: Condenser Air Removal

TASK NUMBER: 4000580401

TASK: Respond To A Main Condenser Low Vacuum

ALTERNATE PATH: ☐

K/A NUMBER: 271000 A4.04

IMPORTANCE FACTOR: 3.4 3.5

APPLICABILITY:

RO SRO

EO ☐ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.BOP-0006 Rev 14

HC.OP-AB.ZZ-0001 Rev 23

TOOLS, EQUIPMENT AND PROCEDURES:

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Condenser Air Removal

**TASK:** Respond To A Main Condenser Low Vacuum

**TASK NUMBER:** 4000580401

**INITIAL CONDITIONS:**

1. The plant is operating at 100% power.
2. Main Condenser vacuum is degrading due to fluctuations in 3<sup>rd</sup> Stage SJAE flow.
3. Troubleshooting has determined that PIC-1964B, AIR EJECTOR B EXH PRESS, has an electronics problem and failure of the valve is imminent.
4. HC.OP-AB.BOP-0006, Main Condenser Vacuum, is being implemented.
5. Radwaste Operator has been notified.
6. Offgas is in service.

**INITIATING CUE:**

Place SJAE A in service on Main Steam accordance with HC.OP-AB.ZZ-0001.

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue: START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.ZZ-0001 Attachment 11.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 1.0.			
1.0	OPEN HV-1957A.	Operator presses the HV-1957A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1957A OPEN light illuminates and the CLOSE light extinguishes.			

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: **Condenser Air Removal**TASK: **Respond To A Main Condenser Low Vacuum**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.0	<b>OPEN</b> HV-1955A.	Operator presses the HV-1955A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1955A OPEN light illuminates and the CLOSE light extinguishes.			
3.0	<b>OPEN</b> HV-2016A (HV-2020A if the SJAE's are being supplied by Aux. Stm) THEN <b>OBSERVE</b> 145-150 psig (with Main Steam supplying) OR approximately 175 psig (Aux Steam supplying) on PI-2022A.	Operator presses the HV-2016A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-2016A OPEN light illuminates and the CLOSE light extinguishes.			
		Operator observes the PIC-2022A SJAE steam supply pressure at approximately 145-150 psig.			

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	<b>ENSURE</b> PIC-1964A is in AUTO at 11 psig.	Operator presses the PIC-1964A AUTO pushbutton.	* #		Y N Flagging
		Operator observes the PIC-1964A is in AUTO light illuminates and the MAN light extinguishes.			
		Operator presses the PIC-1964A UP/DOWN Arrows as necessary to place the setpoint indicator on 11 psig.	* #		Y N Flagging
5.0	<b>OPEN</b> HV-1959A.	Operator presses the HV-1959A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1959A OPEN light illuminates and the CLOSE light extinguishes.			
6.0	<b>OPEN</b> HV-1956A.	Operator presses the HV-1956A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1956A OPEN light illuminates and the CLOSE light extinguishes.			

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
7.0	<b>OBSERVE</b> the following 3rd stage indications:				
	FR-2021A increasing	Operator observes the FR-2021A SJAE 3 <sup>rd</sup> stage flow increasing.			
	PI-1954A lowering.	Operator observes the PIC-1954A SJAE 3 <sup>rd</sup> stage pressure lowering.			
8.0	<b>OPEN</b> HV-1963A.	Operator presses the HV-1963A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1963A OPEN light illuminates and the CLOSE light extinguishes.			
9.0	<b>OPEN</b> HV-1962A.	Operator presses the HV-1962A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1962A OPEN light illuminates and the CLOSE light extinguishes.			
10.0	<b>OBSERVE</b> 2nd stage pressure PI-1966A lowering.	Operator observes the PI-1966A SJAE 2 <sup>nd</sup> stage pressure lowering.			

JPM: CG003

Rev: 01

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
11.0	OPEN HV-1967A.	Operator presses the HV-1967A OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1963A OPEN light illuminates and the CLOSE light extinguishes.			
12.0	OPEN HV-1968 A1, A2, A3.	Operator presses the HV-1968 A1, A2, A3, OPEN pushbutton.	* #		Y N Flagging
		Operator observes the HV-1968A1, A2, A3, OPEN light illuminates and the CLOSE light extinguishes.			
13.0	VERIFY valve operated in Steps 1.0 thru 12.0 have successfully repositioned.	Operator observes all "A "SJAЕ valves open.			
14.0	CLOSE HV-1968 B1, B2, B3.	Operator presses the HV-1968 B1, B2, B3, CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1968B1, B2, B3 CLOSE light illuminates and the OPEN light extinguishes.			

JPM: CG003

Rev: 01

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
15.0	<b>MONITOR</b> PIC-1964A for the following indications:				
	SJAE 3rd stage outlet < 11 psig.	Operator observes the PIC-1964A SJAE 3 <sup>rd</sup> stage outlet pressure at approximately 11 psig.			
	Gaseous Radwaste Flow < 75 scfm (1900 #/hr).	Operator observes the Gaseous Radwaste Flow <75 scfm.			
CUE	<b>IF</b> asked as Radwaste Operator, for Offgas Flow, <b>THEN</b> REPORT that Offgas flow is approximately 35 scfm.	<b>Examiner Note:</b> Operator should check CRIDS points A3431 or A9343 for indication of Offgas Treatment Flow. Operator may request Radwaste to provide flow indication from 1HAFI-5665. It will take a few minutes for flow to lower to < 75 scfm.			
16.0	Five minutes AFTER closing HV-1968 B1, B2, B3, <b>CLOSE</b> the following valves:				
CUE	<b>"Five minutes have elapsed."</b>				



JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• HV-1967B	Operator presses the HV-1967B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1967B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1963B	Operator presses the HV-1963B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1963B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1962B	Operator presses the HV-1962B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1962B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1955B	Operator presses the HV-1955B CLOSE pushbutton.			Y N Flagging

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the HV-1955B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1956B	Operator presses the HV-1956B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1956B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1957B	Operator presses the HV-1957B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1957B CLOSE light illuminates and the OPEN light extinguishes.			
	• HV-1959B	Operator presses the HV-1959B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-1959B CLOSE light illuminates and the OPEN light extinguishes.			

JPM: CG003

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Condenser Air Removal

TASK: Respond To A Main Condenser Low Vacuum

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• HV-2016B (2020B if SJAE supplied by Aux Steam)	Operator presses the HV-2016B CLOSE pushbutton.			Y N Flagging
		Operator observes the HV-2016B CLOSE light illuminates and the OPEN light extinguishes.			
<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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: CG003

TASK: Respond To A Main Condenser Low Vacuum

TASK NUMBER: 4000580401

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

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

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RESULT:

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

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

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RESULT:

SAT

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UNSAT

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## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. Main Condenser vacuum is degrading due to fluctuations in 3<sup>rd</sup> Stage SJAE flow.
3. Troubleshooting has determined that PIC-1964B, AIR EJECTOR B EXH PRESS, has an electronics problem and failure of the valve is imminent.
4. HC.OP-AB.BOP-0006, Main Condenser Vacuum, is being implemented.
5. Radwaste Operator has been notified.
6. Offgas is in service.

## INITIATING CUE:

Place SJAE A in service on Main Steam accordance with HC.OP-AB.ZZ-0001.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial

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

**ENSURE** B SJAE Train in service.

**INSERT** Override 5M26\_L\_AO to 3.20.

**INSERT** Malfunction MC01 at 12.0%.

**WHEN** Main condenser vacuum alarms, **THEN** MODIFY Malfunction MC01 as necessary to maintain vacuum steady in alarm.

**IMPLEMENT** AB.BOP-0005. Markup procedure to step B.1

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

Initial

Description

**ENSURE** a copy of HC.OP-AB.BOP-0005 is available.

**ENSURE** a copy of HC.OP-AB.ZZ-0001 Attachment 11 is available.

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

## EVENT FILE:

Initial

ET #

Event code: ZLMC1968(1) >=1.0 & MONVAR(31) <=5.8  
Description: Removes malfunction MC01 when SJAE swap complete.

Event code:  
Description:

Event code:  
Description:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction MC01 to 12.00000 on event 1	Low pressure turbine exhaust bellows leak

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert override 5M26_L_AO to 3.20	PIC 1964B AIR EJECTOR B STA MAN PRESSURE (AO)

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** CG003

Rev #	Date	Description	Validation Required?
01	1/3/12	Converted JPM CG003 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. This change is editorial. Validation is required to establish completion times. Validated with 2 ROs on 1/3/12. Avg completion time was 13 minutes.	Y



## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Containment Atmosphere Control

**TASK:** Vent to Control Containment Pressure With Suppression  
Pool Level Less Than 180 inches

**TASK NUMBER:** 2000950501

**JPM NUMBER:** 305H-JPM.GS005

**REV #:** 04


**SAP BET:** NOH05JPGS05E

**ALTERNATE PATH:** ☒

**APPLICABILITY:**

EO ☐ RO ☒ STA ☐ SRO ☒

**DEVELOPED BY:** Archie E. Faulkner **DATE:** 1/14/12  
Instructor

**REVIEWED BY:**  Kretz **DATE:** 1/20/12  
Operations Representative

**APPROVED BY:**  **DATE:** 1/18/12  
Training Department

**STATION:** Hope Creek**JPM NUMBER:** GS005**REV:** 04**SYSTEM:** Containment Atmosphere Control**TASK NUMBER:** 2000950501**TASK:** Vent to Control Containment Pressure With Suppression Pool Level  
Less Than 180 inches**ALTERNATE PATH:** ☒**K/A NUMBER:** 295024 EA1.19**IMPORTANCE FACTOR:** 3.3 3.4**APPLICABILITY:**EO ☐RO ☒STA ☐SRO ☒

RO

SRO

**EVALUATION SETTING/METHOD:** Simulator/Perform**REFERENCES:** HC.OP-EO.ZZ-0318(Q) Rev. 7**TOOLS, EQUIPMENT AND PROCEDURES:** 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'S SIGNATURE:** \_\_\_\_\_**DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Containment Atmosphere Control**TASK:** Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches**TASK NUMBER:** 2000950501**INITIAL CONDITIONS:**

1. The 'B' RHR pump suction was isolated due to a leak.
2. The Plant experienced a large break LOCA.
3. HC.OP-EO.ZZ-0102, Primary Containment Control has been implemented.
4. Drywell pressure is approximately 60 psig and rising AND Suppression Chamber pressure is approximately 59 psig and rising.
5. Suppression Pool Level indicates approximately 83 inches.
6. The Emergency Instrument Air Compressor has been restored IAW HC.OP-EO.ZZ-0319.
7. The Control Room Emergency Filtration System is operating in the Isolate/Recirculation Mode in accordance with HC.OP-SO.GK-0001(Q).
8. FRVS is in operation in accordance with HC.OP-SO.GU-0001(Q).
9. The Emergency Duty Officer/Emergency Response Manager has been informed that containment venting will be performed.
10. Salem Operations has been notified that containment venting will be performed.
11. The Aux. Bldg. EO is standing by at panel 1Y-F404.
12. The Reactor Building is inaccessible and has been evacuated.

**INITIATING CUE:**

Vent the Containment via the Hard Torus Vent IAW HC.OP-EO.ZZ-0318. Notify the CRS when venting has commenced.

JPM: GS005

OPERATOR TRAINING PROGRAM

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

Rev: 04

JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:				
	Operator obtains/locates procedure HC.OP-EO.ZZ-0318.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.				
	Operator determines beginning step of the procedure	Operator determines correct beginning step to be 5.1.1.			

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JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.1	<b>VENT</b> the containment via the Hard Torus Vent as follows: A. <b>ENSURE</b> that all prerequisites have been satisfied in accordance with Section 2.0 of this procedure.	Operator reviews Prerequisites and ensures Prerequisites complete.			
<b>CUE</b>	<b>If excessive time is taken reviewing Prerequisites, inform operator that all are satisfied.</b>				
5.1.1	B. <b>NOTIFY</b> the Emergency Duty Officer that containment venting via the Hard Torus Vent will be performed.	Operator notifies the CRS to notify the EDO that containment venting via the Hard Torus Vent will be performed.			
<b>CUE</b>	<b>Acknowledge the communication to the EDO.</b>				
5.1.1	C. In the Lower Relay Room, Elev 102' at panel 1YF404 (see Attachment 2), <b>INSTALL</b> F22 (6 amp fuse).	Operator directs the field operator to install fuse F22 at panel 1YF404.	* #		

JPM: GS005

## OPERATOR TRAINING PROGRAM

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

Rev: 04

## JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<u>WHEN</u> directed to install 1YF404 fuse F22, <u>THEN TRIGGER</u> ET-3 <u>AND REPORT</u> the fuse is installed.				
5.1.1	D. <u>DEPRESS</u> ISLN OVRD and <u>OPEN</u> GS-HV-4964 SUPP CHMBR TO CPCS DMP.	Operator depresses the ISLN OVRD pushbutton for the HV-4964.	* #		
		Operator observes the amber OVER-RIDDEN indicator illuminates.			
		Operator depresses the HV4964 OPEN PB.	* #		
		Operator observes the red OPEN indicator illuminates and the green CLSD indicator extinguishes.			
5.1.1	E. <u>ANNOUNCE</u> that containment venting will commence at the South end of the Reactor Building via the Hard Torus Vent.	Operator announces containment venting will commence at the South end of the Reactor Building via the Hard Torus Vent over the plant paging system.			

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Rev: 04

JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.1	F. When HV-4964 SUPP CHMBR TO CPCS DMP is full open, then <b>OPEN</b> GS-HV-11541 TORUS VENT ISOLATION VALVE.	Operator observes that the HV4964 OPEN indicator is illuminated. Operator observes that the HV4964 CLSD indicator is extinguished.			
		Operator rotates HV11541 keylock switch to the OPEN position.	*		
		Operator observes the red HV11541 OPEN indicator REMAINS EXTINGUISHED and the green CLOSED indicator REMAINS ILLUMINATED.			
		Operator informs CRS.			
CUE	Repeat back report from Operator and direct Operator to continue to implement the procedure until a vent path is established.	<b>Examiner Note:</b> Based on the Initial Conditions, the Reactor Building is NOT accessible. Manually opening the HV-11541 is not an option.			

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SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.1	G. When drywell pressure can be maintained below 60 psig, then <b>CLOSE</b> GS-HV-11541 TORUS VENT ISOLATION VALVE.	Operator determines drywell pressure is not being maintained below 60 psig, continues on in the procedure.			
5.1.1	H. <b>REPEAT</b> steps 5.1.1.E thru 5.1.1.G as necessary to reduce and maintain drywell pressure below 65 psig.	Operator determines repeating these steps will not establish a vent path.			
5.1.1	I. If actions taken to reduce containment pressure have been unsuccessful, then continue in this procedure.	Operator determined actions taken thus far have not been successful, continues in the procedure.			
5.1.2	<b>VENT</b> the containment via the Suppression Chamber supply and ILRT piping as follows:	Operator determines this path is not available since it requires access to the Reactor Building and the reactor Building is not accessible.			



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Rev: 04

JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	IF the Operator requests the status of the "angled piping downstream of 1-GS-V058", THEN INFORM the Operator the piping has NOT been rotated to align the vent path and the Reactor Building is NOT accessible.				
5.1.3	<b>VENT</b> the containment via the Drywell supply and ILRT piping as follows:	Operator determines this path is not available since it requires access to the Reactor Building and the reactor Building is not accessible.			
5.1.4	<b>VENT</b> the containment via the Suppression Chamber 2" exhaust as follows:	Operator determines the Suppression Chamber 2" exhaust is the next most preferable path.  <b>Examiner Note:</b> 3.1.4 states: The selection of vent paths has been presented in priority order. However, if it can be determined that a particular path is unavailable or undesirable, the section addressing that vent path may be omitted (see Attachment 4).			

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OPERATOR TRAINING PROGRAM

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JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.4	A. <b>ENSURE</b> that all prerequisites have been satisfied in accordance with Section 2.0 of this procedure.	Operator reviews Prerequisites and ensures Prerequisites complete.			
CUE	If excessive time is taken reviewing Prerequisites, inform operator that all are satisfied.				
5.1.4	B. <b>NOTIFY</b> the Emergency Duty Officer that containment venting of the Suppression Chamber to the Reactor Building will be performed.	Operator notifies the CRS to notify the EDO that containment venting of the Suppression Chamber to the Reactor Building will be performed.			
CUE	Acknowledge the communication to the EDO.				
5.1.4	C. <b>DEPRESS</b> ISLN OVRD and OPEN GT-HD-9372A Drwl Purge Vent Exh Dmpr.	Operator presses the DRYWELL PURGE SHUT OFF DMPRS ISLN OVRD pushbutton.	* #		
		Operator observes the pushbutton backlights.			

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SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator presses the DRYWELL PURGE SHUT OFF DMPRS HD9372A OPEN pushbutton.	* #		
		Operator observes the red HD9372A OPEN light illuminates and green CLOSED light extinguishes.			
5.1.4	D. <u>DEPRESS</u> ISLN OVRD and <u>OPEN</u> GS-HV-4964 SUPP CHMBR TO CPCS DMP.	Operator observes the amber OVER- RIDDEN light for the HV-4964 ISLN OVRD is already illuminated.			
		Operator observes red HV4964 OPEN light is already illuminated and green CLSD light is already extinguished.  <b>Examiner Note:</b> It is only critical the HV-4964 is open. It is not critical whether it was left open from step 5.1.1.C, or closed and then re-opened at this step.			
5.1.4	E. <u>ANNOUNCE</u> containment venting of the Suppression Chamber to the Reactor Building.	Operator announces containment venting of the Suppression Chamber to the Reactor Building over the plant page.	* #		

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SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.4	F. When GS-HV-4964 SUPP CHMBR TO CPCS DMP is full open, then <b>DEPRESS</b> ISLN OVRD and <b>OPEN</b> GS-HV-4963 SUPP CHMBR N <sub>2</sub> M/U EXH.	Operator observes red HV4964 OPEN light is illuminated and green CLSD light is extinguished.			
		Operator presses ISLN OVRD for the HV4963.	* #		
		Operator observes the amber OVER-RIDDEN light illuminates.			
		Operator presses the HV4963 OPEN pushbutton.	* #		
		Operator observes the red OPEN light illuminates and green CLSD light extinguishes.			
CUE	WHEN Vent path has been established, <b>TRIGGER ET-6</b> to reduce Drywell Pressure.				

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JOB PERFORMANCE MEASURE

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

SYSTEM: Containment Atmosphere Control

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.4	G. When drywell pressure can be maintained below 60 psig, then <b>CLOSE</b> GS-HV-4963 SUPP CHMBR N <sub>2</sub> M/U EXH and GS-HV-4964 SUPP CHMBR TO CPCS DMP.	Operator informs CRS that drywell venting has commenced and monitors drywell 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 "This JPM is complete".</p> <p><b>STOP TIME:</b></p>				

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: GS005

TASK: Vent to Control Containment Pressure With Suppression Pool Level Less Than 180 inches

TASK NUMBER: 2000950501

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. The 'B' RHR pump suction was isolated due to a leak.
2. The Plant experienced a large break LOCA.
3. HC.OP-EO.ZZ-0102, Primary Containment Control has been implemented.
4. Drywell pressure is approximately 60 psig and rising AND Suppression Chamber pressure is approximately 59 psig and rising.
5. Suppression Pool Level indicates approximately 83 inches.
6. The Emergency Instrument Air Compressor has been restored IAW HC.OP-EO.ZZ-0319.
7. The Control Room Emergency Filtration System is operating in the Isolate/Recirculation Mode in accordance with HC.OP-SO.GK-0001(Q).
8. FRVS is in operation in accordance with HC.OP-SO.GU-0001(Q).
9. The Emergency Duty Officer/Emergency Response Manager has been informed that containment venting will be performed.
10. Salem Operations has been notified that containment venting will be performed.
11. The Aux. Bldg. EO is standing by at panel 1Y-F404.
12. The Reactor Building is inaccessible and has been evacuated.

**INITIATING CUE:**

Vent the Containment via the Hard Torus Vent IAW HC.OP-EO.ZZ-0318. Notify the CRS when venting has commenced.

## JOB PERFORMANCE MEASURE

**I. INITIAL CONDITIONS:**

I.C.	
<i>Initial</i>	
	INITIALIZE the simulator to 100% power, MOL, EPU.
	CLOSE the BC-HV-F004B RHR pump suction valve.
	ISOLATE drywell cooling by closing the inboard and outboard drywell chilled water isolation valves.
	TRIGGER ET-1 and ESTABLISH post large break LOCA conditions with a downcomer break and drywell pressure approximately 60 psig. Malfunctions may be modified as necessary.
	CLOSE the MSIVs and drains.
	IMPLEMENT EOP-101 AND EOP-102 <u>AFTER</u> drywell pressure is raised to approximately 60 psig.
	RESTORE Instrument Air IAW EOP-319.
	PLACE Temporary Air Compressor in service.
	Trend DW pressure using Insight Item MONVAR(19)
	OPEN BCHV-F016A
	OVERRIDE and close BCHV-F017A
	PLACE 'A' RHR pump in drywell spray with the exception of opening the HV-F021A.
	FAIL OPEN an ADS SRV.
	USE Insight Item rhv021(1) (set to ~0.00 to 0.2) to crack open the F021A as necessary to establish drywell pressure at 60 psig and rising slowly.
	Trigger ET-5 to stabilize DW pressure indications at 62 psig.
	USE Insight Item rhv017(1) (set to ~0.00 to 0.1) to crack open the F017A as necessary to establish slowly rising RPV level.
	ENSURE CREF is in service in the ISOLATE/RECIRC Mode IAW SO.GK-0001.
	ENSURE FRVS is in Service IAW SO.GU-0001.

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

<i>Initial</i>	Description
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".



## JOB PERFORMANCE MEASURE

EVENT FILE:			
Initial	ET #		
	2	Event code:	pcpdw >= 16.2 // Drywell Pressure in psia
		Description:	Inserts Feedwater line break and LOCA after drywell preheated
	6	Event code:	ZLHVDPDO(1) >= 1.0 & ZLPCBLO(2) >= 1.0 & ZLPCISVO(2) >= 1.0
		Description:	9372A + 4963 + 4964 Open lights ON // Lowers DW press with vent path established.
		Event code:	
		Description:	

## JOB PERFORMANCE MEASURE

## MALFUNCTION SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction FW32 to 100.00000 on event 2	Feedwater line break inside containment
	None	None	Insert malfunction FW04A after 60 on event 2	Secondary condensate pump AP137 trip
	None	None	Insert malfunction FW04B after 60 on event 2	Secondary condensate pump BP137 trip
	None	None	Insert malfunction FW04C after 60 on event 2	Secondary condensate pump CP137 trip
	None	None	Insert malfunction MS01 after 90 to 4.00000 on event 2	Steam line break in drywell
	None	None	Insert malfunction PC04 on event 4	Downcomer break

## REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote RH23B to TAGGED	RH23 RHR Pump B
	None	None	Insert remote RH20A to RACK_OUT	RH20 HV-F021A RHR CTMT SPRAY
	None	None	Insert remote ET067 to INSTALLED on event 3	ET067 HV-11541 Torus vent
	None	None	Insert remote IA10 to RUN	IA10 Temporary station air compressor
	None	None	Insert remote EP38 to Emergency	EP38 EOP-319, Restoring Instrument Air in an Emergency

## JOB PERFORMANCE MEASURE

## OVERRIDE SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert override 6S151_A_DI to Off	HV-11541 OPEN KEY SW (DI)
	None	None	Insert override 6AR11_B_AO to 28.00000 on event 5	PRESSURE DRYWELL PR-4960A2 WIDE RANGE (AO)
	None	None	Insert override 6AR11_R_AO to 28.00000 on event 5	PRESSURECHAMBER PR-4960A1 WIDE RANGE (AO)
	None	None	Insert override 6AR13_B_AO to 26.00000 on event 5	PRESSURE DRYWELL PR-4960B2 WIDE RANGE (AO)
	None	None	Insert override 6AR13_R_AO to 26.00000 on event 5	PRESSURE CHAMBER PR-4960B1 WIDE RANGE (AO)
	None	None	Insert override 6AR11_B_AO after 1 to 22.00000 in 60 on event 6	PRESSURE DRYWELL PR-4960A2 WIDE RANGE (AO)
	None	None	Insert override 6AR11_R_AO after 1 to 22.00000 in 60 on event 6	PRESSURECHAMBER PR-4960A1 WIDE RANGE (AO)
	None	None	Insert override 6AR13_B_AO after 1 to 22.00000 in 60 on event 6	PRESSURE DRYWELL PR-4960B2 WIDE RANGE (AO)
	None	None	Insert override 6AR13_R_AO after 1 to 22.00000 in 60 on event 6	PRESSURE CHAMBER PR-4960B1 WIDE RANGE (AO)

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: GS005

Rev #	Date	Description	Validation Required?
01	9/4/2008	This revision converts to HC LOR format, documents validation, and generates estimated completion time. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Corrected typo error at step 5.1.4.F Updated Reference procedure revision number. No Operator actions changed. Added Remote functions for Temp Air Compressor and EOP-319	Y
02	5/6/10	This revision updates the turnover sheet to suppression pool level from 80 to 83 inches. No changes to operator actions. No validation required.	N
03	5/9/11	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
04	1/14/12	Added Overrides to freeze DW pressure indications to prevent Simulator aborts. Adds Trigger to delete Overrides when flowpath established. No changes to operator actions. Validated with 2 ROs on 1/4/12. Avg completion time was 15 minutes.	Y

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Control Rod and Drive Mechanism

**TASK:** Respond To An Uncoupled Control rod

**TASK NUMBER:** 4000040401

**JPM NUMBER:** 305H-JPM.BF011

**REV #:** 01

**SAP BET:** NOH05JPBF11E

**ALTERNATE PATH:** ☒

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

SRO ☒

**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 9/14/11

**REVIEWED BY:**   
Operations Representative

**DATE:** 11/8/11

**APPROVED BY:**   
Training Department

**DATE:** 11/4/11

STATION: Hope Creek

JPM NUMBER: BF011

REV: 01

SYSTEM: Control Rod and Drive Mechanism

TASK NUMBER: 4000040401

TASK: Respond To An Uncoupled Control rod

ALTERNATE PATH: ☒

K/A NUMBER: 201003 A2.02

IMPORTANCE FACTOR: 3.7 3.8

APPLICABILITY:

RO SRO

EO ☐RO ☒STA ☐SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.BF-0001 Rev 31

HC.OP-AB.IC-0001 Rev 14

## TOOLS, EQUIPMENT AND PROCEDURES:

OD-7 for IC-2 rod positions. Signed on copy of OP.ST.BF-0001 for rod 38-03 only.

ESTIMATED COMPLETION TIME: 33 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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_

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

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

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

**SYSTEM:** Control Rod and Drive Mechanism

**TASK:** Respond To An Uncoupled Control rod

**TASK NUMBER:** 4000040401

**INITIAL CONDITIONS:**

1. The Plant is operating at 100% power.
2. Maintenance was performed on the position indication circuit of rod 38-03
3. The maintenance is complete.
4. As part of the retest requirements, performance of HC.OP-ST.BF-0001 Control Rod Drive Exercise – Weekly is required for control rod 38-03 only.
5. The “ON DUTY” Reactor Engineer has been notified that control rod 38-03 will be exercised IAW HC.OP-ST.BF-0001.
6. The Reactor Engineer has approved exercising rod 38-03 at 100% power.
7. Stall flows are NOT required.

**INITIATING CUE:**

Exercise control rod 38-03 IAW HC.OP-ST.BF-0001.

JPM: BF011

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Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	<b>ENTER START TIME AFTER</b> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator obtains the correct procedure.	<b>Examiner Cue: PROVIDE the Operator with the mark-up copy of HC.OP-ST.BF-0001.</b>			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	<b><u>IF</u> excessive time is taken reviewing precautions and limitations, <u>THEN</u> INFORM operator that all are satisfied.</b>	N/A			



JPM: BF011

OPERATOR TRAINING PROGRAM

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Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.			
5.1	LOG test start time in the Control Room log(s).	Operator requests the procedure be logged in the Control Room log.			
CUE	<b>The start time for HC.OP-ST.BF-0001 for retest of rod 38-03 only, has been logged in the Control Room log.</b>	<b>Examiner Note:</b> It is not critical to initial the procedure steps.			
5.2	ENSURE all prerequisites of Section 2.0 are satisfied.	Operator ensures that all prerequisites have been satisfied.			
CUE	<b>If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.</b>	N/A			
5.3	ENSURE Attachment 1, Section 1.0 has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.	Operator observes Attachment 1, Section 1.0 has been completed <u>AND</u> Retest is indicated.			

JPM: BF011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4	OBTAIN a computer printout (OD-7) of the current Control Rod positions.	Operator prints OD-7 from PPC computer terminal.			
CUE	<b>Provide copy of OD-7. IF OD-7 printout not available, THEN direct operator to use PPC terminal.</b>	Operator reviews OD-7 for rod 38-03 position.			
5.5	OBSERVE proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods.	Operator reviews the requirement to observe proper response of the Nuclear Instrumentation while withdrawing <u>OR</u> inserting all Control Rods.			
5.6	SELECT a withdrawn Control Rod <u>AND</u> RECORD the initial Control Rod position on Attachment 2.	Operator presses ROD SELECT MODULE 38-03 pushbutton.	* #		Y N Flagging Y N Barriers
		Operator records the initial rod position of 48 on Attachment 2.			
5.7	IF Control Rod is at position 00, RECORD final Control Rod position on Attachment 2. All other blocks are N/A for this rod.				

JPM: BF011

OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.8	OBSERVE approximately 6 gpm total flow through both the insert <u>AND</u> withdraw Stabilizing Valves as indicated on CRID's point B2117.	Operator observes approximately 6 gpm total flow through both the insert <u>AND</u> withdraw Stabilizing Valves as indicated on CRID's point B2117.			
NOTE	The following two steps will exercise the 1-BF-V138, Cooling Water Header Check Valve, as required by T/S 4.0.5.  If a "failed position" is encountered when a single notch insertion is attempted, an alternate position may be selected to insert the rod, provided that guidance is obtained from Reactor Engineering. In this situation the remarks section of Attachment 3 should document the alternate position utilized.	Operator reads NOTE.			
5.9	INSERT the selected Control Rod one notch (or as directed by Reactor Engineering) <u>AND</u> PERFORM the following: [T/S 4.1.3.1.2, T/S 4.1.3.7]	Operator momentarily presses the ROD MOTION CONTROLS INSERT pushbutton.	* #		Y N Flagging Y N Barriers

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.9.1	ENSURE proper operation of the RPIS.	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY, RWM, or CRIDS indicates control rod movement to position 46.			
5.9.2	IF the Control Rod was inserted beyond its intended position, <u>THEN</u> IMMEDIATELY WITHDRAW the Control Rod to its intended position <u>AND</u> CONTACT Reactor Engineering.	<b>Examiner Note:</b> IF the Operator inserts the Control Rod beyond position 46, <u>THEN</u> the Operator IMMEDIATELY withdraws the Control Rod to position 46 <u>AND</u> contacts Reactor Engineering.			
5.9.3	IF the control rod does not insert to the next notch after one attempt, PERFORM the following:	Operator recognizes this step is not applicable and continues at step 5.9.4			
5.9.4	INDICATE the condition of RPIS indication on Attachment 2.	Operator then indicates the RPIS indication is SAT on Attachment 2.			
5.10	IF the position recorded in Step 5.7 is an intermediate position, <u>THEN</u> PERFORM Step 5.10.1, otherwise, GO TO Step 5.10.2 to return the control rod to its original position:	Operator determines the position recorded in Step 5.7 is <u>NOT</u> an intermediate position, continues at step 5.10.2 to return the control rod to its original position.			

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OPERATOR TRAINING PROGRAM

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

Rev: 01

JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	IF drive water pressure was increased to withdraw a control rod from position 46, the same or slightly higher pressure should be used to perform the uncoupling check. [80009340]  Control Rods experiencing coupling problems should be single-notched to 48 (with settle) prior to using continuous withdraw to verify coupling.	Operator reads NOTE and determines the NOTE is not applicable.			
5.10.2	WITHDRAW the control rod to position 48 AND PERFORM the following while giving the selected Control Rod a continuous withdraw signal: [T/S 4.1.3.6, T/S 4.1.3.7]	Operator simultaneously presses AND holds both the WITHDRAW pushbutton AND the CONTINUOUS WITHDRAW pushbutton.	* #		Y N Barriers
	A. OBSERVE the following as indication of the Control Rod being coupled:	N/A			
	1. ROD OVERTRAVEL alarm does NOT annunciate.	Operator observes OHA C6-F3 ROD OVERTRAVEL <u>DOES</u> annunciate.			

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OPERATOR TRAINING PROGRAM

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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator releases both the WITHDRAW pushbutton <u>AND</u> the CONTINUOUS WITHDRAW pushbutton.			
	2. Red Full Out light illuminates on the Full Core Display.	Operator observes the red FULL OUT light on the Full Core Display <u>EXTINGUISHES</u> .			
	3. RPIS indicates the Control Rod is full out (48).	Operator observes RPIS does <u>NOT</u> indicate position 48.			
	4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.	Operator recognizes the expected response of the Nuclear Instrumentation while withdrawing the Control Rod.  <b>Examiner Note:</b> The expected response for a rod from 46 to 48 is negligible.			
	B. INDICATE on Attachment 2 the condition of Coupling Check.	Operator indicates the coupling check is UNSAT on Attachment 2.			

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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	C. PERFORM the following for stall flow:	Based on the Initial Conditions, Operator determines Stall Flow is <u>NOT</u> required. Operator marks the step "N/A".  <b>Examiner Note:</b> Due to the failed coupling check, this step may not be performed until later, or may not be performed at all.			
	D. IF the CRD over travels, THEN IMPLEMENT HC.OP-AB.IC-0001(Q), Control Rod:	Operator informs the CRS of uncoupled control rod and entry condition into HC.OP-AB.IC-0001.			
CUE	Acknowledge the report and DIRECT the Operator to implement Condition D of HC.OP-AB.IC-0001.	N/A			
	HC.OP-AB.IC-0001 Condition D Uncoupled Rod and Movement Permitted by RWM				
D.1	OBTAIN Reactor Engineering guidance to recouple the Control Rod.	Operator requests Reactor Engineering guidance to recouple the Control Rod.			

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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	INFORM the Operator that Reactor Engineer's guidance in NOT available.	N/A			
D.2	IF Reactor Engineering guidance CANNOT be obtained, THEN RECOUPLE the Control Rod as follows:	Operator determines step D.2 is applicable.			
D.2.a	INSERT the CRD no more than 2 notches from the point of discovery.	Operator single notch inserts rod 38-03 to position 46 using INSERT PB. <b>Examiner Note:</b> Due to the rod being at Overtravel, it will take two single notch insertions to insert the rod to 46. The first insertion will settle the rod at 48 and may bring in OHA C6-E3 ROD DRIFT. IF ROD DRIFT alarm comes in, THEN operator will respond using OHA C6-E3 Alarm Response Procedure and determine rod 38-03 caused the alarm.			
D.2.b	Single Notch WITHDRAW the Control Rod to its original position AND VERIFY expected response.	Operator single notch withdraws rod 38-03 to position 48.	* #		Y N Flagging Y N Barriers
		Operator observes correct response of the control rod.			



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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
D.2.c	PERFORM a coupling check on the associated control rod IAW ST.BF-0001.	N/A			
CUE	Provide operator 2 <sup>nd</sup> marked up copy of HC.OP-ST.BF-0001.	N/A			
	HC.OP-ST.BF-0001				
5.10.2	WITHDRAW the control rod to position 48 <u>AND</u> PERFORM the following while giving the selected Control Rod a continuous withdraw signal: [T/S 4.1.3.6, T/S 4.1.3.7]	Operator simultaneously presses <u>AND</u> holds both the WITHDRAW pushbutton <u>AND</u> the CONTINUOUS WITHDRAW pushbutton.	* #		Y N Barriers
	A. OBSERVE the following as indication of the Control Rod being coupled: 1. ROD OVERTRAVEL alarm does NOT annunciate.	Operator observes OHA C6-F3 ROD OVERTRAVEL does <u>NOT</u> annunciate.			
	2. Red Full Out light illuminates on the Full Core Display.	Operator observes the red FULL OUT light on the Full Core Display illuminates.			

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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3. RPIS indicates the Control Rod is full out (48).	Operator observes RPIS indicates the Control Rod is full out (48).			
	4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.	Operator recognizes the expected response of the Nuclear Instrumentation while withdrawing the Control Rod.  <b>Examiner Note:</b> The expected response for a rod at 48 is negligible.			
	B. INDICATE on Attachment 2 the condition of Coupling Check.	Operator indicates the coupling check is SAT on Attachment 2.			

JPM: BF011

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

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JOB PERFORMANCE MEASURE

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

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To An Uncoupled Control rod

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	<b>HC.OP-AB.IC-0001 Condition D</b> <b>Uncoupled Rod and Movement Permitted by RWM</b>				
D.3	RESTRICT all further withdrawals of this rod to Single Notch movement until repairs have been completed.	Operator informs the CRS that all further withdrawals of this rod should be restricted to Single Notch movement until repairs have been completed.			Y N Barriers
<b>CUE</b>	<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.  <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>	N/A			

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: BF011

TASK: Respond To An Uncoupled Control rod

TASK NUMBER: 4000040401

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

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

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RESULT:

SAT

☐

UNSAT

☐

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. The Plant is operating at 100% power.
2. Maintenance was performed on the position indication circuit of rod 38-03
3. The maintenance is complete.
4. As part of the retest requirements, performance of HC.OP-ST.BF-0001 Control Rod Drive Exercise – Weekly is required for control rod 38-03 only.
5. The “ON DUTY” Reactor Engineer has been notified that control rod 38-03 will be exercised IAW HC.OP-ST.BF-0001.
6. The Reactor Engineer has approved exercising rod 38-03 at 100% power.
7. Stall flows are NOT required.

**INITIATING CUE:**

Exercise control rod 38-03 IAW HC.OP-ST.BF-0001.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial	
	<b>INITIALIZE</b> the simulator to IC#2, 100% power, MOL.
	<b>SELECT</b> rod 02-19 on the Rod Select Module.
	<b>ENSURE</b> CRD Drive Water pressure 260 - 270 psid.
	<b>ENSURE</b> associated Schedule file open and running.
	<b>ENSURE</b> associated Events file open.

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

Initial	Description
	<b>ENSURE</b> two copies of HC.OP-ST.BF-0001 are available, marked up for rod 38-03 ONLY, and with Step 5.1 initialed.
	<b>ENSURE</b> OD-7 for IC#2 is available
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

## EVENT FILE:

Initial	ET #	
	1	Event code: <b>lcvposx(6) &gt; 770</b> // Rod 38-03 Overtravel Description: Senses 38-03 withdrawn past 48.
	2	Event code: <b>et_array(1) &gt;= 1.0 &amp; lcvposx(6) &lt; 740</b> Description: Rod 38-03 Overtravel and inserted // Deletes uncoupled rod after it has been inserted more than one notch IAW AB
		Event code: Description:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction CD043803	Control Rod 38-03 uncoupled
	None	None	Insert malfunction CD043803 on event 2 delete in 1	Control Rod 38-03 uncoupled

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
			Insert override 3A81_G_DI to On on event 1	ROD SELECT - ROD DRIFT RESET (DI)

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: BF011

Rev #	Date	Description	Validation Required?
01	9/14/11	<p>This revision converts to HC LOR format, documents validation, and generates estimated completion time.</p> <p>Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted.</p> <p>Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. Rewrote steps for uncoupled rod with no RE guidance. Validated with 2 operators from "C" Shift 9/13/11. Avg completion time 33 minutes.</p>	Y



## JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

TASK NUMBER: 4000110401

JPM NUMBER: 305H-JPM.SB010

REV #: 05

SAP BET: NOH05JPSB10E

ALTERNATE PATH: ☐

APPLICABILITY:

EO ☐

RO ☒

STA ☐

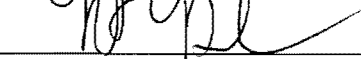
SRO ☒

DEVELOPED BY: Archie E. Faulkner  
Instructor

DATE: 12/30/11

REVIEWED BY:   
Operations Representative

DATE: 1/20/12

APPROVED BY:   
Training Department

DATE: 1/18/12

**STATION:** Hope Creek

**JPM NUMBER:** SB010

**REV:** 05

**SYSTEM:** Reactor Protection System

**TASK NUMBER:** 4000110401

**TASK:** Respond To A Reactor Protection System Malfunction

**ALTERNATE PATH:** ☐

**K/A NUMBER:** 212000 A2.01

**IMPORTANCE FACTOR:** 3.7 3.9

**RO** **SRO**

**APPLICABILITY:**

EO ☐

RO ☒

STA ☐

SRO ☒

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

**REFERENCES:** HC.OP-AB.IC-0003, Rev 04

**TOOLS, EQUIPMENT AND PROCEDURES:** None

**ESTIMATED COMPLETION TIME:** 8 Minutes

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

**JPM PERFORMED BY:** \_\_\_\_\_

**GRADE:** ☐ SAT ☐ UNSAT

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

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

**REASON, IF UNSATISFACTORY:**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_

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

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

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

**SYSTEM:** Reactor Protection System

**TASK:** Respond To A Reactor Protection System Malfunction

**TASK NUMBER:** 4000110401

**INITIAL CONDITIONS:**

1. The plant was operating at 100% power when the 'A' RPS MG set tripped due to a bearing problem.
2. Restoration of the 'A' RPS MG set is not possible at this time.
3. There is no damage to the 'A' RPS bus.

**INITIATING CUE:**

Perform Condition A of HC.OP-AB.IC-0003.

Restoration of isolated equipment is not necessary at this time.

JPM: SB010

Rev: 05

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<b>PROVIDE</b> the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	<b>ENTER START TIME AFTER</b> OPERATOR REPEATS BACK INITIATING CUE: <b>START TIME:</b>	N/A			
	Operator obtains procedure	Operator obtains the correct procedure.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.1.			
A.1	<b>RESTORE</b> Normal Power to the affected Bus. (if possible)	Operator determines restoration of Normal Power to the bus is not possible IAW Initial Conditions provided.			

JPM: SB010

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CAUT 1	1. The RPS MG Set Transfer Switch is a "Break before Make" type switch. Positioning it to the wrong position will result in a full scram.	Operator reviews Caution 1.			
A.2	IF Normal Power cannot be restored: a. <b>VERIFY</b> Alternate Power is available.	Operator verifies Alternate Power is available by observing the ALTERNATE A FEED light on 10C610 is illuminated.			
CUE	If contacted as the NEO to verify Alternate power is available, REPORT Alternate power appears to be available.	N/A			
	b. <b>TRANSFER</b> Power to the Alternate Power Supply by POSITIONING the RPS MG SET TRANSFER SWITCH to the Alternate position. [CD324X]	Operator turns the RPS MG SET TRANSFER SWITCH to the ALT A position.	* #		

JPM: SB010

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.3	<b>RESET</b> the 1/2 Scram as follows: a. <b>TURN</b> the key for the Affected RPS channel(s) to the RESET position. b. <b>TURN</b> the key BACK to NORMAL.	Operator turns the key for the RPS A1 Trip Logic to RESET and back to NORMAL.	* #		
		Operator turns the key for the RPS A2 Trip Logic to RESET and back to NORMAL.	* #		
	c. <b>VERIFY</b> the Scram is reset.	Operator verifies the scram is reset by observing the following: <ul style="list-style-type: none"> <li>• RPS TRIP LOGIC A1 and A2 NORMAL/RESET lights are illuminated</li> <li>• All four PILOT SCRAM VALVE SOLENOID LOGIC A NORMAL lights are illuminated</li> <li>• REACTOR SCRAM TRIP LOGIC A1 and A2 OHAs are no longer illuminated</li> </ul>			

JPM: SB010

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.4	IF the MSIV's are OPEN <u>THEN RESET</u> the tripped NSSSS Logic as follows: a. <b>PRESS</b> the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC A(B,C,D) RESET Pb.	Operator presses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC A pushbutton.	* #		
		Operator presses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC C RESET pushbutton.	* #		
	b. <b>VERIFY</b> MSIV TRIP LOGIC TRIPPED goes off.	Operator verifies the MSIV TRIP LOGIC TRIPPED light for LOGIC A is extinguished.			
		Operator verifies the MSIV TRIP LOGIC TRIPPED light for LOGIC C is extinguished.			

JPM: SB010

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Protection System

TASK: Respond To A Reactor Protection System Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	<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>	N/A			



JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

JPM Number: SB010

TASK: Respond To A Reactor Protection System Malfunction

TASK NUMBER: 4000110401

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

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

RESULT:

SAT

☐

UNSAT

☐

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

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

RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. The plant was operating at 100% power when the 'A' RPS MG set tripped due to a bearing problem.
2. Restoration of the 'A' RPS MG set is not possible at this time.
3. There is no damage to the 'A' RPS bus.

**INITIATING CUE:**

Perform Condition A of HC.OP-AB.IC-0003.

Restoration of isolated equipment is not necessary at this time.

## JOB PERFORMANCE MEASURE

**I. INITIAL CONDITIONS:****I.C.**

<i>Initial</i>	
	<b>INITIALIZE</b> the simulator to 100% power, MOL.
	<b>INSERT</b> malfunction <b>RP02A</b> .
	<u>AFTER</u> RWCU trips and conditions stabilize, <b>ACKNOWLEDGE</b> all overhead and RM11 alarms.
	<b>ENSURE</b> associated Schedule file open and running.
	<b>ENSURE</b> associated Events file open.

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

<i>Initial</i>	Description
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

**EVENT FILE:**

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

## JOB PERFORMANCE MEASURE

## MALFUNCTION SCHEDULE:

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction RP02A	RPS MG Set A failure

## REMOTE SCHEDULE:

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

## OVERRIDE SCHEDULE:

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

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** SB010

Rev #	Date	Description	Validation Required?
04	9/4/2008	This revision converts to HC LOR format, documents validation, and generates estimated completion time. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Updated Reference procedure revision number. No change to operator actions.	Y
05	12/30/11	Revised Initial Conditions from 97% to 100%. Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N

## JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Reactor Auxiliaries Cooling System

**TASK:** Respond To A Reactor Auxiliary Cooling Malfunction

**TASK NUMBER:** 4000230401

**JPM NUMBER:** 305H-JPM.ED002

**REV #:** 05

**SAP BET:** NOH05JPED02E

**ALTERNATE PATH:** ☒

**APPLICABILITY:**

EO

☐

RO

☒

STA

☐

SRO

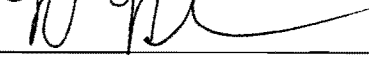
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**DEVELOPED BY:** Archie E. Faulkner  
Instructor

**DATE:** 12/22/11

**REVIEWED BY:**   
Operations Representative

**DATE:** 1/20/12

**APPROVED BY:**   
Training Department

**DATE:** 1/18/12

**STATION:** Hope Creek**JPM NUMBER:** ED002**REV:** 05**SYSTEM:** Reactor Auxiliaries Cooling System**TASK NUMBER:** 4000230401**TASK:** Respond To A Reactor Auxiliary Cooling Malfunction**ALTERNATE PATH:** ☒**K/A NUMBER:** 295018 AA2.02**IMPORTANCE FACTOR:** 3.3 3.4**APPLICABILITY:****RO** **SRO****EO** ☐**RO** ☒**STA** ☐**SRO** ☒**EVALUATION SETTING/METHOD:** Simulator/Perform**REFERENCES:** HC.OP-SO.ED-0001 Rev 23

HC.OP-AR.ZZ-0002 Rev 21

HC.OP-AB.COOL-0003 Rev 4

**TOOLS, EQUIPMENT AND PROCEDURES:** 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'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Reactor Auxiliaries Cooling System**TASK:** Respond To A Reactor Auxiliary Cooling Malfunction**TASK NUMBER:** 4000230401**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:**

You are the Plant Operator.

Place the BP209 RACS pump in service and secure the AP209 RACS pump.



JPM: ED002

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.ED-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.			

JPM: ED002

Rev: 05

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.1	<b>ENSURE</b> all prerequisites have been satisfied IAW Section 2.3. Reactor Auxiliaries Cooling Water System is in service.	Operator ensures that all prerequisites have been satisfied. Operator then initials the appropriate procedure step.			
<b>CUE</b>	<b>If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.</b>	N/A			
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 HV2537A OPEN light is illuminated and green CLOSE light is extinguished</li> <li>HX BE217 INLET red HV2537B OPEN light is illuminated and green CLOSE light is extinguished.</li> </ul>			

JPM: ED002

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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.			
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 red CLOSED light is illuminated and green TRIPPED light is extinguished.			
5.3.5	<u>IF</u> returning a pump to service that has been isolated and drained, <b>PERFORM</b> the following steps as necessary to correct/prevent air binding, otherwise, <b>PROCEED</b> 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.			

JPM: ED002

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.6	<b>PRESS</b> REACTOR AUXILIARIES COOLING PUMP A(B)(C) START PB (10C651A). START comes on.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP B BP209 START pushbutton.	* #		
	<b>OBSERVE</b> AI-6460 (AI-6461) REACTOR AUXILIARIES COOLING PUMP A(B)(C) MOT AMPS settles at < 180 amps <u>AND</u> is approximately the same as the other I/S RACS pumps' motor amps.	Operator observes: <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>			
5.3.7	<b>PRESS</b> REACTOR AUXILIARIES COOLING PUMP B(A)(C) STOP PB. STOP comes on.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A STOP pushbutton.	* #		
		Operator observes the green STOP light illuminates and the red AP209 START light extinguishes.			

JPM: ED002

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
N/A	Operations Fundamental: Control Board Awareness	5 seconds after the 'A' RACS pump has been secured, the Operator observes the following: <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>			
N/A	HC.OP-AR.ZZ-0002	N/A			
ATT E2	<b><u>OPERATOR ACTION:</u></b> 1. <b>REFER</b> to HC.OP-AB.COOL-0003(Q); Reactor Auxiliary Cooling System. 2. <b>ENSURE</b> compliance with Technical Specifications 3.6.3 – Containment Isolation Valves. 3. <b>ENSURE</b> compliance with Technical Specifications 3.6.5 – Secondary Containment Integrity.	Operator refers to HC.OP-AB.COOL-0003.			

JPM: ED002

Rev: 05

SYSTEM: Reactor Auxiliaries Cooling System

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	Direct the Operator to perform Condition 'A' of HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling System.	N/A			
N/A	HC.OP-AB.COOL-0003	N/A			
COND A	Date/Time	Operator enters the current Date/Time in the spaces provided.			
A.1	PRESS the START P.B. for any available RACS pump in standby.	Operator presses the REACTOR AUXILIARIES COOLING PUMPS PUMP A AP209 START pushbutton.			
		Operator 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.</li> </ul>			

JPM: ED002

Rev: 05

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	Respond to any reports of the 'A' RACS pump failure to start by directing the operator to continue implementing Condition 'A' of HC.OP-AB.COOL-0003.	N/A			
A.2	<p>IF a second RACS Pump <u>CANNOT</u> 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>IF the Common Off-Gas Train is in service, <u>THEN CLOSE</u> HV-2577.</li> <li>IF Unit 1 Off-Gas Train is in service, <u>THEN CLOSE</u> HV-7712A1.</li> </ul>	Operator observes the OFFGAS RECOMB TRAIN SELECT:			
		Operator presses the OFF GAS CLR CNDS COOLING 10E306 UNIT 1 green CLOSE pushbutton.	*		
		Operator observes the green CLOSE light illuminates and red HV2577 OPEN light extinguishes.			

JPM: ED002

OPERATOR TRAINING PROGRAM

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

Rev: 05

JOB PERFORMANCE MEASURE

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

SYSTEM: Reactor Auxiliaries Cooling System

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	<p>If the Operator Closes HV2577 the JPM may be terminated. If the operator closes the HV7712A1, allow 1 minute to recognize the mistake and then terminate the JPM.</p> <p>Leaving the HV7712A1 closed and/or causing an isolation of the Common Offgas Train is failure criteria.</p>	N/A			
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>	N/A			



JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: ED002

TASK: Respond To A Reactor Auxiliary Cooling Malfunction

TASK NUMBER: 4000230401

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

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

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RESULT:

SAT

☐

UNSAT

☐

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

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

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RESULT:

SAT

☐

UNSAT

☐

## 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:**

You are the Plant Operator.

Place the BP209 RACS pump in service and secure the AP209 RACS pump.

# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

<i>Initial</i>	
	<b>INITIALIZE</b> the simulator to any IC with the Main Generator loaded.
	<b>ENSURE</b> the 'A' & 'C' RACS pumps are in service and the 'B' RACS pump is in STBY.
	<b>ENSURE</b> the Common Offgas Train is in service and HV-2577 is open.
	<b>ENSURE</b> associated Schedule file open and running.
	<b>ENSURE</b> associated Events file open.

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

<i>Initial</i>	Description
	<b>ENSURE</b> simulator is reset.

### EVENT FILE:

<i>Initial</i>	ET #	
	1	Event code: <b>cwnra209 &lt;= 0.5</b> // AP209 RACS pump normalized pump speed Description: Trips BP209 RACS pump after the AP209 RACS pump is stopped
		Event code: Description:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SCHEDULE:**

<b>Initial</b>	<b>@Time</b>	<b>Event</b>	<b>Action</b>	<b>Description</b>
	None	None	Insert malfunction CW08B after 5 on event 1	RACS pump BP209 trip

**REMOTE SCHEDULE:**

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

**OVERRIDE SCHEDULE:**

<b>Initial</b>	<b>@Time</b>	<b>Event</b>	<b>Action</b>	<b>Description</b>
	None	None	Insert override 5A33_E_DI to Off	AP209 START-REACTOR AUXILIARIES COOLING PUMP-PUMP

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val
	<b>CW08B</b> Trip of BP209 RACS pump.	5 sec	---	ET-1	---	---

**REMOTE/FIELD FUNCTION SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val

**I/O OVERRIDE SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val
	<b>5A33 E DI</b> AP209 RACS pump start pushbutton.	---	---	NONE	---	OFF

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: ED002

Rev #	Date	Description	Validation Required?
01	7/23/07	Originally developed for ILOT NRC exam in 2005. This revision converts to HC LOR format, documents validation, and generates estimated completion time.	Y
02	8/26/08	Updated reference procedure revisions. Corrected previous typo error in procedure step A.2. No change in operator actions from previous revision. No validation required.	N
03	9/9/09	Updated reference procedure revisions. No change in operator actions from previous revision. No validation required.	N
04	9/12/11	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
03	12/30/11	Updated reference procedure revisions. No change in operator actions from previous revision. No validation required.	N

## 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:**

You are the Plant Operator.

Place the BP209 RACS pump in service and secure the AP209 RACS pump.

# JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Main Steam

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

TASK NUMBER: 2000010501/200059054

JPM NUMBER: 305H-JPM.AB001

REV #: 07

SAP BET: NOH05JPAB01E

ALTERNATE PATH: ☐

APPLICABILITY:

EO

☐

RO

☒

STA

☐

SRO

☒

DEVELOPED BY: Archie E. Faulkner

Instructor

DATE: 9/4/08

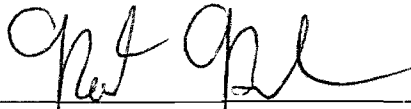
REVIEWED BY:



Operations Representative

DATE: 9-12-08

APPROVED BY:



Training Department

DATE: 9/16/08



STATION: Hope Creek

JPM NUMBER: AB001

REV: 07

SYSTEM: Main Steam

TASK NUMBER: 2000010501/200059054

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

ALTERNATE PATH: ☐

K/A NUMBER: 239001 A2.03

IMPORTANCE FACTOR: 4.0 4.2

APPLICABILITY:

RO

SRO

EO ☐RO ☒STA ☐SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-EO.ZZ-0301, Rev. 6

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 9 Minutes

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

JPM PERFORMED BY: \_\_\_\_\_

GRADE: ☐ SAT ☐ UNSAT

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

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

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

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

**SYSTEM:** Main Steam**TASK:** Install Jumpers To Bypass MSIV Low Level Isolation Interlock**TASK NUMBER:** 2000010501/200059054**INITIAL CONDITIONS:**

1. The Reactor is at 32% power following a full core ATWS.
2. The Main Turbine is tripped.
3. The MSIVs are open.
4. The Main Condenser is available.
5. HC.OP-EO.ZZ-0101A, ATWS - RPV Control, is being executed.
6. HC.OP-EO.ZZ-0311, Bypassing Primary Containment Instrument Gas Interlocks, and HC.OP-EO.ZZ-0319, Restoring Instrument Air in an Emergency, have been completed.
7. There is no indication of fuel cladding failure or main steam line break.

**INITIATING CUE:**

Bypass the MSIV Low RPV Water Level Isolation Interlock IAW HC.OP-EO.ZZ-0301.

JPM: AB001

OPERATOR TRAINING PROGRAM

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

Rev: 07

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:				
	Operator obtains and locates procedure HC.OP-EO.ZZ-0301.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.				

JPM: AB001

OPERATOR TRAINING PROGRAM

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

Rev: 07

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	<u>EQUIPMENT REQUIRED</u>	Operator obtains the following required equipment:	*		
4.1	EOP-301 Implementation Kit (OS Office EOP Drawer) Contents: 4 Banana Plug Jumpers 1 Flashlight	EOP-301 Implementation Kit from NSS Office EOP drawer OR Key #9 from OS Office or key from break glass key holder in OSC for OSC EOP locker			
4.2	<u>OR</u> Key #9 for EOP Locker in OSC (obtain from OS office or break red key holder glass in OSC) <u>AND</u> EOP-301 Implementation Kit (EOP Locker in OSC). Contents: 4 Banana Plug Jumpers 1 Flashlight	<u>AND</u> EOP-301 Implementation kit from the EOP Locker in OSC.  <b>Examiner Note: After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.</b>			
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be 5.2.			
5.2.1	<u>ENSURE</u> that all prerequisites have been satisfied IAW Section 2.0 of this procedure.	Operator ensures that all prerequisites have been satisfied.			
CUE	<b>If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.</b>				

JPM: AB001

OPERATOR TRAINING PROGRAM

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

Rev: 07

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.2.2	At panel 10C609 Div. 1 (front) <b>INSTALL</b> a jumper in the red and black jacks labeled: <b>B21H-K212A T1-M1 OP-EO.ZZ-301</b> (fourth column, first row)	Operator installs jumper between the red and black jacks labeled B21H-K212A T1-M1 HC.OP-EO.ZZ-0301 (10C609)	*		
CUE	The jumper has been installed as you have indicated.				
5.2.3	At panel 10C609 Div 3 (front) <b>INSTALL</b> a jumper in the red and black jacks labeled: <b>B21H-K212C T1-M1 OP-EO.ZZ-301</b> (fourth column, first row)	Operator installs jumper between the red and black jacks labeled B21H-K212C T1-M1 HC.OP-EO.ZZ-0301 (10C609)	*		
CUE	The jumper has been installed as you have indicated.				
5.2.4	At panel 10C611 Div. 2 (front) <b>INSTALL</b> a jumper in the red and black jacks labeled: <b>B21H-K212B T1-M1 OP-EO.ZZ-301</b> (fourth column, first row)	Operator installs jumper between the red and black jacks labeled B21H-K212B T1-M1 HC.OP-EO.ZZ-0301 (10C611).	*		
CUE	The jumper has been installed as you have indicated.				

JPM: AB001

OPERATOR TRAINING PROGRAM

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

Rev: 07

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.2.5	At panel 10C611 Div. 4 (front) <b>INSTALL</b> a jumper in the red and black jacks labeled: <b>B21H-K212D T1-M1 OP-EO.ZZ-301</b> (fourth column, first row)	Operator installs jumper between the red and black jacks labeled B21H-K212D T1-M1 HC.OP-EO.ZZ-0301 (10C611).	*		
CUE	The jumper has been installed as you have indicated.				
CUE	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> <b>RECORD</b> the STOP time.  <b>REPEAT BACK</b> any message from the operator on the status of the JPM, and then state "This JPM is complete".  <b>STOP TIME:</b>				

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: AB001

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

TASK NUMBER: 2000010501/200059054

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

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

RESULT:

SAT

☐

UNSAT

☐

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

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

RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The Reactor is at 32% power following a full core ATWS.
2. The Main Turbine is tripped.
3. The MSIVs are open.
4. The Main Condenser is available.
5. HC.OP-EO.ZZ-0101A, ATWS - RPV Control, is being executed.
6. HC.OP-EO.ZZ-0311, Bypassing Primary Containment Instrument Gas Interlocks, and HC.OP-EO.ZZ-0319, Restoring Instrument Air in an Emergency, have been completed.
7. There is no indication of fuel cladding failure or main steam line break.

## INITIATING CUE:

Bypass the MSIV Low RPV Water Level Isolation Interlock IAW HC.OP-EO.ZZ-0301.



# JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

## I. INITIAL CONDITIONS:

### I.C.

Initial	
	<b>INITIALIZE</b> the simulator to 97 power, MOL.
	<b>Lock</b> the reactor Mode Switch in Shutdown
	Take actions of HC.OP-AB.ZZ-0001 Attachment 1
	<b>Initiate</b> SLC.
	<b>Trip</b> the Main Turbine.
	<b>Ensure</b> the MSIVs are open.
	<b>Ensure</b> the Main Condenser is available.
	<b>Place</b> the simulator into Freeze.

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

Initial	Description
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".

## EVENT TRIGGERS:

Initial	ET #	Description
	1	EVENT ACTION: COMMAND: PURPOSE:
	2	EVENT ACTION: COMMAND: PURPOSE:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

**MALFUNCTION SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val
	<b>RP06</b> Half Core ATWS – Left Side	---	---	None	---	---
	<b>RP07</b> Half Core ATWS – Right Side	---	---	None	---	---
	<b>EG11</b> Main Generator Trip	---	---	ET-1	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

**REMOTE/FIELD FUNCTION SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val
	EP02 EOP-311 Bypass PCIG (-129") isolation	---	---	None	---	BYPASS
	EP05 EOP-319 LOCA Level 2 interlock	---	---	None	---	EMERG

**I/O OVERRIDE SUMMARY:**

<i>Initial</i>	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: AB001

Rev #	Date	Description	Validation Required?
07	9/4/2008	<p>This revision converts to HC LOR format, documents validation, and generates estimated completion time.</p> <p>Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted.</p> <p>Revised power level from 48% to 32% based on IC and current core model.</p> <p>Added Remote functions for EOP 311 and 319 implementation.</p> <p>Updated Reference procedure revision number. No change to operator actions.</p>	Y

## JOB PERFORMANCE MEASURE

## VALIDATION CHECKLIST

JPM NUMBER: AB001

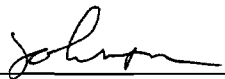
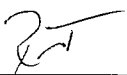
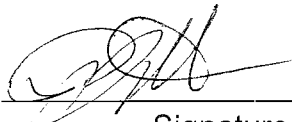
REV#: 07

TASK: Install Jumpers To Bypass MSIV Low Level Isolation Interlock

- Q57 1. Task description and number, JPM description and number are identified.
- Q57 2. Knowledge and Abilities (K/A) references are included.
- Q57 3. Performance location specified (in-plant, control room, or simulator).
- Q57 4. Initial setup conditions are identified.
- Q57 5. Initiating and terminating cues are properly identified.
- Q57 6. Task standards identified and verified by SME review.
- Q57 7. Critical steps meet the specified criteria and are identified with an asterisk (\*).
- Q57 8. Verify the JPM steps match the most current revision of the procedure.
- Q57 9. Pilot test the JPM:
- Q57 a. verify cues both verbal and visual are free of conflict
- Q57 b. ensure performance time is accurate

## VALIDATED BY:

Qualification Level Required: RO

<u>Ed Johnson</u>	<u>RO</u>	<u></u>	<u>9-11-08</u>
Name	Qual	Signature	Date
<u> HANNA</u>	<u>RO</u>	<u></u>	<u>9/12/08</u>
Name	Qual	Signature	Date

# JOB PERFORMANCE MEASURE

**STATION:** Hope Creek

**SYSTEM:** Safety Auxiliaries Cooling Water

**TASK:** Respond To A SACS Malfunction

**TASK NUMBER:** 400780401

**JPM NUMBER:** 305H-JPM.EG003

**REV #:** 17

**SAP BET:** NOH05JPEG03E

**ALTERNATE PATH:** ☐

**APPLICABILITY:**

EO ☐

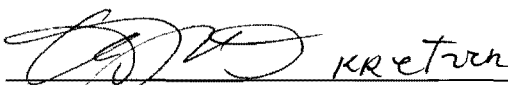
RO ☒

STA ☐

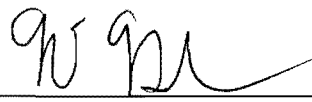
SRO ☒

**DEVELOPED BY:** Archie E. Faulkner  
**Instructor**

**DATE:** 12/30/11

**REVIEWED BY:**  Kretzer  
**Operations Representative**

**DATE:** 1/24/12

**APPROVED BY:**   
**Training Department**

**DATE:** 1/18/12

**STATION:** Hope Creek**JPM NUMBER:** EG003**REV:** 17**SYSTEM:** Safety Auxiliaries Cooling Water**TASK NUMBER:** 400780401**TASK:** Respond To A SACS Malfunction**ALTERNATE PATH:** ☐**K/A NUMBER:** 400000 A2.01**IMPORTANCE FACTOR:**

3.3	3.4
RO	SRO

**APPLICABILITY:**EO ☐ RO ☒ STA ☐ SRO ☒**EVALUATION SETTING/METHOD:** Reactor Building/Simulate**REFERENCES:** HC.OP-SO.EG-0001, Rev 45  
HC.OP-AB.COOL-0002, Rev 7**TOOLS, EQUIPMENT AND PROCEDURES:** Annotated copy of HC.OP-SO.EG-0001, valve locking devices.**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'S SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

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

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

**SYSTEM:** Safety Auxiliaries Cooling Water**TASK:** Respond To A SACS Malfunction**TASK NUMBER:** 400780401**INITIAL CONDITIONS:**

1. SACS Loop B has been declared inoperable.
2. HC.OP-AB.COOL-0002, Safety/Turbine Auxiliaries Cooling System, is being implemented.
3. Components are being realigned IAW Section 5.12 of HC.OP-SO.EG-0001.
4. The 'D' EDG Coolers AND Room Coolers have been cross tied to the 'A' SACS loop IAW HC.OP-SO.EG-0001 Attachment 3 Part A.

**INITIATING CUE:**

Cross Tie the 'D' FRVS Recirculation Unit to the 'A' SACS Loop in the sequence presented in HC.OP-SO.EG-0001 Attachment 3 Part B.  
WCM update and tagging will be performed by another operator.

JPM: EG003

OPERATOR TRAINING PROGRAM

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

Rev: 17

JOB PERFORMANCE MEASURE

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

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A SACS Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE:  START TIME:	N/A			
	Operator obtains/locates procedure HC.OP-SO.EG-0001.	Operator locates the proper procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	If excessive time is taken reviewing Precautions and Limitations, inform operator that all are satisfied.	<b>Examiner Note:</b> The sequence critical portion of the following steps is to close the 1-EG-V689 <u>AND</u> 1-EG-V692 <u>BEFORE</u> opening the 1-EG-V703 <u>OR</u> 1-EG-V702.			
ATT.3 10	FRVS CLG COIL DVH-213 LP B SUP 1-EG-V689 LOCKED CLOSED	Operator unlocks 1-EG-V689.  <b>Examiner Note:</b> Support operator's requests for Verifier.			



JPM: EG003

OPERATOR TRAINING PROGRAM

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

Rev: 17

JOB PERFORMANCE MEASURE

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

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A SACS Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	The lock has been removed from the valve indicated.	N/A			
		Operator closes 1-EG-V689.	*		
CUE	The valve indicated has been rotated in the direction stated and has come to hard stop.	N/A			
		Operator reinstalls a locking device on valve 1-EG-V689.			
CUE	The lock is installed on the valve indicated.	N/A			
ATT.3 11	FRVS CLG COIL DVH-213 LP B RTN 1-EG-V692 LOCKED CLOSED	Operator unlocks 1-EG-V692. <b>Examiner Note:</b> Support operator's requests for Verifier.			
CUE	The lock has been removed from the valve indicated.	N/A			

JPM: EG003

OPERATOR TRAINING PROGRAM

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

Rev: 17

JOB PERFORMANCE MEASURE

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

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A SACS Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator closes 1-EG-V692.	* #		
CUE	The valve indicated has been rotated in the direction stated and has come to hard stop.	N/A			
		Operator reinstalls a locking device on valve 1-EG-V692.			
CUE	The lock is installed on the valve indicated.	N/A			
ATT.3 12	FRVS CLG COIL DVH-213 LP A SUP 1-EG-V703 LOCKED OPEN	Operator unlocks 1-EG-V703. <b>Examiner Note:</b> Support operator's requests for Verifier.			
CUE	The lock has been removed from the valve indicated.	N/A			
		Operator opens 1-EG-V703.	* #		

JPM: EG003

OPERATOR TRAINING PROGRAM

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

Rev: 17

JOB PERFORMANCE MEASURE

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

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A SACS Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	The valve indicated has been rotated in the direction stated and has come to hard stop.	N/A			
		Operator reinstalls a locking device on valve 1-EG-V703.			
CUE	The lock is installed on the valve indicated.	N/A			
ATT.3 13	FRVS CLG COIL DVH-213 LP A RET 1-EG-V702 LOCKED OPEN	Operator unlocks 1-EG-V702. <b>Examiner Note:</b> Support operator's requests for Verifier.			
CUE	The lock has been removed from the valve indicated.	N/A			
		Operator opens 1-EG-V702.	* #		
CUE	The valve indicated has been rotated in the direction stated and has come to hard stop.	N/A			

JPM: EG003

OPERATOR TRAINING PROGRAM

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

Rev: 17

JOB PERFORMANCE MEASURE

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

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A SACS Malfunction

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator reinstalls a locking device on valve 1-EG-V702.			
CUE	The lock is installed on the valve indicated.	N/A			
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>				

JOB PERFORMANCE MEASURE  
OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: EG003

TASK: Respond To A SACS Malfunction

TASK NUMBER: 400780401

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. SACS Loop B has been declared inoperable.
2. HC.OP-AB.COOL-0002, Safety/Turbine Auxiliaries Cooling System, is being implemented.
3. Components are being realigned IAW Section 5.12 of HC.OP-SO.EG-0001.
4. The 'D' EDG Coolers AND Room Coolers have been cross tied to the 'A' SACS loop IAW HC.OP-SO.EG-0001 Attachment 3 Part A.

**INITIATING CUE:**

Cross Tie the 'D' FRVS Recirculation Unit to the 'A' SACS Loop in the sequence presented in HC.OP-SO.EG-0001 Attachment 3 Part B.

WCM update and tagging will be performed by another operator.

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** EG003

<b>Rev #</b>	<b>Date</b>	<b>Description</b>	<b>Validation Required?</b>
13	8/28/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y
14	12/1/2008	Updated Procedure revision numbers. No effect on JPM.	N
15	9/9/09	Updated Procedure revision numbers. No change to operator actions. No validation required.	N
16	4/27/10	Updated Procedure revision numbers. No change to operator actions. No validation required.	N
17	5/9/11	Updated Procedure revision numbers. No change to operator actions. No validation required.	N

# JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Main Steam

TASK: Respond to a Failed Open Safety Relief Valve

TASK NUMBER: 4000210401

JPM NUMBER: 305H-JPM.AB003

REV #: 02

SAP BET: NOH05JPAB03E

ALTERNATE PATH: ☐

APPLICABILITY:

EO ☐

RO ☒

STA ☐

SRO ☒

DEVELOPED BY: Archie E. Faulkner  
Instructor

DATE: 5/7/2009

REVIEWED BY:   
Operations Representative

DATE: 11/23/09

APPROVED BY:   
Training Department

DATE: 11/17/09



STATION: Hope Creek

JPM NUMBER: AB00302

REV: 02

SYSTEM: Main Steam

TASK NUMBER: 4000210401

TASK: Respond to a Failed Open Safety Relief Valve

ALTERNATE PATH: ☐

K/A NUMBER: 239002 A2.03

IMPORTANCE FACTOR:	4.1	4.2
	RO	SRO

APPLICABILITY:

EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Plant/Simulate

REFERENCES: HC.OP-AB.RPV-0006 Rev. 3

TOOLS, EQUIPMENT AND PROCEDURES: HC.OP-AB.RPV-0006

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: \_\_\_\_\_

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

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

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

**SYSTEM:** Main Steam**TASK:** Respond to a Failed Open Safety Relief Valve**TASK NUMBER:** 4000210401**INITIAL CONDITIONS:**

1. The Reactor is shutdown due to the "D" SRV being electrically held open with both Logic Train B and D solenoids.
2. HC.OP-AB.RPV-0006 Safety Relief Valve, is being executed.
3. Attempts to close the SRV from the Main Control Room have been unsuccessful.

**INITIATING CUE:**

Use the fuse pullers provided (simulated) to pull the fuses for the "D" SRV IAW HC.OP-AB.RPV-0006.

JPM: AB00302

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Respond to a Failed Open Safety Relief Valve

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue:  START TIME:	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.RPV-0006			
	Operator reviews Immediate Operator Actions, Retainment Overrides, applicable Cautions and Notes.	Operator reviews Immediate Operator Actions, Retainment Overrides, applicable Cautions and Notes.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.3			
A.3	IF the SRV solenoid cannot be de-energized from the Control Room, THEN REMOVE SRV fuses associated with the energized logic IAW Attachment 2.	Operator determines this step applies and reviews Attachment 2.			
		EXAMINER NOTE: The sequence for pulling the fuses is <b>not</b> critical.  Placing the fuses in a storage bag is <b>not</b> critical.			

JPM: AB00302

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Respond to a Failed Open Safety Relief Valve

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
Att 2 Logic B	At panel <b>10C628 (ADS DIV 2)</b> the operator pulls fuse B21C F3D F9.	Operator simulates pulling fuse B21C F3D F9 at panel 10C628 (ADS DIV 2).	*		Y N STAR
CUE	The fuse that you have indicated is pulled.	N/A			
Att 2 Logic B	At panel <b>10C628 (ADS DIV 2)</b> the operator pulls fuse B21C F4D F10.	Operator simulates pulling fuse B21C F4D F10 at panel 10C628 (ADS DIV 2).	*		Y N STAR
CUE	The fuse that you have indicated is pulled.	N/A			
Att 2 Logic D	At panel <b>10C631 (ADS DIV 4)</b> the operator pulls fuse B21C F7D F9.	Operator simulates pulling fuse B21C F7D F9 at panel 10C631 (ADS DIV 4).	*		Y N STAR
CUE	The fuse that you have indicated is pulled.	N/A			
Att 2 Logic D	At panel <b>10C631 (ADS DIV 4)</b> the operator pulls fuse B21C F8D F10.	Operator simulates pulling fuse B21C F8D F10 at panel 10C631 (ADS DIV 4).	*		Y N STAR
CUE	The fuse that you have indicated is pulled.	N/A			

JPM: AB00302

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: Main Steam

TASK: Respond to a Failed Open Safety Relief Valve

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
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>	N/A			

OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: AB00302

TASK: Respond to a Failed Open Safety Relief Valve

TASK NUMBER: 4000210401

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

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

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RESULT:

SAT

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UNSAT

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

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

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RESULT:

SAT

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UNSAT

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JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

JPM NUMBER: AB00302

REV#: 02

**I. INITIAL CONDITIONS:**

I.C.

<i>Initial</i>	

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

<i>Initial</i>	Description
	<b>ENSURE</b> a copy of HC.OP-AB.RPV-0006 is available.

**EVENT TRIGGERS:**

<i>Initial</i>	ET #	Description
	1	EVENT ACTION: COMMAND: PURPOSE:

JOB PERFORMANCE MEASURE  
SIMULATOR SETUP INSTRUCTIONS  
(OPTIONAL)

JPM NUMBER: AB00302

REV#: 02

## MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---

## REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---

## I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---
		---	---	NONE	---	---



## JOB PERFORMANCE MEASURE

## REVISION HISTORY

JPM NUMBER: AB00302

Rev #	Date	Description	Validation Required?
02	5/7/09	Updated to new JPM Template. Revised to add both SRV D solenoids. Validated with operators from A Shift. Avg time 13 minutes.	Y

## JOB PERFORMANCE MEASURE

## INITIAL CONDITIONS:

1. The Reactor is shutdown due to the "D" SRV being electrically held open with both Logic Train B and D solenoids.
2. HC.OP-AB.RPV-0006 Safety Relief Valve, is being executed.
3. Attempts to close the SRV from the Main Control Room have been unsuccessful.

Trainee Copy

## INITIATING CUE:

Use the fuse pullers provided (simulated) to pull the fuses for the "D" SRV IAW HC.OP-AB.RPV-0006.

# JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

TASK NUMBER: 4000020404

JPM NUMBER: 305H-JPM.PK001

REV #: 02

SAP BET: NOH05JPPK01E

ALTERNATE PATH: ☐

APPLICABILITY:

EO ☒

RO ☒

STA ☐

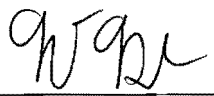
SRO ☒

DEVELOPED BY: Archie E. Faulkner  
Instructor

DATE: 1/14/12

REVIEWED BY:  Kretzen  
Operations Representative

DATE: 1/20/12

APPROVED BY:   
Training Department

DATE: 1/18/12

**STATION:** Hope Creek

**JPM NUMBER:** PK001

**REV:** 02

**SYSTEM:** DC Electrical Distribution

**TASK NUMBER:** 4000020404

**TASK:** Respond To A Station Blackout

**ALTERNATE PATH:** ☐

**K/A NUMBER:** 295003.AA1.04

**IMPORTANCE FACTOR:** 3.6 3.7

**APPLICABILITY:**

**RO** **SRO**

EO ☒

RO ☒

STA ☐

SRO ☒

**EVALUATION SETTING/METHOD:** Plant/Perform

**REFERENCES:** HC.OP-AB.ZZ-0135 Rev 35

**TOOLS, EQUIPMENT AND PROCEDURES:** HC.OP-AB.ZZ-0135

**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 JPM UNSATISFACTORY:**

**EVALUATOR'S SIGNATURE:** \_\_\_\_\_

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

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

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

**SYSTEM:** DC Electrical Distribution**TASK:** Respond To A Station Blackout**TASK NUMBER:** 4000020404**INITIAL CONDITIONS:**

1. The plant is in OPGON 3.
2. A loss of all offsite and onsite AC power occurred 15 minutes ago.
3. HC.OP-AB.ZZ-0135, STATION BLACKOUT //LOSS OF OFFSITE POWER//DIESEL GENERATOR MALFUNCTION has been completed through step 4.5.4.

**INITIATING CUE:****IMPLEMENT** Attachment 3, Radwaste Building Actions of HC.OP-AB.ZZ-0135(Q).

JPM: PK001

Rev: 02

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue: <b>START TIME:</b>	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.ZZ-0135(Q).			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 4.5.5.			
		Operator locates Attachment 3.			

JPM: PK001

Rev: 02

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
Attach 3 Step 1.	<b>OPEN</b> the circuit breakers in the following tables when plant has entered an SBO.  <b>CLOSE</b> the circuit breakers in the following tables when restoring offsite power.  All are ARC Flash Category 0.	<b>Examiner Note:</b> A map showing panel locations is provided on the bottom of Attachment 3.			
	<b>1BD318</b>	Operator locates panel 1BD318 in Room 3449.			
	○ Circuit 12	Operator simulates opening breaker 12 on BD318.	*		
<b>CUE</b>	<b>The breaker you have indicated is open.</b>	N/A			
	○ Circuit 19	Operator simulates opening breaker 19 on BD318.	*		

JPM: PK001

## OPERATOR TRAINING PROGRAM

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

Rev: 02

## JOB PERFORMANCE MEASURE

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

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	The breaker you have indicated is open.	N/A			
	o Circuit 24	Operator simulates opening breaker 24 on BD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	o Circuit 27	Operator simulates opening breaker 27 on BD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	1AD318	Operator locates panel 1AD318 in Room 3449.			
	o Circuit 12	Operator simulates opening breaker 12 on AD318.	*		



JPM: PK001

Rev: 02

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 27	Operator simulates opening breaker 27 on AD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 28	Operator simulates opening breaker 28 on AD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	1DD318	Operator locates panel 1DD318 in Room 3432.			
	○ Circuit 11	Operator simulates opening breaker 11 on DD318.	*		

JPM: PK001

OPERATOR TRAINING PROGRAM

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

Rev: 02

JOB PERFORMANCE MEASURE

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

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 12	Operator simulates opening breaker 12 on DD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 14	Operator simulates opening breaker 14 on DD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 27	Operator simulates opening breaker 27 on DD318.	*		
CUE	The breaker you have indicated is open.	N/A			

JPM: PK001

## OPERATOR TRAINING PROGRAM

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

Rev: 02

## JOB PERFORMANCE MEASURE

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

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	1CD318	Operator locates panel 1CD318 in Room 3432.			
	○ Circuit 11	Operator simulates opening breaker 11 on CD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 12	Operator simulates opening breaker 12 on CD318.	*		
CUE	The breaker you have indicated is open.	N/A			
	○ Circuit 14	Operator simulates opening breaker 14 on CD318.	*		
CUE	The breaker you have indicated is open.	N/A			

JPM: PK001

Rev: 02

SYSTEM: DC Electrical Distribution

TASK: Respond To A Station Blackout

OPERATOR TRAINING PROGRAM

JOB PERFORMANCE MEASURE

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

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	○ Circuit 27	Operator simulates opening breaker 27 on CD318.	*		
CUE	The breaker you have indicated is open.	N/A			
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>	N/A			

## JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM  
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

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

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

JPM Number: PK001

TASK: Respond To A Station Blackout

TASK NUMBER: 4000020404

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

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

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RESULT:

SAT

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UNSAT

☐

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

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

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RESULT:

SAT

☐

UNSAT

☐

## JOB PERFORMANCE MEASURE

**INITIAL CONDITIONS:**

1. The plant is in OPGON 3.
2. A loss of all offsite and onsite AC power occurred 15 minutes ago.
3. HC.OP-AB.ZZ-0135, STATION BLACKOUT //LOSS OF OFFSITE POWER//DIESEL GENERATOR MALFUNCTION has been completed through step 4.5.4.

**INITIATING CUE:**

**IMPLEMENT** Attachment 3, Radwaste Building Actions of HC.OP-AB.ZZ-0135(Q).

## JOB PERFORMANCE MEASURE

**REVISION HISTORY****JPM NUMBER:** PK001

Rev #	Date	Description	Validation Required?
00	10/13/09	Converted NRC 2007JPM 009 to new JPM format. This revision includes latest revision to HC.OP-AB.ZZ-0135. Validated with 2 operators from "A" Shift. Estimated Completion time 20 minutes.	Y
01	5/12/11	Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N
02	1/14/12	Updated Reference procedure revision numbers only. No changes to operator actions. No validation required.	N

1. **OPEN** the circuit breakers in the following tables when plant has entered an SBO. **CLOSE** the circuit breakers in the following tables when restoring offsite power. All are ARC Flash Category 0.

LOCATION	PANEL #	CIRCUIT #	LOAD (570 W)	OPEN	CLOSE
124' Radwaste RM 3432	1CD318 *	11	PNL,BUS PROT 1DC654A		
		12	XFMR B PROTECT REC PNL 1CC654A		
		14	CAB,FDWTR & RECIRC INST 10C612		
		27	STA SERV XFMR D PNL 1FC654B		





**SIMULATOR**  
**EXAMINATION SCENARIO GUIDE**

SCENARIO TITLE: NRC SCENARIO 4

SCENARIO NUMBER: ESG-NRC-S4

EFFECTIVE DATE: Effective when approved.

EXPECTED DURATION: 60-75 minutes

REVISION NUMBER: 04

PROGRAM: ☒ L.O. REQUAL

☒ INITIAL LICENSE

☐ OTHER \_\_\_\_\_

**REVISION SUMMARY:**

1. Updated PRA checklist.
2. Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax.
3. Deleted RR Pump Trip per Chief Examiner Outline review.
4. Changed to Low Power Scenario per Chief Examiner Outline review.
5. Added Rod Drift Out per Chief Examiner Outline review.
6. Changed IC power level to 3%
7. Added setup guidance for markup of HC.OP-SO.EA-0001
8. Revised Ramp rate for ET-16 to same as ET-8 per validation crew request.

PREPARED BY: Archie E. Faulkner  
Instructor

1/14/12  
DATE

APPROVED BY:   
LORT Group Lead or Designee

1/17/12  
DATE

APPROVED BY:   
Shift Operations Supervisor or Designee

1/18/12  
DATE

## **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 control rods
- B. Control rod 26-03 drifts out (TS SRO)
- C. Swap SSW Pumps
- D. SSW Pump Malfunction (TS SRO)
- E. Single Reactor Recirc Pump Runaway
- F. Fuel Failure with Scram
- G. Torus Leak / Emergency Depressurization
- H. RHR HX Inlet Valve F047B fails closed

## **III. SCENARIO SUMMARY:**

The scenario starts with the plant at approximately 3% power at rated pressure. The crew will withdraw Control Rods to 8% power in preparation to place the reactor Mode Switch to Run. During the rod withdrawal, rod 26-03 drifts out. This results in an Abnormal Procedure and Tech Spec entry. The crew will insert the rod with RMCS or SRI Test Switches. When the rod reaches full-in, the malfunction will be removed. After TS have been addressed, SSW Pumps will be swapped for planned maintenance. After pump swap, “A” SSW pump will malfunction requiring entering Tech Spec LCO. After Tech Specs have been addressed, the ‘B’ Reactor Recirculation pump will runaway to its upper mechanical stops. After AB-RPV-0001/003 actions are taken and Tech Specs have been addressed, “B” Recirc Pump vibrations will climb into the Danger level. This will require a manual pump trip. Once power has stabilized, fuel damage symptoms will begin and increase in magnitude, requiring a reactor scram. After the MSIV’s are closed, an unisolable leak will develop on the Torus requiring an Emergency Depressurization. When B Loop of RHR is placed in Suppression Pool Cooling, BC-HV-F047B will fail to open, forcing the crew to swap to the A RHR Loop for containment cooling. The scenario ends when the reactor is depressurized by the SRVs, reactor level stabilized between RPV Level 2 and 8 and Suppression Pool Cooling in service on the A RHR Loop.

#### IV. INITIAL CONDITIONS:

I.C.	
<i>Initial</i>	
	<b>INITIALIZE</b> the simulator to 3% power, MOL.
	<b>INITIALIZE</b> the simulator to 3% power I/C, BOL. Pull step 409
	<b>INSERT</b> control rods through step 409.
	<b>ENSURE</b> 'A' EHC pump is in service.
	C/T 'B' EHC pump as follows:
	1. <b>INSERT</b> Malfunction <b>TC07B</b>
	2. <b>PLACE</b> 'B' EHC pump in MAN
	3. <b>START</b> 'B' EHC pump and allow it to trip

PREP FOR TRAINING (i.e., RM11 set points, procedures, bezel covers)	
<i>Initial</i>	Description
	<b>PLACE</b> red bezel cover on 'B' EHC pump.
	<b>INITIAL</b> IO.ZZ-0003 Section 5.3 up to and including step 5.3.43.
	<b>INITIAL</b> HC.OP-SO.EA-0001 for pump swap.
	At a minimum review the Scenario Reference section and <b>CLEAN</b> the <u>bolded</u> EOPs, ABs and SOPs listed. (80091396 0270)
	<b>ENSURE</b> Data Collection is trending the following parameters as a minimum:
	<ul style="list-style-type: none"> <li>• W/R Reactor Water Level</li> </ul>
	<ul style="list-style-type: none"> <li>• W/R RPV Pressure</li> </ul>
	<ul style="list-style-type: none"> <li>• Suppression Pool level</li> </ul>
	<ul style="list-style-type: none"> <li>• Suppression Pool temperature</li> </ul>
	<b>COMPLETE</b> "Simulator Ready-for-Training/Examination Checklist".
	<b>ENSURE</b> associated Schedule file open and running.
	<b>ENSURE</b> associated Events file open.

EVENT FILE:

Initial	ET #	
	7	Event code: <b>et_array(11) &gt;= 1.0 &amp; et_array(12) &gt;= 1.0 &amp; et_array(13) &gt;= 1.0 &amp; et_array(14) &gt;= 1.0 &amp; et_array(15) &gt;= 1.0</b> Description: Triggers Torus leak when MSIVs and MSL Drains isolated
	10	Event code: <b>crqnm1 &lt;= 2</b> Description: Reactor Power <2% //Inserts Fuel Cladding failure if Crew scrams during Recirc Runaway
	11	Event code: <b>msvf022(1) &lt;= 0.0   msvf028(1) &lt;= 0.0</b> Description: Detects 'A' MSL isolation
	12	Event code: <b>msvf022(2) &lt;= 0.0   msvf028(2) &lt;= 0.0</b> Description: Detects 'B' MSL isolation
	13	Event code: <b>msvf022(3) &lt;= 0.0   msvf028(3) &lt;= 0.0</b> Description: Detects 'C' MSL isolation
	14	Event code: <b>msvf022(4) &lt;= 0.0   msvf028(4) &lt;= 0.0</b> Description: Detects 'D' MSL isolation
	15	Event code: <b>msvfdrn1(1) &lt;= 0.0   msvfdrn1(2) &lt;= 0.0</b> Description: F016 or F019 shut // Detects MSL drain isolation
	16	Event code: <b>crqnm1 &lt;= 2</b> Description: Reactor Power <2% // Ramps MSL rad to 3xNFPB after reactor scrambled.**
	17	Event code: <b>et_array(11) &gt;= 1.0 &amp; et_array(15) &gt;= 1.0</b> Description: Removes high radiation from 'A' MSL
	18	Event code: <b>et_array(12) &gt;= 1.0 &amp; et_array(15) &gt;= 1.0</b> Description: Removes high radiation from 'B' MSL
	19	Event code: <b>et_array(13) &gt;= 1.0 &amp; et_array(15) &gt;= 1.0</b> Description: Removes high radiation from 'C' MSL
	20	Event code: <b>et_array(14) &gt;= 1.0 &amp; et_array(15) &gt;= 1.0</b> Description: Removes high radiation from 'D' MSL
	21	Event code: <b>Pclsp &lt;= 119</b> Description: Indicated SP level // Removes torus leak at 25" to prevent reaching Simulator Limits

\*\* Value to be 12 mr/hr above **current** 3xNFPB Hi-Hi Alarm setpoint for I.C.

# MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction TC07B	EHC pump B trip
	None	None	Insert malfunction CD022603	Control Rod 26-03 drift out
	None	None	Insert malfunction CW23A to 50.00000 on event 1	Service water strainer A fouling
	None	None	Insert malfunction RR08B on event 2	Recirc system B speed controller fails high
	None	None	Insert malfunction RR26B2 to 20.00000 in 300 on event 4	Recirc pump BP201 elevated (added to calc) Pump Vib
	None	None	Insert malfunction CW05A on event 6	Service water pump AP502 trip
	None	None	Insert malfunction PC06 after 180 to 50.00000 on event 7	Suppression pool break
	None	None	Insert malfunction RH03B on event 7	RHR HX inlet valve F047B fails closed
	None	None	Insert malfunction RH09A after 210 on event 7	RHR pump AP202 room flood (Rm 4113)
	None	None	Insert malfunction CR01 to 30.00000 in 300 on event 8	Fuel cladding leak
	None	None	Insert malfunction RM9509 to 118.00000 in 300 on event 8	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 to 127.00000 in 300 on event 8	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 to 119.00000 in 300 on event 8	9RX511, MSL 'C' - Main Steam Line Chan C
	None	None	Insert malfunction RM9512 to 122.00000 in 300 on event 8	9RX512, MSL 'D' - Main Steam Line Chan D
	None	None	Insert malfunction CR01 after 1 to 50.00000 on event 10	Fuel cladding leak
	None	None	Insert malfunction RM9509 after 1 to 118.00000 in 300 on event 16	9RX509, MSL 'A' - Main Steam Line Chan A
	None	None	Insert malfunction RM9510 after 1 to 127.00000 in 300 on event 16	9RX510, MSL 'B' - Main Steam Line Chan B
	None	None	Insert malfunction RM9511 after 1 to 119.00000 in 300 on event 16	9RX511, MSL 'C' - Main Steam Line Chan C
	None	None	Insert malfunction RM9512 after 1 to 122.00000 in 300 on event 16	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
	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 PC06 after 1 to 50.00000 on event 21 delete in 1	Suppression pool break

	None	None	Insert malfunction CD032603 on event 26	Control Rod 26-03 stuck
	None	None	Insert malfunction CD052603 on event 27	Control Rod 26-03 accumulator trouble
	None	None	Insert malfunction AN-C6C3 after 60 on event 27	CRYWOLF ANN C6C3 CRD HYDR UNIT TEMP HI
	None	None	Insert malfunction CD062603 on event 28	Control Rod 26-03 SCRAM

#### REMOTE SCHEDULE:

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

#### OVERRIDE SCHEDULE:

<i>Initial</i>	<b>@Time</b>	<b>Event</b>	<b>Action</b>	<b>Description</b>
	None	None	Insert override 5A8_E_LO to Off	HV-23568 OPEN--LOOP B-YARD DUMP VALVE (LO)
	None	None	Insert override 5A8_F_LO to On	HV-23568 CLOSE--LOOP B-YARD DUMP VALVE (LO)
	None	None	Insert override 5A3_E_LO to Off	HV-2256A OPEN-LOOP A-YARD DUMP VALVE (LO)
	None	None	Insert override 5A3_F_LO to On	HV-2256A CLOSE-LOOP A-YARD DUMP VALVE (LO)

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>Raise Reactor Power with Control Rods:</u></b> After the Crew assumes the watch.</p> <p><b>NOTE:</b> LPRM downscale alarms can be expected. As RE, inform crew alarms are expected for this rod pattern.</p>	<ul style="list-style-type: none"> <li>CRS directs the RO to raise Reactor power with Control Rods in accordance with RE guidance.</li> <li>RO withdraws Control Rods in accordance with HC.OP-SO.SF-0001 and CRS directions. <ul style="list-style-type: none"> <li>⇒ Selected rod PB comes ON (bright white).</li> <li>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C).</li> <li>⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).</li> </ul> </li> <li>At the ROD SELECT MODULE, simultaneously press and hold both the WITHDRAW PB <u>AND</u> the CONTINUOUS WITHDRAW PB and observe the following: <ul style="list-style-type: none"> <li>⇒ The INSERT (white) light comes ON momentarily.</li> <li>⇒ The WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON.</li> <li>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.</li> </ul> </li> </ul>	
<p><b>NOTE:</b> Operator may single notch withdraw the rods, as necessary, in which case the CONTINUOUS WITHDRAW PB is NOT used.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• Prior to reaching the desired control rod position, simultaneously release both the WITHDRAW PB and the CONTINUOUS WITHDRAW PB and <b>OBSERVE</b> the following: <ul style="list-style-type: none"> <li>⇒ The WITHDRAW (white) light goes OUT.</li> <li>⇒ The SETTLE (white) light comes ON for ≈ 6 seconds, then goes out.</li> <li>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position.</li> <li>⇒ At position 48 the applicable Full Core Display FULL OUT (red) light comes on.</li> </ul> </li> <li>• Perform a control rod coupling integrity check IAW HC.OP-ST.BF-0001.</li> <li>• Perform the following while giving the selected Control Rod a continuous withdraw signal: <ul style="list-style-type: none"> <li>⇒ Observe the following as indication of the Control Rod being coupled: <ol style="list-style-type: none"> <li>1. ROD OVERTRAVEL alarm does NOT annunciate.</li> <li>2. Red Full Out light illuminates on the Full Core Display.</li> <li>3. RPIS indicates the Control Rod is full out (48).</li> </ol> </li> </ul> </li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.</p> <ul style="list-style-type: none"> <li>Indicates the completion of the movement on the Pull Listing.</li> </ul>	
<p><b>Rod Drift:</b> Will occur after rod 26-03 is selected and withdrawn.</p> <p><b>Pre-Inserted</b> (Control Rod 26-03 Drifts Out).</p>	<ul style="list-style-type: none"> <li>Crew recognizes 26-03 rod drift by: <ul style="list-style-type: none"> <li>⇒ OHA C6-E3 "ROD DRIFT"</li> <li>⇒ Amber DRIFT light for 26-03 on Full Core Display</li> <li>⇒ RWM Drifting Rod display "DR 26-03"</li> <li>⇒ CRIDS C078 "ROD DRIFT ALARM"</li> <li>⇒ Slight rise in reactor power</li> <li>⇒ Various rod position indications</li> </ul> </li> <li>CRS implements AB.IC-0001: <ul style="list-style-type: none"> <li>⇒ Condition C</li> </ul> </li> <li>IF a Rod Drift has occurred THEN <b>REFER</b> to Digital Alarm Point C078 of AR.ZZ-0011.</li> <li>RO implements AR.ZZ-0011: <ul style="list-style-type: none"> <li>⇒ Cause 4 "Drift Out"</li> </ul> </li> </ul>	<p>CRS may refer to AB.RPV-0001 but no actions are applicable.</p>
<p>IF asked, THEN as Reactor Engineer, provide guidance to CRS to continuously insert rod 26-03 to 00 if possible.</p>	<ul style="list-style-type: none"> <li>⇒ RO applies a continuous control rod insert signal under the direction of the Reactor Engineer AND SM/CRS.</li> <li>⇒ RO releases insert signal.</li> <li>⇒ IF the control rod continues to drift out or does not respond to the insert signal THEN,</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to place both SRI Test Switches for HCU 26-03 to TEST, <u>THEN</u> <b>TRIGGER ET-28.</b></p>	⇒ <b>PLACE</b> both SRI test switches (local) to the TEST position to initiate a single control rod scram.	
	⇒ PLACE both SRI test switches to NORM position.	
	⇒ IF the control rod attempts to drift outward again, THEN	
	⇒ <b>INSERT</b> to position 00 AND:	
	<ul style="list-style-type: none"> <li>• A. CLOSE BF-V101</li> <li>• B. CLOSE BF-V102</li> </ul>	
<p><u>WHEN</u> dispatched to 26-03 HCU, <u>THEN</u> <b>REPORT</b> the HCU appears normal.</p>	⇒ IF the control rod continues to drift out following isolation (e.g. problem is internal to the mechanism) THEN <b>OPEN</b> BF-V102 and <b>OPEN</b> BF-V101 (reestablishes cooling water flow).	
	<ul style="list-style-type: none"> <li>• Crew dispatches RBEO to 26-03 HCU.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to electrically <u>AND</u> hydraulically dis-arm 26-03 IAW SO.BF-0002, <u>THEN PERFORM</u> the following:</p> <ol style="list-style-type: none"> <li>1. <b>DELETE</b> malfunction <b>CD022603</b> (drifting rod) and allow 26-03 to settle back to 00.</li> <li>2. <b>TRIGGER ET-26</b> (stuck rod)</li> <li>3. <b>TRIGGER ET-27</b> (accum trouble)</li> <li>4. <u>IF</u> isolating Scram pilot Air BF-V116 (as in Isolating for Maintenance section), <u>THEN TRIGGER ET-28</u>.</li> <li>5. <u>AFTER</u> OHA C6-C3 (CRD TEMP HI) is received, <u>THEN DELETE</u> Malfunction <b>AN-C6C3</b></li> <li>6. <b>REPORT</b> 26-03 is hydraulically dis-armed with cooling water restored. CRD Hi Temp alarm was 26-03 and is now clear.</li> </ol> <p><u>IF</u> directed only to electrically dis-arm 26-03 IAW SO.BF-0002, <u>THEN TRIGGER ET-26</u> (stuck rod).</p>	<ul style="list-style-type: none"> <li>• CRS recognize the following Tech Spec actions apply: ⇒ Control Rod Operability 3.1.3.1 action b</li> <li>• CRS directs disarming the 26-03 directional control valves within one hour.</li> </ul>	
<div style="border: 1px solid black; padding: 5px;"> <p><b><u>Swap Service Water Pumps:</u></b> After the Crew assumes the watch.</p> </div>	<ul style="list-style-type: none"> <li>• RO resets the Rod Drift alarm IAW HC.OP-AR.ZZ-0020.</li> <li>• CRS directs removal of "C" SSW from service using HC.OP-SO.EA-0001.</li> <li>• PO places "A" SSW in service using HC.OP-SO.EA-0001 section 5.6.3.</li> <li>•</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
As Yard operator, report field actions are complete for starting "A" SSW pump.	<ul style="list-style-type: none"> <li>PO removes "C" SSW from service using HC.OP-SO.EA-0001 section 5.6.5.</li> </ul>	
<b>SSW Pump "A" Malfunction:</b> At the discretion of the lead Examiner, <b>TRIGGER ET-1</b> (Service water pump A marsh grass intrusion to 50%).	<ul style="list-style-type: none"> <li>Crew recognizes "A" SSW strainer Hi DP to the strainer by:               <ul style="list-style-type: none"> <li>⇒ A1-B1 SSWS INTAKE A TROUBLE</li> <li>⇒ D3857 SSW STRAINER A DIFF HI HI STRAINER PRESSURE D/P</li> <li>⇒ D5507 SSW STRAINER A DRIVE OPF</li> </ul> </li> </ul>	
<u>WHEN</u> requested as Yard Operator, <b>REPORT</b> "A" SSW pump strainer is not rotating and the screen is covered with grass. The breaker for the strainer is tripped and will not reset.	<ul style="list-style-type: none"> <li>CRS implements AB.COOL-0001:               <ul style="list-style-type: none"> <li>⇒ Condition A</li> <li>⇒ Condition D</li> </ul> </li> </ul>	
<u>IF</u> the crew does not remove the "A" SSW pump from service, <u>THEN</u> <b>TRIGGER ET-6</b> to trip the pump.	<ul style="list-style-type: none"> <li>Crew removes "A" SSW pump from service IAW:               <ul style="list-style-type: none"> <li>⇒ AB.ZZ-0001 Att 19</li> </ul> </li> <li>Crew places "C" SSW pump in service IAW:               <ul style="list-style-type: none"> <li>⇒ AB.ZZ-0001 Att 19</li> </ul> </li> <li>CRS recognize the following Tech Spec applies:               <ul style="list-style-type: none"> <li>⇒ Station Service Water 3.7.1.2 Action a</li> </ul> </li> <li>Crew contacts maintenance.</li> </ul>	30 day LCO

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>"B" Reactor Recirc Pump runaway:</u></b>  <b>TRIGGER ET-2</b>, five minutes after Tech Specs have been addressed <u>OR</u> at the discretion of the Lead Examiner.</p>	<ul style="list-style-type: none"> <li>Crew recognizes "B" Reactor Recirculation pump runaway by: <ul style="list-style-type: none"> <li>⇒ Reactor power increases</li> <li>⇒ C3-B1 SRM PERIOD</li> <li>⇒ CRIDS D2900 "RECIRC MG B SPEED CONTROL SIG FAIL"</li> <li>⇒ CRIDS D2931 "RECIRC MG B DRIVE TUBE LOCK TRBL"</li> <li>⇒ SIC-R621B 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 "B" Recirc Pump</li> <li>⇒ Reduces "A" Recirc Pump speed to reduce power to pre-transient value</li> </ul> </li> </ul>	<p>Immediate Operator Action IAW AB.RPV-0001.  (A Recirc pump is already in manual at minimum speed.)</p>
	<ul style="list-style-type: none"> <li>CRS implements AB.RPV-0001: <ul style="list-style-type: none"> <li>⇒ Condition F</li> </ul> </li> </ul>	
<p><b>SUPPORT</b> requests for local operation of 'B' Recirc MG scoop tube using Remote Function <b>RR10</b>.</p>	<ul style="list-style-type: none"> <li>Crew checks Recirc Loop Flow mismatch IAW ST.BB-0001.</li> </ul>	
<p><u>IF</u> called as RE to determine maximum thermal power reached,  <b>THEN REPORT</b> thermal power peaked at 5.2% (200 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 recognize the following Tech Specs/actions apply: <ul style="list-style-type: none"> <li>⇒ 3.4.1.3 Action a. Recirculation Loop Flow</li> </ul> </li> </ul>	<p>Must restore recirc loop flow mismatch within two hours or declare the B loop not in operation.</p>

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF directed to monitor/control recirc MG oil temps,  <b>INSIGHT Items:</b></p> <ul style="list-style-type: none"> <li>• rrtoila(1) for 'A' MG</li> <li>• rrtoila(2) for 'B' MG</li> </ul>	<ul style="list-style-type: none"> <li>• RO/PO direct TBEO to monitor/control reactor recirc MG oil temps.</li> <li>• Crew monitors Offgas Pre-Treatment and Main Steam Line Radiation Monitors for indications of Fuel Damage.</li> </ul>	
<p>As RE, <b>REPORT:</b></p> <ul style="list-style-type: none"> <li>• Thermal Limits are SAT</li> <li>• If rodline needs to be reduced, use Reverse Pull Sequence.</li> </ul>	<ul style="list-style-type: none"> <li>• Crew contacts RE.</li> </ul>	
<p><b>Reactor Recirculation Pump High Vibrations:</b></p> <p>At the discretion of the Lead Examiner,  <b>TRIGGER ET-4.</b></p>	<ul style="list-style-type: none"> <li>• Crew recognizes 'B' Recirc Pump high vibrations by: <ul style="list-style-type: none"> <li>⇒ OHA C1-E4 "REACTOR RECIRC PUMP VIB HI"</li> <li>⇒ CRIDS D5352 "RECIRC PUMP B VIBRATION HI"</li> <li>⇒ CRIDS D2921 "RECIRC PMP MOTOR B VIBRATION HI"</li> <li>⇒ CRIDS A2603 "RECIRC PMP B SHAFT RADIAL"</li> <li>⇒ OHA C1-F5 "COMPUTER PT IN ALARM"</li> </ul> </li> <li>• Crew implements AB.RPV-0003: <ul style="list-style-type: none"> <li>⇒ Condition F</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 evaluates the following Recirc Pump parameters for degradation of the pump(s) in ALARM to validate the condition. <ul style="list-style-type: none"> <li>⇒ Seal Parameters (Temperature, Pressure, Flow)</li> <li>⇒ Pump Parameters (Temperature, Vibration)</li> <li>⇒ Motor Parameters (Temperature, Vibration)</li> </ul> </li> <li>Crew contacts Engineering Duty Manager to obtain and assess vibration data.</li> </ul>	
<p><u>IF</u> requested, <u>THEN</u> as RE <b>PROVIDE</b> guidance to the CRS to reduce reactor power IAW the Standard Power Reduction Instructions (SPRI).</p> <p><u>IF</u> crew manually scrams, <u>THEN</u> <b>TRIGGER ET-8</b> (Fuel cladding failure).</p>	<ul style="list-style-type: none"> <li>Crew determines "B" Recirc Pump Vibration points cannot be maintained below the DANGER limit and performs the following to remove A(B) Recirc Pump from service: <ul style="list-style-type: none"> <li>⇒ Press PUMP B MOTOR BRKR TRIP push button</li> </ul> </li> <li>PO verifies the Feedwater system is responding automatically and is restoring RPV level between level 4 and 7.</li> </ul>	
<p>As TBEO, <b>ADJUST</b> temperature for the Recirc MG Sets as directed.</p>	<ul style="list-style-type: none"> <li>Crew implements AB.RPV-0003: <ul style="list-style-type: none"> <li>⇒ Condition A</li> </ul> </li> <li>RO/PO monitors and reports power, pressure and level parameters.</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 verifies core parameters are within the OPRM Enable Region of the Power to Flow Map.</li> <li>RO/PO closes HV-F031B Recirc pump discharge valve for 5 minutes and then re-opens.</li> <li>CRS directs the following TS requirements: ⇒ 3.4.1.1 Action a. within 4 hours of entering Single Loop Operations.</li> <li>CRS directs implementation of DL.ZZ-0026 Att.3v.</li> <li>Crew implements DL.ZZ-0026 Att.3v.</li> </ul>	
<b>Fuel Cladding Failure:</b> 10 minutes after the Recirc Pump Runaway, <u>OR</u> , at the Lead Examiners discretion, <b>TRIGGER ET-8</b> (Fuel cladding failure).	<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> <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 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 5 minutes after the failure begins.</p> <p>If the plant is shutdown, Condition B actions are not applicable.</p>



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>RO reduces power IAW RE Guidance (Reverse Pull Sequence) as necessary.</li> <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 A037 MSL Radiation readings</li> </ul> </li> <li>CRS directs: <ul style="list-style-type: none"> <li>⇒ Locking the Mode Switch in SHUTDOWN</li> <li>⇒ Closing MSIVs, HV-F016 <u>and</u> HV-F019 steam line drains.</li> </ul> </li> <li>RO locks the Mode Switch in SHUTDOWN.</li> <li>RO performs scram actions IAW AB.ZZ-0001 Attachment 1.</li> <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 <u>and</u> HV-F019 steam line drains.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>* <i>The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line and the HV-F016 or F019 drain valve before MSL radiation has been above the Hi-Hi setpoint for three minutes.</i></li> </ul>	<p>The Critical Task is satisfied as long as all lines are isolated. For instance, closing the HV-F016, but <u>NOT</u> the HV-F019 satisfies isolation of the F016/F019 drain line.</p> <p><b>RECORD</b> time (if any) between OHA C6-B2 and reactor scrammed with main steam and drain lines isolated:</p> <p>TIME: _____</p>
	<ul style="list-style-type: none"> <li>• IF RPV Level 2 is reached, <u>THEN</u> CRS implements AB.RPV-0003: ⇒ Condition G</li> <li>• IF directed by the CRS, <u>THEN</u> RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.</li> </ul>	
<p><b>Unisolable Torus Leak:</b></p> <p>The Torus Leak will begin three minutes after the MSIVs are isolated.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes torus leak by: <ul style="list-style-type: none"> <li>⇒ OHA D3-C2 "REACTOR BLDG SUMP LVL HI/LO"</li> <li>⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO"</li> <li>⇒ Various Suppression Pool level indicators lowering</li> </ul> </li> <li>• Crew dispatches personnel to inspect Rx Bldg '54 and Torus Room for leak.</li> </ul>	<p>It will take approximately 12.5 minutes for Supp Pool level to reach 38.5".</p>
<p>IF dispatched to the Torus Room to look for a leak, <u>THEN</u> <b>REPORT</b> there is a large, unisolable leak at on the bottom of the torus at Az. 180. There is about one inch of water on the torus room floor.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> asked,  <u>THEN REPORT</u> both sump pumps are running in both the North and South RB Floor Drain sumps.</p>	<ul style="list-style-type: none"> <li>• Crew contacts RWEO and informs them of leak.</li> <li>• Crew recognizes Supp Pool Level Below 74.5 In EOP entry condition by: <ul style="list-style-type: none"> <li>⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO"</li> <li>⇒ Various Suppression Pool level indicators</li> </ul> </li> <li>• CRS implements EOP-102.</li> </ul>	
<p><u>IF</u> directed to implement EOP-315 then,  <u>WHEN</u> torus level reaches 45",  <b>INSERT</b> Remote Functions <b>CS01-CS04</b> to make-up as directed.  Do <u>NOT</u> open more than two valves.</p>	<ul style="list-style-type: none"> <li>• CRS directs M/U to the torus IAW EOP-315.</li> <li>• RO/PO coordinate implementation of EOP-315 with NEO.</li> </ul>	
<p><b><u>RHR Pump Room Flooded:</u></b>  The 'A' RHR Room flooded alarm will be received about 4 minutes after the Torus Leak starts.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes Reactor Bldg Room Floor Level Above Max Normal Op EOP Entry Condition by: <ul style="list-style-type: none"> <li>⇒ OHA A6-A5 "RHR PUMP ROOM FLOODED"</li> <li>⇒ CRIDS D2891 "RHR PMP ROOM 4113 LSH-4403A1"</li> <li>⇒ CRIDS D2892 "RHR PMP ROOM 4113 LSH-4403A2"</li> <li>⇒ SPDS RB LV/TE indication</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 'A' RHR room,  <u>THEN</u>,  <u>AFTER</u> OHA A6-A5 "RHR ROOM FLOODED" is received,  <b>REPORT</b> there is about two inches of water on the floor and it appears to be coming up through a floor drain.</p>	<ul style="list-style-type: none"> <li>• CRS implements EOP-103.</li> </ul>	
	<ul style="list-style-type: none"> <li>• <u>WHEN</u> it is determined that Supp Pool level cannot be maintained above 38.5",  <u>THEN</u> CRS determines Emergency Depressurization is required.</li> </ul>	
	<ul style="list-style-type: none"> <li>• CRS implements EOP-202.</li> </ul>	
	<ul style="list-style-type: none"> <li>• RO/PO opens five ADS SRVs IAW AB.ZZ-0001 Att. 13.</li> </ul>	
	<ul style="list-style-type: none"> <li>* <b><i>Crew determines that Suppression Pool water level cannot be maintained above 38.5" and initiates opening of five SRVs before Suppression Pool level reaches 30".</i></b></li> </ul>	<p><b>RECORD</b> Supp Pool level at which ADS was initiated.</p> <p>LEVEL: _____</p>
	<ul style="list-style-type: none"> <li>• RO/PO maintain RPV level as directed by CRS.</li> </ul>	
	<ul style="list-style-type: none"> <li>• <u>IF</u> Supp Pool level drops to 30",  <u>THEN</u> the Crew ensures HPCI is secured.</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>WHEN</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> <li>• <u>WHEN</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> the CRS re-enters EOP-102.</li> <li>• <u>WHEN</u> directed by the CRS, <u>THEN</u> RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.</li> </ul>	
<p><b><u>RHR HX INLET Valve F047B Fails closed:</u></b></p> <p>The 'A' RHR HX Inlet Valve HV-F047B will fail closed when the Torus leak begins.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes RHR HV-F047B is failed closed.</li> <li>• RO/PO places A RHR in Suppression Pool Clg 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 RPV has been depressurized IAW EOP-202.</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	

## VI. SCENARIO REFERENCES:

- A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. **Emergency Plan (ECG)**
- G. **Alarm Response Procedures (Various)**
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
- N. OP-AA-106-101-1001 Event Response Guidelines
- O. OP-AA-108-114 Post Transient Review
- P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- Q. OP-HC-108-106-1001 Equipment Operational Control
- R. **HC.OP-SO.BB-0001 Reactor Recirculation System Operation**
- S. HC.OP-DD.ZZ-0020 Review of Core Performance Information
- T. **HC.OP-DL.ZZ-0026 Surveillance Log**
- U. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- V. **HC.OP-AB.RPV-0001 Reactor Power**
- W. **HC.OP-AB.RPV-0003 Recirculation System**
- X. **HC.OP-AB.RPV-0008 Reactor Coolant Activity**
- Y. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
- 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-0103 Reactor Building Control**
- DD. HC.RE-RA.BB-0002 Core Flow Determination
- EE. **HC.OP-IO.ZZ-0004 Shutdown From Rated Power To Cold Shutdown**
- FF.

## ESG-NRC-S4 / 04

1.

- \* ***The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line and the HV-F016 or F019 drain valve before MSL radiation has been above the Hi-Hi setpoint for three minutes.***

**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**

Hope Creek was originally designed with an automatic reactor scram and MSIV isolation on Hi-Hi MSL Radiation levels. This was designed to limit the release to the public during a Control Rod Drop Accident. As part of an industry effort to reduce spurious MSIV isolations, the automatic scram and MSIV isolations were removed in Tech Spec Amendment 54. One of the three conditions for approval of this amendment 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 this scenario, three minutes provides adequate time to initiate a manual scram and close the MSIVs and drains. This includes the valve stroking time. In order to accomplish isolation of the release, only one valve in each line need be closed. For instance, closing all valves but the F019 would meet the Critical Task. The failure to close this valve would be applied to the overall performance evaluation. 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.

2.

- \* ***Crew determines that Suppression Pool water level cannot be maintained above 38.5" and initiates opening of five SRVs before Suppression Pool level reaches 30".***

**K/A 295030 Low Suppression Pool Water Level**

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

**EA2.01 Suppression Pool level RO 4.1 SRO 4.2****K/A 218000 Automatic Depressurization System**

A.4 Ability to manually operate and/or monitor in the control room:

**A4.01 ADS Valves RO 4.4 SRO 4.4**

If Suppression Pool Level drops below 38.5", the downcomer pipes are uncovered and the Pressure Suppression function of the Primary Containment is lost. EOPs direct Emergency Depressurizing if Suppression Pool level cannot be maintained above 38.5". Requiring the Emergency Depressurization to be initiated before Supp Pool Level reaches 30" allows the Crew three minutes to implement this action in this scenario.

**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 checked="" type="checkbox"/>	Internal Flooding
<input type="checkbox"/>	LOCA	<input type="checkbox"/>	Loss of 1E AC/DC Buses
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<input type="checkbox"/>	Turbine Trip	<input type="checkbox"/>	Loss of SSW
<input type="checkbox"/>	Loss of Condenser Vacuum	<input type="checkbox"/>	Loss of SACS
<input type="checkbox"/>	Loss of Feedwater	<input type="checkbox"/>	Loss of Instrument Air
<input type="checkbox"/>	Inadvertent MSIV Closure		
<input type="checkbox"/>	Inadvertent SRV Opening		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY  
THAT INCREASES CORE DAMAGE FREQUENCY**

<u>Y/N</u>	<u>KEY EQUIPMENT</u>	<u>Y/N</u>	<u>KEY EQUIPMENT</u>
<input type="checkbox"/>	1E 4.16KV Bus	<input type="checkbox"/>	120VAC 481 Inverter
<input type="checkbox"/>	Hard Torus Vent	<input type="checkbox"/>	Switchgear Room Cooler
<input type="checkbox"/>	1E 125VDC Bus	<input type="checkbox"/>	RCIC
<input type="checkbox"/>	SACS Loop	<input type="checkbox"/>	SSW Ventilation
<input type="checkbox"/>	SSW Loop	<input checked="" type="checkbox"/>	SSW Pump
<input type="checkbox"/>	A/B RHR	<input type="checkbox"/>	RACS Heat Exchanger
<input type="checkbox"/>	HPCI	<input type="checkbox"/>	SLC
<input type="checkbox"/>	Core Spray Loop	<input type="checkbox"/>	Torus D/W Vacuum Breakers
<input type="checkbox"/>	EDG	<input type="checkbox"/>	SACS Heat Exchanger

**OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE**

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<input type="checkbox"/>	Emergency Depressurize RPV W/O High Pressure Injection
<input type="checkbox"/>	Emergency Venting of Primary Containment
<input type="checkbox"/>	Aligning RHR for Suppression Pool Cooling
<input type="checkbox"/>	Restore Switchgear Cooling
<input type="checkbox"/>	Control Plant via Remote Shutdown Panel
<input checked="" type="checkbox"/>	Manually Start SW Pump
<input type="checkbox"/>	Cross-tie DC Charger to Portable Supply
<input type="checkbox"/>	Isolate SW Pipe Rupture in RACS Room
<input type="checkbox"/>	Initiating LP ECCS with No High Pressure Injection Available
<input type="checkbox"/>	Monitoring and Control of SACS heat loads

Complete this evaluation form for each ESG.



## VIII. TURNOVER SHEET:

Rx Power: 3%  
Work Week: A  
Risk Color: Green

### Activities Completed Last Shift:

"A" RFPT is in service in MAN with the SULCV in AUTO Single Element Control

"B" RFPT is warmed up and available at 1000 rpm.

### Major Activities Next 12 Hours:

Swap in service SSW pumps from "C" to "A".

The "A" SSW Traveling Screen has been run for >30 minutes.

SSW Chlorination has been removed from service.

### Protected Equipment:

None

### Tagged Equipment:

'B' EHC Pump is tagged for maintenance.

## IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

### EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

**Note:** This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-  
CHECK

ESG- NRC-S4

REVIEWER: 

- Q&P 1. The scenario has clearly stated objectives in the scenario.
- Q&P 2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.
- Q&P 3. Each event description consists of:
- The point in the scenario when it is to be initiated
  - The malfunction(s) that are entered to initiate the event
  - The symptoms/cues that will be visible to the crew
  - The expected operator actions (by shift position)
  - The event termination point
- Q&P 4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.
- Q&P 5. The events are valid with regard to physics and thermodynamics.
- Q&P 6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).
- Q&P 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
- NA 8. If time compression techniques are used, scenario summary clearly so indicates.
- Q&P 9. The simulator modeling is not altered.
- Q&P 10. All crew competencies can be evaluated.
- Q&P 11. Appropriate reference materials are available (SOERs, LERs, etc.)
- Q&P 12. Proper critical task methodology used IAW NRC procedures.

## EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

**Note:** The following criteria list scenario traits that are numerical in nature. A second set of numbers indicates a range to be met for a set of two scenarios. Therefore, to complete this part of the review, the set of scenarios must be available. The section below should be completed once per scenario set.

ESG: NRC-S4

### SELF-CHECK

- QEF 1. Total malfunctions inserted: 5-8 6
- QEF 2. Malfunctions that occur after EOP entry: 1-2 2
- QEF 3. Abnormal Events: 2-4 3
- QEF 4. Major Transients: 1-2 1
- QEF 5. EOPs entered requiring substantive actions: 1-2 2
- QEF 6. EOP Contingency Procedures requiring substantive actions: 0-2 1
- QEF 7. Approximate scenario run time: 60-90 minutes 60
- QEF 8. Critical Tasks: 2-3 2
- QEF 9. Technical Specifications are exercised during the test:  $\geq 2$  2

Comments:

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**Crew Validation**      **Rev:** 04      **Date Validated:** 1/13/12  
Validated with 3 man crew. Runtime was 60 minutes.

Validation Comments	Disposition
Sign prereqs in SSW SOP.	Accepted.
Run SSW pump swap before rod movement.	Accepted. ESG written to do either first.
MSL Rads came up hard on manual scram.	Corrected ramp rate for ET-16 to be the same as ET-8.

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

Validation Comments	Disposition

# SIMULATOR

## EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: NRC SCENARIO 2

SCENARIO NUMBER: ESG-NRC-S2

EFFECTIVE DATE: Effective when approved.

EXPECTED DURATION: 75 minutes

REVISION NUMBER: 00

PROGRAM: ☒ L.O. REQUAL

☒ INITIAL LICENSE

☐ OTHER \_\_\_\_\_

REVISION SUMMARY:

PREPARED BY: Archie E. Faulkner  
Instructor

1/14/12  
DATE

APPROVED BY:   
LORT Group Lead or Designee

1/17/12  
DATE

APPROVED BY:   
Shift Operations Supervisor or Designee

1/18/12  
DATE

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

### **Enabling Objectives**

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

## **II. MAJOR EVENTS:**

- A. Raise Power 84.5% to 90% using Control Rods/ Place C RFPT in service
- B. Stuck Rod (TS)
- C. Flow Unit Fails Downscale w/ Half Scram (TS)
- D. A EHC Pump Trip
- E. Loss of EHC due to Filter Clogging w/ Manual Scram
- F. ATWS
- G. Failure of RWCU to Auto Isolate
- H. Failure of HPCI Components to Auto-Initiate

## **III. SCENARIO SUMMARY:**

The scenario begins with the plant at 84.5% power with power ascension in progress following a load reduction for C RFPT vibration troubleshooting. The RO will withdraw control rods for the power change. The BOP operator will place the C RFPT in service. Control Rod 46-47 will stick when movement is attempted. Attempts to free the rod will be successful. The B APRM Flow Unit will fail downscale resulting in a half scram and rod block. The RO will bypass the Flow Unit and reset the half scram. After the Flow Unit failure is addressed, EHC Pump A trips. EHC system filters will clog forcing a manual scram. The scram will result in a half-core ATWS. RWCU Isolation valves HV-F001 and HV-F004 will fail to automatically close on SLC pump start requiring operator action. HPCI components will fail to auto-initiate, and will need to be manually operated to continue to use HPCI. The scenario ends when the reactor is shutdown either by manual rod insertion with RMCS or manual scrams with EOP-320.

#### IV. INITIAL CONDITIONS:

##### I.C.

Initial	
	INITIALIZE the simulator to 100% power, 3840 MWt EPU.
	REDUCE Reactor power to 84.5% using reactor recirc pumps and control rods.
	Stick control rod 46-47 at position 00 using <b>ET-1</b> .
	Remove C RFPT from service and place recirc at 1000 rpm IAW HC.OP-SO.AE-0001.
	Remove Crossflow from service and clear Overhead Alarm.
	ENSURE A EHC Pump is in service.
	ENSURE associated Schedule file open and running.
	ENSURE associated Events file open.

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

Initial	Description
	INITIAL IO-6 for Power Ascension.
	APPLY Protected Equipment bezel covers to A and B RFPTs.
	MARKUP HC.OP-SO.AE-0001 Section 5.7 for C RFPT.
	ENSURE Move Sheets are available for Control Rods:
	<ul style="list-style-type: none"><li>• Group 9D Position 00 to 12</li><li>• Group 9E Position 24 to 48</li><li>• Group 9D Position 12 to 22</li></ul>
	At a minimum review the Scenario Reference section and CLEAN the <u><b>bolded</b></u> EOPs, ABs and SOPs listed. (80091396 0270)
	ENSURE Data Collection is trending the following parameters as a minimum:
	<ul style="list-style-type: none"><li>• W/R Reactor Water Level</li><li>• W/R RPV Pressure</li><li>• Fuel Zone Reactor Water Level</li><li>• Suppression Pool temperature</li></ul>
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

# EVENT FILE:

Initial	ET #		
	2	Event code:	LCPNEP01 >= 300
		Description:	Deletes malfunction when drive pressure is 300 psig
		Event code:	
		Description:	
		Event code:	
		Description:	
		Event code:	
		Description:	



# MALFUNCTION SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction RP07	Half-core ATWS - right side
	None	None	Insert malfunction CU11A	RWCU isolation valve F001 failure to auto close
	None	None	Insert malfunction CU11B	RWCU isolation valve F004 failure to auto close
	None	None	Insert malfunction HP14	HPCI HV-F006 failure to auto open
	None	None	Insert malfunction HP15	HPCI HV-8278 failure to auto open
	None	None	Insert malfunction HP16	HPCI HV-F059 failure to auto open
	None	None	Insert malfunction HP06E	HPCI aux oil pump failure to auto start
	None	None	Insert malfunction CD034647	Control Rod 46-47 stuck
	None	None	Insert malfunction CD034647 after 1 on event 2 delete in 1	Control Rod 46-47 stuck
	None	None	Insert malfunction NM12B to 0 on event 3	Flow summer K607B failure
	None	None	Insert malfunction TC07A on event 4	EHC pump A trip
	None	None	Insert malfunction TC16 to 100.000 on event 4	EHC pump discharge filter plugging
	None	None	Insert malfunction EG11 after 360 on event 4	Main generator trip
	None	None	Insert malfunction TC01-10 after 380 on event 4	All turbine bypass valves fail closed

# REMOTE SCHEDULE:

Initial	@Time	Event	Action	Description
	None	None	Insert remote PP04 to NO	PP04 OD-3 Crossflow Applied
	None	None	Insert remote AN28 to NORM	AN28 CROSSFLOW ALARM/TRBL
	None	None	Insert remote EP01 after 360 to BYPASS on event 5	EP01 EOP-301, bypass MSIV (-129") isolation interlock
	None	None	Insert remote EP02 after 480 to BYPASS on event 6	EP02 EOP-311, bypass PCIG (-129") isolation interlock
	None	None	Insert remote EP38 after 180 to Emergency on event 7	EP38 EOP-319, Restoring Instrument Air in an Emergency
	None	None	Insert remote EP09 after 240 to REMOVED on event 8	EP09 EOP-320 (step 5.1.2), ARI valve fuses F6A/F5A
	None	None	Insert remote EP10 after 240 to REMOVED on event 8	EP10 EOP-320 (step 5.1.4), ARI valve fuses F6B/F5B
	None	None	Insert remote EP11 after 360 to INSTALLED on event 8	EP11 EOP-320 (step 5.2.2), RPS division 1 jumper
	None	None	Insert remote EP13 after 360 to INSTALLED on event 8	EP13 EOP-320 (step 5.2.3), RPS division 3 jumper
	None	None	Insert remote EP12 after 720 to INSTALLED on event 8	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper
	None	None	Insert remote EP14 after 720 to INSTALLED on event 8	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper
	None	None	Insert remote EP35 after 180 to FAIL CLOSE on event 9	EP35 EOP-322 HV-F006 HPCI to CS

# OVERRIDE SCHEDULE:

Initial	@Time	Event	Action	Description

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b><u>Place C RFPT in service:</u></b> After the Crew assumes the watch.</p>	<ul style="list-style-type: none"> <li>CRS directs BOP Operator to place C RFPT in service feeding the RPV IAW HC.OP-SO.AE-0001.</li> <li>BOP Operator places C RFPT in service feeding the RPV IAW HC.OP-SO.AE-0001.</li> </ul>	
<p><b><u>Raise Reactor Power with Control Rods:</u></b> After the Crew assumes the watch.</p>	<ul style="list-style-type: none"> <li>CRS directs the RO to raise Reactor power with Control Rods in accordance with RE guidance.</li> <li>RO withdraws Control Rods in accordance with HC.OP-SO.SF-0001 and CRS directions. <ul style="list-style-type: none"> <li>⇒ Selected rod PB comes ON (bright white).</li> <li>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C).</li> <li>⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).</li> </ul> </li> <li>At the ROD SELECT MODULE, simultaneously press and hold both the WITHDRAW PB <u>AND</u> the CONTINUOUS WITHDRAW PB and observe the following: <ul style="list-style-type: none"> <li>⇒ The INSERT (white) light comes ON momentarily.</li> <li>⇒ The WITHDRAW (white) light comes ON and the CONTINUOUS WITHDRAW (white) light comes ON.</li> </ul> </li> </ul>	
<p><b>NOTE:</b> Operator may single notch withdraw the rods, as necessary, in which case the CONTINUOUS WITHDRAW PB is NOT used.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.</p> <ul style="list-style-type: none"> <li>• Prior to reaching the desired control rod position, simultaneously release both the WITHDRAW PB and the CONTINUOUS WITHDRAW PB and OBSERVE the following: <ul style="list-style-type: none"> <li>⇒ The WITHDRAW (white) light goes OUT.</li> <li>⇒ The SETTLE (white) light comes ON for ≈ 6 seconds, then goes out.</li> <li>⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position.</li> <li>⇒ At position 48 the applicable Full Core Display FULL OUT (red) light comes on.</li> </ul> </li> <li>• Perform a control rod coupling integrity check IAW HC.OP-ST.BF-0001.</li> <li>• Perform the following while giving the selected Control Rod a continuous withdraw signal: <ul style="list-style-type: none"> <li>⇒ Observe the following as indication of the Control Rod being coupled:</li> </ul> </li> </ul> <p>1. ROD OVERTRAVEL alarm does NOT annunciate.</p>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>Stuck Control Rod 46-47:</b> Preinserted.</p> <p><b>Examiner Note:</b> The rod will remain stuck until Drive Water Pressure has been intentionally raised to &gt;300 psid.</p> <p><b>NOTE:</b> Crew may request RE guidance. Respond that a withdraw signal then an insert signal may be attempted.</p>	2. Red Full Out light illuminates on the Full Core Display.	
	3. RPIS indicates the Control Rod is full out (48).	
	4. Proper response of the Nuclear Instrumentation while withdrawing the Control Rod.	
	<ul style="list-style-type: none"> <li>Indicates the completion of the movement on the Pull Listing.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO determines that Control Rod 46-47 is stuck by observing no change in rod motion on the 4 Rod Display or the RWM and informs the CRS.</li> </ul>	
	<ul style="list-style-type: none"> <li>CRS directs actions in accordance with HC.OP-AB.IC-0001: ⇒ Condition F.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO performs actions in accordance with CRS directions: <ul style="list-style-type: none"> <li>⇒ Verifies no Rod Blocks are present.</li> <li>⇒ Attempts to operate the drive in both directions to determine the exact condition of the Control Rod.</li> <li>⇒ Verifies drive water flow fluctuates normally.</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>⇒ Verifies proper operation of the SETTLE, INSERT, <u>AND</u> WITHDRAW lights.</li> <li>⇒ <b>VENT</b> Control Rod using CONTINUOUS INSERT PB.</li> <li>⇒ ATTEMPT to withdraw Control Rod using WITHDRAW PB (including CONTINUOUS WITHDRAW PB).</li> <li>⇒ PERFORM the following: <ul style="list-style-type: none"> <li>a. SIMULTANEOUSLY <b>PRESS AND HOLD</b> BOTH the WITHDRAW PB AND the CONTINUOUS WITHDRAW PB.</li> <li>b. MOMENTARILY <b>PRESS</b> and then <b>RELEASE</b> the CONTINUOUS INSERT PB (this step may be repeated).</li> <li>c. <b>RELEASE</b> BOTH the WITHDRAW PB AND the CONTINUOUS WITHDRAW PB.</li> </ul> </li> </ul>	
<p><b>ENSURE ET-2</b> triggers when drive water pressure dp &gt;300 psid. This deletes stuck rod malfunction.</p>	<ul style="list-style-type: none"> <li>• Performs the following: <ul style="list-style-type: none"> <li>⇒ Raises the drive water pressure in approximately 50 psid increments, not to exceed 500 psid.</li> <li>⇒ Attempts to notch in <u>OR</u> notch out the Control Rod at the new pressure increment.</li> </ul> </li> <li>• RO observes Rod Movement as indicated on the 4 Rod Display or RWM, and notifies the CRS.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- RO returns the drive water pressure to the normal operating range (260-270 psid on A3015).

### **Flow Unit Failure:**

At the Lead Examiners discretion,

**TRIGGER ET-3** (B APRM Flow Unit Failure Downscale).

- Crew monitors Reactor power, pressure, and level and ensure plant conditions are stable. Ensures no scram setpoints have been exceeded.
- Crew recognizes RPS ½ scram by:
  - ⇒ OHA C3-A4 "REACTOR SCRAM TRIP LOGIC B1"
  - ⇒ OHA C3-A5 "REACTOR SCRAM TRIP LOGIC B2"
  - ⇒ OHA C5-A1 "NEUTRON MONITORING SYSTEM"
  - ⇒ RPS Trip Logic B1 NORMAL/RESET status lights extinguished
  - ⇒ RPS Trip Logic B2 NORMAL/RESET status lights extinguished
  - ⇒ Pilot Scram Valve Solenoid LOGIC B NORMAL status lights for all four groups extinguished.
  - ⇒ CRIDS D2126 NEUTRON MON SYST SCRAM X
  - ⇒ CRIDS D2174 "REACTOR SCRAM X TRIP"
  - ⇒ CRIDS D2175 "REACTOR SCRAM Z TRIP"

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• Crew recognizes 'B', 'D', and 'F' APRMs Upscale by:               <ul style="list-style-type: none"> <li>⇒ OHA C3-C5 "APRM SYS B UPSCALE TRIP/INOP"</li> <li>⇒ C3-D4 "APRM UPSCALE"</li> <li>⇒ APRMs B, D, and F "UPSC TR OR INOP" status lights</li> <li>⇒ APRM B, D, and F "UPSC ALARM" status lights</li> <li>⇒ CRIDS D4305 "APRM CH B UPSCALE THERMAL TRIP"</li> <li>⇒ CRIDS D4307 "APRM CH D UPSCALE THERMAL TRIP"</li> <li>⇒ CRIDS D4309 "APRM CH F UPSCALE THERMAL TRIP"</li> </ul> </li> <li>• Crew recognizes 'B' RECIRC LOOP FLOW SUMMER FAILURE Downscale by:               <ul style="list-style-type: none"> <li>⇒ FLOW UNIT B and B "COMPAR" status lights</li> <li>⇒ APRM B, D, and F "UPSC ALARM" status lights</li> <li>⇒ CRIDS C026 "EITHER RBM CHANNEL UPSCALE"</li> <li>⇒ CRIDS C049 "RECIRC FLOW COMPR OUT LIMITS"</li> </ul> </li> <li>• CRS implements AB.IC-0004:               <ul style="list-style-type: none"> <li>⇒ Condition F</li> </ul> </li> <li>• CRS references AB.IC-0003:               <ul style="list-style-type: none"> <li>⇒ Condition B</li> </ul> </li> <li>• RO bypasses 'B' Flow Unit.</li> <li>• CRS refers to DD.ZZ-0020 for a failed PPC Sensor.</li> <li>• CRS directs Reactor Engineering to evaluate the flow unit failure on the PPC.</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF directed to place the Flow Unit B MODE Switch in the unlabeled position, <u>THEN</u> <b>CHANGE</b> Malfunction NM12B Final value to 100%.</p>	<ul style="list-style-type: none"> <li>RO directs I&amp;C to place the MODE Switch, on the applicable flow unit, to the "UNLABELED" position between STANDBY and ZERO.</li> <li>RO verifies RPS trip clear.</li> <li>RO resets RPS trip as follows: <ul style="list-style-type: none"> <li>⇒ TURN the affected RPS Trip Logic key to RESET, AND RETURN to the NORMAL position.</li> <li>⇒ VERIFY that RPS is reset.</li> </ul> </li> <li>CRS determine no Tech Spec actions required. Enter Tracking Action statement for: <ul style="list-style-type: none"> <li>⇒ Table 3.3.6-1 Function 6</li> <li>⇒ 3.3.1</li> <li>⇒ 3.1.4.3</li> </ul> </li> </ul>	
<p><b><u>Trip of 'A' EHC Pump:</u></b> After the Crew resets RPS and addresses Tech Spec, <u>OR</u>, at the discretion of the Lead Examiner, <b>TRIGGER ET-4</b> (Loss of EHC).</p>	<ul style="list-style-type: none"> <li>Crew recognizes trip of AP116 EHC pump by: <ul style="list-style-type: none"> <li>⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE"</li> <li>⇒ OHA D3-E5 "TURB HYDR RESERVOIR TROUBLE"</li> <li>⇒ CRIDS D5542 "HYDRAULIC FLUID PUMP A TRBL"</li> <li>⇒ CRIDS D5575 "TURBINE HYDRAULIC FLUID PRESS LO"</li> <li>⇒ HYDR FLUID PUMP A flashing LOW DISCH PRESS light</li> </ul> </li> <li>RO/PO start the BP116 EHC pump.</li> </ul>	<p>If left in AUTO, the BP116 EHC pump will auto-start in about 50 seconds.</p> <p>Immediate Operator action IAW AB.BOP-0003.</p>
<p>IF dispatched to the EHC pump, <u>THEN</u> <b>REPORT</b> AP116 motor is very hot to the touch.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>InSight Item:</p> <ul style="list-style-type: none"> <li>EHC Header Pressure <b>tupehchd</b></li> <li>EHC Pump Disch Pressure <b>tupehc(2) – 15</b></li> <li>EHC Pump Filter D/P <b>tupehcdp(2)</b></li> </ul>	<ul style="list-style-type: none"> <li>CRS implements AB.BOP-0003.</li> </ul>	<p>There are no subsequent actions in AB.BOP-0003 for a trip of a pump.</p>
<p><b><u>EHC Filter Plugging:</u></b> The BP116 discharge filter will begin clogging after the pump starts.</p>	<ul style="list-style-type: none"> <li>Crew recognizes BP116 discharge filter clogging by: <ul style="list-style-type: none"> <li>⇒ OHA D3-F5 "TURB HYDR PUMP TROUBLE"</li> <li>⇒ CRIDS D3629 "MAIN TURB EHC PUMP B FILTER DP HI"</li> <li>⇒ HYDR FLUID PUMP B flashing HI FILTER D/P light</li> <li>⇒ Lowering EHC header pressure</li> </ul> </li> <li>CRS implements AB.BOP-0003: <ul style="list-style-type: none"> <li>⇒ Condition A</li> </ul> </li> </ul>	<p>With <u>NO</u> discharge filter swap, EHC pressure will reach 1100# in about 6 minutes after the pump trip.</p>
<p><u>IF</u> directed to swap BP116 discharge filters, <b>REFER</b> to SO.CH-0001 Section 5.20, <u>THEN REPORT</u> the duplex filter transfer handle will not move.</p>	<ul style="list-style-type: none"> <li>Crew directs TBEO to swap BP116 pump discharge filters.</li> </ul>	<p>EHC header pressure will continue to decay.</p>
	<ul style="list-style-type: none"> <li><u>WHEN</u> EHC pressure lowers to 1200 psig, <u>THEN</u> CRS directs locking the Mode Switch in SHUTDOWN.</li> </ul>	<p>May direct earlier, based on rate of pressure drop and absence of any remaining compensatory actions.</p>
	<ul style="list-style-type: none"> <li>RO locks the Mode switch in SHUTDOWN.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>ATWS:</b></p> <p>The half core ATWS is already inserted.</p>	<ul style="list-style-type: none"> <li>• Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition:               <ul style="list-style-type: none"> <li>⇒ APRM indications</li> <li>⇒ Absence of rod FULL IN lights on the right side of Full Core Display</li> <li>⇒ Rod position indications</li> </ul> </li> <li>• RO performs scram actions IAW AB.ZZ-0001 Att. 1.</li> <li>• CRS implements EOP-101A.</li> <li>• PO stabilizes and maintains RPV level as directed by CRS.</li> <li>• CRS directs:               <ul style="list-style-type: none"> <li>⇒ Initiating SLC</li> <li>⇒ Verifying RWCU Isolates</li> </ul> </li> <li>• RO/PO initiate SLC.</li> <li>• Crew recognizes RWCU failure to isolate by:               <ul style="list-style-type: none"> <li>⇒ HV-F004 OPEN indication on 10C651C and 10C650D</li> <li>⇒ HV-F001 OPEN indication on 10C651C and 10C650D</li> <li>⇒ RWCU pump running indication on 10C651C</li> <li>⇒ RWCU flow indication on CRIDS page 61 and 232</li> </ul> </li> <li>* <b><i>RO/PO isolate RWCU HV-F001 OR HV-F004 following SBLC pump start.</i></b></li> <li>• RO/PO inform CRS of failure to automatically isolate.</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: <ul style="list-style-type: none"> <li>⇒ Verifying Recirc runback to minimum</li> <li>⇒ Tripping reactor recirc pumps</li> </ul> </li> <li>RO/PO: <ul style="list-style-type: none"> <li>⇒ Verify Recirc runback to minimum</li> <li>⇒ Trip reactor recirc pumps</li> </ul> </li> <li>Crew verifies bypass valves control pressure.</li> <li>CRS directs inhibiting ADS.</li> <li>RO/PO inhibit ADS IAW AB.ZZ-0001 Att. 13.</li> <li>* <b><i>CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.</i></b></li> </ul>	<p>Recirc RPT breakers may already be tripped due to Main Turbine Trip.</p> <p>This Critical Task is not applicable if RPV level never reaches -129". See justification for failure criteria.</p>
<p><b>REFER</b> to the appropriate EOP and <b>SUPPORT</b> Crew requests for EOPs IAW with the following. Validated execution time delays are built-in:</p> <p>EOP-301: <b>ET-5</b>  EOP-311: <b>ET-6</b>  EOP-319: <b>ET-7</b>  EOP-320: <b>ET-8</b>  EOP-322: <b>ET-9</b></p>	<ul style="list-style-type: none"> <li>CRS directs performance of the following EOPs: <ul style="list-style-type: none"> <li>⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks"</li> <li>⇒ EO.ZZ-0301 "Bypassing MSIV Isolation Interlocks"</li> <li>⇒ EO.ZZ-0311 "Bypassing Primary Containment Instrument Gas Isolation Interlocks"</li> <li>⇒ EO.ZZ-0319 "Restoring Instrument Air in an Emergency"</li> <li>⇒ EO.ZZ-0322 "Core Spray Injection Valve Override"</li> </ul> </li> </ul>	<p>The timing, order, and priority of the EOP performance may vary.</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 terminating and preventing injection to the RPV with the exception of: <ul style="list-style-type: none"> <li>⇒ SLC</li> <li>⇒ CRD</li> <li>⇒ RCIC</li> </ul> </li> <li>RO/PO terminate and prevent injection from HPCI, RHR and feedwater/condensate IAW AB.ZZ-0001: <ul style="list-style-type: none"> <li>⇒ Attachment 16 (10C650)</li> <li>⇒ Attachment 17 (10C651)</li> </ul> </li> <li>CRS directs maintaining RPV water level between -50" and -185" with feedwater and/or RCIC.</li> <li>CRS directs bypassing the RWM and commencing manual rod insertion.</li> <li>RO/PO bypass RWM and insert control rods IAW RE.AB.ZZ-0001 Att. 2.</li> <li><u>IF</u> EOP-322 is complete before RPV water level reaches -129", <u>THEN</u> CRS directs maintaining RPV water level between -50" and -185" with HPCI and RCIC.</li> </ul>	<p>Typically, the lower end of the level band is set above -129".</p> <p>Typically, the lower end of the level band is set above -129".</p>

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>IF EOP-322 is <u>NOT</u> complete before RPV water level reaches -129",  <u>THEN</u> CRS directs maintaining water level between -129" and -185" with HPCI and RCIC.            (After EOP-322 is complete, and injection through the Core Spray line has been terminated, the CRS may use the full level band allowed by EOP-101A. In this case, with Suppression Pool temperature below 110°, the upper RPV level limit is -50".)</li> </ul>	<p>EOP-322 states:            "HPCI injection flow should be limited (or secured, if not required to maintain RPV level above TAF) while this procedure is in progress."</p> <p>Hope Creek has defined the intent of "above TAF" in this statement to mean no higher than -129".</p>
	<ul style="list-style-type: none"> <li>RO/PO initiate HPCI as directed by CRS.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO recognize HPCI components fail to auto-initiate and align components IAW AB.ZZ-0001 Att. 6.               <ul style="list-style-type: none"> <li>⇒ HPCI Aux Oil Pump</li> <li>⇒ HPCI HV-F006</li> <li>⇒ HPCI HV-8278</li> <li>⇒ HPCI HV-F059</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO inject with HPCI as necessary to maintain RPV water level as directed by CRS.</li> </ul>	
	<ul style="list-style-type: none"> <li>RO/PO inject IAW EO.ZZ-0322 to maintain RPV water level as directed by CRS.</li> </ul>	
	<ul style="list-style-type: none"> <li>IF EOP-322 is complete in the field, RO/PO implements EOP-322 in Control Room as follows:</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>⇒ ENSURE HPCI flow is <math>\leq 3000</math> gpm</p> <p>⇒ CLOSE HV-F006</p> <p>* <b><i>CREW maintains or restores adequate core cooling by restoring/maintaining Reactor water level to <math>&gt;-185"</math> IAW HC.OP-EO.ZZ-0101A without Emergency Depressurizing.</i></b></p> <ul style="list-style-type: none"> <li>• IF the MSIVs close, THEN the CRS directs pressure control with the SRVs.</li> <li>• IF directed, THEN RO/PO control pressure with SRVs IAW AB.ZZ-0001 Att. 13.</li> <li>• IF RPV level reaches <math>-129"</math>, THEN CRS directs restoring: <ul style="list-style-type: none"> <li>⇒ 1E Breakers</li> <li>⇒ CRD</li> <li>⇒ PCIG to SRVs</li> </ul> </li> <li>• IF directed, THEN RO/PO restore 1E breakers IAW AB.ZZ-0001 Att. 12.</li> <li>• IF directed, THEN RO/PO restore a CRD pump to service IAW either: <ul style="list-style-type: none"> <li>⇒ OP-AB.ZZ-0001 Attach 18</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> directed, <u>THEN</u> RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9</li> </ul>	Restoring PCIG to the SRVs IAW AB.ZZ-0001 Att. 9 is also equivalent to the Control Room actions in EOP-311.
	<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> <li>• CRS implements EOP-102.</li> <li>• CRS directs placing RHR in Suppression Pool Cooling.</li> <li>• RO/PO place RHR in Supp Pool Cooling IAW AB.ZZ-0001 Att. 3.</li> <li>• <u>IF</u> necessary, <u>THEN</u> RO/PO align SACS to support second RHR Hx IAW SO.EG-0001 Section 5.9.</li> </ul>	
<u>WHEN</u> the Crew has reset RPS, <u>THEN</u> <b>DELETE</b> Malfunction <b>RP07</b> to allow full rod insertion on the next scram.	<ul style="list-style-type: none"> <li>• <u>WHEN</u> EOP-320 Section 5.1 and 5.2 are complete, <u>THEN</u> the Crew implements EOP-320 Section 5.3 and reset RPS.</li> </ul>	
At the Lead Examiners discretion, <b>MODIFY</b> Insight Item <b>lclsdv</b> to accelerate draining of the SDV.	<ul style="list-style-type: none"> <li>• <u>WHEN</u> OHA C6-E4 clears, <u>THEN</u> the Crew initiates a manual scram IAW EOP-320 Section 5.3.</li> </ul>	



## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<p>* <i>CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.</i></p> <ul style="list-style-type: none"> <li>Crew recognizes the reactor is shutdown by: <ul style="list-style-type: none"> <li>⇒ SPDS ALL RODS IN</li> <li>⇒ RWM Confirm Shutdown</li> <li>⇒ CRIDS Rod positions</li> </ul> </li> <li>CRS directs terminating SLC injection.</li> <li>RO/PO terminate SLC injection.</li> <li>CRS exits EOP-101A, enters EOP-101.</li> </ul>	
<p><b><u>Termination Requirement:</u></b>  The scenario may be terminated at the discretion of the Lead Examiner when:</p> <ul style="list-style-type: none"> <li>RPV Level is being maintained above -161"  <u>AND</u></li> <li>All rods are fully inserted</li> </ul>		

## VI. SCENARIO REFERENCES:

- A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Emergency Plan (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
- N. OP-AA-106-101-1001 Event Response Guidelines
- O. OP-AA-108-114 Post Transient Review
- P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- Q. OP-HC-108-106-1001 Equipment Operational Control
- R. HC.OP-DD.ZZ-0020 Review of Core Performance Information
- S. **HC.OP-SO.AE-0001 Feedwater System Operation**
- T. **HC.OP-SO.BF-0001 CRD Hydraulic System Operation**
- U. **HC.OP-SO.SF-0001 Reactor Manual Control**
- V. **HC.OP-SO.SF-0003 Rod Worth Minimizer Operation**
- W. HC.RE-IO.ZZ-0001 Core Operations Guidelines
- X. HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS
- Y. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- Z. **HC.OP-AB.BOP-0003 Turbine Hydraulic Pressure**
- AA. **HC.OP-AB.IC-0001 Control Rod**
- BB. **HC.OP-AB.IC-0003 Reactor Protection System**
- CC. **HC.OP-AB.IC-0004 Neutron Monitoring**
- DD. **HC.OP-IO.ZZ-0006 Power Changes During Operation**
- EE. **HC.OP-AB.ZZ-000 Reactor Scram**
- FF. **HC.OP-EO.ZZ-0101 RPV Control**
- GG. **HC.OP-EO.ZZ-0101A ATWS-RPV Control**
- HH. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- II. Strategies For Successful Transient Mitigation

1.

- \* ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.***

**K/A 218000 Automatic Depressurization System**

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

A4.04 ADS inhibit RO 4.1 SRO 4.1

Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor. EOPs direct this action under the current conditions. This critical task is only applicable if RPV water level goes below -129". Failure to satisfactorily complete the task is demonstrated by an automatic ACTUATION of ADS such that the ADS SRVs open and reduce reactor pressure to less than 100 psig.

2.

- \* ***RO/PO isolate RWCU HV-F001 OR HV-F004 following SBLC pump start.***

**K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown**

EA1. Ability to operate and/or monitor the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA1.02 RRCS RO 3.8 SRO 4.0

EA1.04 SBLC RO 4.5 SRO 4.5

**K/A 211000 Standby Liquid Control Systems**

A3 Ability to monitor automatic operations of the STANDBY LIQUID CONTROL SYSTEM including:

A3.06 RWCU system isolation RO 4.0 SRO 4.1

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

A4.06 RWCU system isolation RO 3.9 SRO 3.9

The failure of RWCU HV-F001 and F004 to automatically close will reduce the effectiveness of the SBLC injection. Crew action is required to correct the incorrect reactivity control before the BIIT is reached as directed by EOP-101A.

3.

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

**K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown**

EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA2.02 Reactor water level RO 4.1 SRO 4.2

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

4.

- \* ***CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.***

**K/A 295037 SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown**

EA1. Ability to operate and/or monitor the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA1.01 Reactor Protection System RO 4.6 SRO 4.6

EA1.07 RMCS RO 3.9 SRO 4.0

Manually inserting all control rods, OR, implementing HC.OP-EO.ZZ-0320, provides the only methods for control rod insertion and substantial negative reactivity addition. It is critical for the crew to implement one of these methods to insert control rods and shut the reactor down. Failure to initiate these actions may result in requiring RPV level to be lowered to or below TAF to reduce power to <4%. This represents a 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>
<input type="checkbox"/>	Loss Of Offsite Power/SBO	<input type="checkbox"/>	Internal Flooding
<input type="checkbox"/>	LOCA	<input type="checkbox"/>	Loss of 1E AC/DC Buses
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<input checked="" type="checkbox"/>	Turbine Trip	<input type="checkbox"/>	Loss of SSW
<input type="checkbox"/>	Loss of Condenser Vacuum	<input type="checkbox"/>	Loss of SACS
<input type="checkbox"/>	Loss of Feedwater	<input type="checkbox"/>	Loss of Instrument Air
<input type="checkbox"/>	Inadvertent MSIV Closure		
<input type="checkbox"/>	Inadvertent SRV Opening		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY  
THAT INCREASES CORE DAMAGE FREQUENCY**

<u>Y/N</u>	<u>KEY EQUIPMENT</u>	<u>Y/N</u>	<u>KEY EQUIPMENT</u>
<input type="checkbox"/>	1E 4.16KV Bus	<input type="checkbox"/>	120VAC 481 Inverter
<input type="checkbox"/>	Hard Torus Vent	<input type="checkbox"/>	Switchgear Room Cooler
<input type="checkbox"/>	1E 125VDC Bus	<input type="checkbox"/>	RCIC
<input type="checkbox"/>	SACS Loop	<input type="checkbox"/>	SSW Ventilation
<input type="checkbox"/>	SSW Loop	<input type="checkbox"/>	SSW Pump
<input type="checkbox"/>	A/B RHR	<input type="checkbox"/>	RACS Heat Exchanger
<input type="checkbox"/>	HPCI	<input type="checkbox"/>	SLC
<input type="checkbox"/>	Core Spray Loop	<input type="checkbox"/>	Torus D/W Vacuum Breakers
<input type="checkbox"/>	EDG	<input type="checkbox"/>	SACS Heat Exchanger

**OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE**

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<input type="checkbox"/>	Emergency Depressurize RPV W/O High Pressure Injection
<input type="checkbox"/>	Emergency Venting of Primary Containment
<input checked="" type="checkbox"/>	Aligning RHR for Suppression Pool Cooling
<input type="checkbox"/>	Restore Switchgear Cooling
<input type="checkbox"/>	Control Plant via Remote Shutdown Panel
<input type="checkbox"/>	Manually Start SW Pump
<input type="checkbox"/>	Cross-tie DC Charger to Portable Supply
<input type="checkbox"/>	Isolate SW Pipe Rupture in RACS Room
<input type="checkbox"/>	Initiating LP ECCS with No High Pressure Injection Available
<input type="checkbox"/>	Monitoring and Control of SACS heat loads

Complete this evaluation form for each ESG.

## VIII. TURNOVER SHEET:

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Rx Power: 84.5%

Work Week: A

Risk Color: Green

Activities Completed Last Shift:

Reduced power to 84.5% for C RFPT vibration troubleshooting.

Commenced Power ascension IAW IO-6

C RFPT is in Recirc at ~1000 rpm.

Major Activities Next 12 Hours:

Return to 100% power.

Protected Equipment:

A and B RFPTs

Tagged Equipment:

None

## IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

### EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

**Note:** This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-CHECK	ESG- <u>NRC-S2</u>	REVIEWER: <u>Arch &amp; Zll</u>
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<u>QST</u>	1.	The scenario has clearly stated objectives in the scenario.
<u>QST</u>	2.	The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.
<u>QST</u>	3.	Each event description consists of: <ul style="list-style-type: none"><li>• The point in the scenario when it is to be initiated</li><li>• The malfunction(s) that are entered to initiate the event</li><li>• The symptoms/cues that will be visible to the crew</li><li>• The expected operator actions (by shift position)</li><li>• The event termination point</li></ul>
<u>QST</u>	4.	The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.
<u>QST</u>	5.	The events are valid with regard to physics and thermodynamics.
<u>QST</u>	6.	Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).
<u>QST</u>	7.	Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
<u>NA</u>	8.	If time compression techniques are used, scenario summary clearly so indicates.
<u>QST</u>	9.	The simulator modeling is not altered.
<u>QST</u>	10.	All crew competencies can be evaluated.
<u>QST</u>	11.	Appropriate reference materials are available (SOERs, LERs, etc.)
<u>QST</u>	12.	Proper critical task methodology used IAW NRC procedures.

## EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

**Note:** The following criteria list scenario traits that are numerical in nature. A second set of numbers indicates a range to be met for a set of two scenarios. Therefore, to complete this part of the review, the set of scenarios must be available. The section below should be completed once per scenario set.

ESG: NRC-S2

ESG: \_\_\_\_\_

### SELF-CHECK

- Q57 1. Total malfunctions inserted: 4-8/10-14 7
- Q57 2. Malfunctions that occur after EOP entry: 1-4/3-6 2
- Q57 3. Abnormal Events: 1-2/2-3 4
- Q57 4. Major Transients: 1-2/2-3 1
- Q57 5. EOPs used beyond primary scram response EOP: 1-3/3-5 1
- Q57 6. EOP Contingency Procedures used: 0-3/1-3 1
- Q57 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- Q57 8. EOP run time: 40-70% of scenario run time
- Q57 9. Crew Critical Tasks: 2-5/5-8 3
- Q57 10. Technical Specifications are exercised during the test 2
- Q57 11. Events used in the two scenarios are not repeated (Only Applicable for an exam set)

Comments:

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**EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)**

**Crew Validation**      **Rev:**   00        **Date Validated:**   1/14/12    
Validated with one 3 man crew from B Shift. Runtime was 75 minutes.

**Validation Comments**

RPV level control by operators kept level above – 129".

**Disposition**

Added MT trip and TBV fail closed after 6 minutes on ET-4 to drive pressure control to SRVs.

**Crew Validation**      **Rev:**             **Date Validated:**       

**Validation Comments**

**Disposition**

# SIMULATOR

## EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: NRC SCENARIO 1

SCENARIO NUMBER: ESG-NRC-S1

EFFECTIVE DATE: Effective when approved.

EXPECTED DURATION: 80 minutes

REVISION NUMBER: 00

PROGRAM: ☒ L.O. REQUAL

☒ INITIAL LICENSE


☐ OTHER \_\_\_\_\_

### REVISION SUMMARY:

1. Added text for power increase with Reactor Recirc.
2. Revised wording of Critical Task for clarity.

PREPARED BY: Archie E. Faulkner  
Instructor

1/14/12  
DATE

APPROVED BY:   
LORT Group Lead or Designee

1/17/12  
DATE

APPROVED BY:  KR et al  
Shift Operations Supervisor or Designee

1/17/12  
DATE

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

### **Enabling Objectives**

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

## **II. MAJOR EVENTS:**

- A. Raise Power with Recirc
- B. PT-N076A MSL Pressure Fails Upscale
- C. A CRD Pump Trip
- D. Seismic Event with 10A403 Bus Lockout
- E. Small Break LOCA / Manual scram
- F. LOP/ with A, B, and D EDG Malfunctions
- G. HPCI Oil Line Break
- H. RCIC Overspeed

## **III. SCENARIO SUMMARY:**

The scenario begins with the plant at 93% power; MOL. “B” EHC pump is tagged for maintenance. Reactor power is being raised to 98% with Reactor Recirc. Main Steam Line Pressure Transmitter PT-N076A fails upscale requiring a Tech Spec entry. After TS are addressed, the “A” CRD Pump will trip. The RO will need to place the “B” CRD Pump inservice. Once CRD is restored, an earthquake will occur. The 10A403 bus will lockout. “A” SSW Pump will fail to Auto-start and must be manually started by the operator. After Tech Specs are addressed for the bus loss, a Small Break LOCA occurs requiring a manual scram. The oil line to HPCI steam control valve fails and is not recoverable. RCIC trips on Overspeed. An aftershock causes a Loss of Offsite Power. “D” EDG fails and is not recoverable. “B” EDG fails to start, but can be started by the operator (Critical Task). RCIC can be recovered with field operator action after RPV Level reaches -129”, but is insufficient to prevent reaching TAF. Emergency Depressurization is required before RPV Level reaches -185” (Critical Task). “A” EDG can be started after emergency depressurization. This will allow containment control to be exercised. The scenario is terminated when the RPV has been depressurized, RPV water level restored to post LOCA level band and Drywell Sprays initiated.

#### IV. INITIAL CONDITIONS:

I.C.

Initial	
	<b>INITIALIZE</b> the simulator to full power, MOL.
	<b>ENSURE</b> A CRD pump is in service.
	<b>ENSURE</b> B TACS Loop is in service.
	<b>ENSURE</b> C SACS pump is in service.
	<b>ENSURE</b> C SSW pump is in service.
	<b>ENSURE</b> AP116 EHC pump is in service.
	C/T BP116 EHC pump as follows:
	1. <b>INSERT</b> Malfunction <b>TC07B</b>
	2. <b>PLACE</b> 'B' EHC pump in MAN
	3. <b>START</b> 'B' EHC pump and allow it to trip
	<b>ENSURE</b> associated Schedule file is loaded and running.
	<b>ENSURE</b> associated Events file open.

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

Initial	Description
	<b>PLACE</b> red bezel cover on 'B' EHC pump.
	At a minimum review the Scenario Reference section and <b>CLEAN</b> the <u><b>bolded</b></u> EOPs, ABs and SOPs listed. (80091396 0270)
	<b>ENSURE</b> Data Collection is trending the following datapool variables:
	<ul style="list-style-type: none"> <li>W/R Reactor Water Level: <b>rrln091a</b> or equivalent</li> <li>CRIDS Compensated Fuel Zone Reactor Water Level: B5042 or equivalent</li> </ul>
	<b>COMPLETE</b> the Simulator Ready for Training/Examination Checklist.

EVENT FILE:

Initial	ET #	
		Event code: Description:
		Event code: Description:
		Event code: Description:
		Event code: Description:

# MALFUNCTION SCHEDULE

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction TC07B	EHC pump B trip
	None	None	Insert malfunction DG01A	Diesel generator A failure to start
	None	None	Insert malfunction DG07B	Diesel generator B emergency start signal failure
	None	None	Insert malfunction DG08B	Diesel generator B breaker failure to auto close
	None	None	Insert malfunction DG01C	Diesel generator C failure to start
	None	None	Insert malfunction DG02D	Diesel generator D failure
	None	None	Insert malfunction MS09A to 100.00000 on event 1	Steam line header pressure transmitter N076A fails
	None	None	Insert malfunction CD10A on event 2	CRD hydraulic pump A trip
	None	None	Insert malfunction PC07A on event 3	Seismic Event I
	None	None	Insert malfunction ED16 on event 3	Loss of 4.16 KV vital bus C 10A403
	None	None	Insert malfunction CW14A on event 3	Service water pump AP502 fail to auto start
	None	None	Insert malfunction RR31A1 to 20.00000 in 600 on event 4	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction PC07B on event 5	Seismic Event II
	None	None	Insert malfunction EG12 on event 5	Loss of all off site power
	None	None	Insert malfunction HP06M on event 5	HPCI aux oil pump - oil line break
	None	None	Insert malfunction RC01 on event 5	RCIC turbine overspeed
	None	None	Insert malfunction RR31A2 to 4.00000 in 60 on event 5	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction DG07B on event 7 delete in 1	Diesel generator B emergency start signal failure
	None	None	Insert malfunction RC01 on event 8 delete in 1	RCIC turbine overspeed
	None	None	Insert malfunction DG01A after 1 on event 12 delete in 1	Diesel generator A failure to start

REMOTE SCHEDULE:

<b>Initial</b>	<b>@Time</b>	<b>Event</b>	<b>Action</b>	<b>Description</b>
	None	None	Insert remote RC02 after 5 to RESET on event 8	RC02 RCIC overspeed trip reset
	None	None	Insert remote HP08 to TAGGED on event 10	HP08 HPCI Aux Oil Pump
	None	None	Insert remote CX11 after 60 to OPEN on event 11	CX11 CX valve AP-V041 to Core Spray header A
	None	None	Insert remote CX15 after 120 to OPEN on event 11	CX15 CX valve AP-V044 to RHR header A
	None	None	Insert remote CX17 after 180 to OPEN on event 11	CX17 CX valve AP-V047 to RHR header C

OVERRIDE SCHEDULE

[illegible]

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><b>Raise Power with Recirc:</b> After the Crew assumes the watch.</p>	<ul style="list-style-type: none"> <li>CRS directs the RO to raise Reactor power with Reactor Recirc in accordance with RE guidance.</li> <li>RO increases Reactor Recirc pump speeds in accordance with HC.OP-SO.BB-0002 and CRS directions.</li> </ul>	
<p><b>PT-N076A Failure:</b> After the Crew assumes the watch and at the discretion of the Lead Examiner, <b>TRIGGER ET-1</b> ('A' NSSSS MSL Pressure Transmitter Fails High).</p>	<ul style="list-style-type: none"> <li>Crew recognizes 'A' NSSSS instrument failure by: <ul style="list-style-type: none"> <li>⇒ OHA C8-A5 "NSSSS INBD ISLN SYS OUT OF SVCE"</li> <li>⇒ Amber NSSSS CH A "TRIP UNIT IN CAL OR GROSS FAIL" light</li> <li>⇒ CRIDS D2633 "MSIV INBD SYS OUT OF SVCE CH A"</li> <li>⇒ CRIDS D2636 "NON-MSIV INBD SYS OUT OF SVCE CH A"</li> </ul> </li> <li>RO/PO reference ARP.</li> <li>Crew inspects 10C609 panel trip units and finds B21-N676A is failed upscale with a Gross Fail Trip in.</li> </ul>	<p>This will prevent the 'A' NSSSS Channel from generating an MSIV isolation signal on Low Main Steam Line pressure.</p>
<p>Transmitter is located in TB Electrical Mezzanine. <u>IF</u> dispatched to transmitter, <b>THEN REPORT</b> there is no visible damage to transmitter.</p>	<ul style="list-style-type: none"> <li>Crew contacts Maintenance to troubleshoot.</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 recognize the following T/S applies               <ul style="list-style-type: none"> <li>⇒ Isolation Actuation Instrumentation</li> <li>3.3.2 action b.1.c applies (24 hours to place in a tripped condition).</li> </ul> </li> </ul>	T/S Table 3.3.2-1 Trip Function 3c.
If requested, after an appropriate delay, support actions of placing trip units in tripped condition by changing <b>MALF MS09A</b> severity to <b>0</b> .	<ul style="list-style-type: none"> <li>Crew may implement HC.OP-GP.ZZ-0011 to place trip units into tripped condition</li> </ul>	
<b>A CRD Pump Trip:</b> After the Crew addresses Tech Specs for the PT-N076A and at the discretion of the Lead Examiner, <b>TRIGGER ET-2</b> .	<ul style="list-style-type: none"> <li>RO recognizes 'A' CRD pump trip by:               <ul style="list-style-type: none"> <li>⇒ OHA C6-F2 "CRD SYSTEM TROUBLE"</li> <li>⇒ CRIDS D2244 "CRD WATER PUMP A MOTOR"</li> <li>⇒ Flashing OVLD/POWER FAILURE bezel for A CRD Pump"</li> </ul> </li> </ul>	
<u>IF</u> dispatched to investigate the CRD Pump trip, <u>THEN</u> <b>REPORT</b> the A CRD pump speed changer inboard bearing has overheated.	<ul style="list-style-type: none"> <li>RO reference ARP.</li> </ul>	
<u>IF</u> dispatched to investigate the trip of A CRD Pump Breaker, <u>THEN</u> <b>REPORT</b> breaker 52-43711 is tripped on overcurrent.	<ul style="list-style-type: none"> <li>RO starts "B" CRD pump IAW ARP as follows:               <ul style="list-style-type: none"> <li>⇒ PLACE DRIVE WTR FLOW controller in MANUAL AND SET to 0.</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>⇒ START B CRD Pump AND RESTORE system flow to 63 gpm.</li> <li>⇒ ADJUST HV-F003 to restore system pressure to normal, IF necessary.</li> <li>⇒ RETURN DRIVE WTR FLOW controller to AUTO.</li> </ul>	
<p><b><u>Earthquake/10A403 Bus Loss:</u></b></p> <p>After the Crew restores CRD and 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 20 seconds</li> <li>OR</li> <li>• <b>ANNOUNCE</b> "You feel motion then it stops"</li> <li>• <b>TRIGGER ET-3</b> (Seismic Event/10A403 Bus Loss)</li> </ul>	<ul style="list-style-type: none"> <li>• Crew recognizes Seismic Event by: <ul style="list-style-type: none"> <li>⇒ OHA C6-C4 "SEISMIC MON PNL C673"</li> <li>⇒ CRIDS D3977 "SEISMIC TROUBLE ALARM TRBL"</li> <li>⇒ Response Spectrum Analyzer indications on 10C650C</li> <li>⇒ Loud rumbling noise (if available)</li> </ul> </li> <li>• Crew monitors critical parameters to determine if plant is stable.</li> </ul>	
<p><u>IF</u> Crew calls National Earthquake Center,</p> <p><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: <ul style="list-style-type: none"> <li>⇒ Condition E</li> <li>⇒ Condition F</li> </ul> </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,</p> <p><u>THEN REPORT</u> the Security system is intact.</p>		

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF dispatched to 10C673, <b>THEN REPORT:</b></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>RO/PO implement AR.ZZ-0011 Attachment C4.</li> <li>Crew dispatches ABEO to 10C673.</li> <li>Crew recognizes a seismic event &gt;0.1g has occurred</li> </ul>	
<p>IF directed to reset 10C673, <b>THEN DELETE</b> Malfunction <b>PC07A.</b></p>	<ul style="list-style-type: none"> <li>RO/PO direct ABEO to reset 10C673 IAW SO.SG-0001.</li> <li>RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1.</li> <li>RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001.</li> <li>Crew determines a shutdown IAW IO.ZZ-0004 is required.</li> <li>Crew recognizes 10A403 bus loss by: <ul style="list-style-type: none"> <li>⇒ OHA E3-E2 4.16KV SYS INCOMING BRKR MALF</li> <li>⇒ OHA E3-F2 4.16KV FDR TO USS XFMR BRKR MALF</li> <li>⇒ OHA D3-E3 120VAC UPS TROUBLE</li> <li>⇒ Flashing TRIP lights for 10A403 Infeed breakers</li> </ul> </li> <li>CRS implements AB.ZZ-0172.</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 PO to complete AB.ZZ-0172 Subsequent Actions.</li> <li>PO ensures A SACS pump is in service.</li> <li>PO ensures B TACS Loop is in service.</li> <li>PO ensures A SSW pump is in service.</li> <li>PO determines A SSW Pump has failed to auto-start.</li> <li>PO starts A SSW pump as follows: <ul style="list-style-type: none"> <li>⇒ PO places A SSW Pump in MAN.</li> <li>⇒ PO presses A SSW Pump START pb.</li> </ul> </li> <li>PO ensures B Control Room HVAC Train is in service.</li> </ul>	
<p><u>IF</u> dispatched to align AP to 'A' Core Spray and A &amp; C RHR</p> <p><u>THEN:</u></p> <ul style="list-style-type: none"> <li><b>TRIGGER ET-11</b> to open AP-V044/V047/V041</li> </ul>	<ul style="list-style-type: none"> <li>PO directs RBEO to align keepfill to "A" Core Spray Loop and "A" and "C" RHR Loops.</li> </ul>	
	<ul style="list-style-type: none"> <li>CRS recognize the following T/S applies <ul style="list-style-type: none"> <li>⇒ 3.8.3.1.a.3. a) Action a. applies (8 hours to re-energize the channel).</li> <li>⇒ 3.8.1.1 Perform Power Distribution lineup within one hour.</li> </ul> </li> </ul>	T/S 3.8.3.1.

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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### **Small Break LOCA:**

20 minutes after the earthquake

OR,  
at the discretion of the Lead Examiner, **TRIGGER ET-4.**

- Crew recognizes LOCA condition:
  - ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL"
  - ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm
  - ⇒ RM11 9AX317/318/320 DLD CCM alarms
  - ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO"
  - ⇒ OHA A4-F5 "COMPUTER PT IN ALARM"
  - ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO"
  - ⇒ Rising Drywell Pressure on various indicators

- CRS implements AB.CONT-0006:
  - ⇒ Condition A
  - ⇒ Condition B
  - ⇒ Condition C

Based on the rate of drywell pressure rise (≈10 minutes to 1.68#) some or all of these Conditions may not be entered.

- CRS implements AB.CONT-0001:
  - ⇒ Condition A

- RO/PO ensures drywell cooling maximized.

- Crew checks
  - ⇒ Recirc pump seal parameters
  - ⇒ SRV temperatures

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>• <u>WHEN</u> the Crew determines drywell pressure cannot be maintained below 1.5 psig, <u>THEN</u> CRS directs: <ul style="list-style-type: none"> <li>⇒ Reducing recirc pumps to minimum speed</li> <li>⇒ Locking the Mode Switch in SHUTDOWN</li> </ul> </li> <li>• RO: <ul style="list-style-type: none"> <li>⇒ Reduces recirc pumps to minimum speed</li> <li>⇒ Locks the Mode Switch in SHUTDOWN</li> </ul> </li> <li>• Crew recognizes RPV Level Below 12.5" EOP entry condition by: <ul style="list-style-type: none"> <li>⇒ OHA C5-A4 "RPV WATER LEVEL LO"</li> <li>⇒ OHA A7-D5 "RPV LEVEL 3"</li> <li>⇒ Various water level indicators</li> </ul> </li> </ul>	
<p><b><u>Aftershock/LOP/LOCA:</u></b></p> <p>At the Lead Examiners discretion,</p> <ul style="list-style-type: none"> <li>• <b>PLAY</b> the Earthquake Sound Effect (if available) at medium volume for about 20 seconds <u>OR</u> <b>ANNOUNCE</b> "You feel motion then it stops"</li> <li>• <b>TRIGGER ET-5</b> (LOP/LOCA)</li> </ul>	<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>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> <li>Crew recognizes failure of the A/B/D EDGs to start and load by: <ul style="list-style-type: none"> <li>⇒ Engine STOP lights</li> <li>⇒ Output breaker TRIP lights</li> <li>⇒ OVLD/PWR lights on associated Channel components</li> </ul> </li> </ul>	<p>Only 'B' EDG will start from the Control Room.</p> <p>'C' EDG is not available due to the 10A403 bus lockout.</p>
<p><u>IF</u> directed to start the 'B' EDG locally,  <u>THEN</u> <b>TRIGGER ET-7</b> and  <b>REPORT</b> 'B' EDG running.</p>	<ul style="list-style-type: none"> <li>RO/PO attempt to start the A/B/D EDGs.</li> </ul>	<p>Immediate Operator Action IAW AB.ZZ-0135</p>
	<ul style="list-style-type: none"> <li>RO/PO close 'B' EDG output breaker.</li> </ul>	<p>Immediate Operator Action IAW AB.ZZ-0135.</p>
	<p>* <b><i>Crew starts the 'B' EDG by</i></b>  <b><i><u>EITHER:</u></i></b>  <b><i>Pressing the 'B' EDG START pushbutton in the Control Room,</i></b>  <b><i><u>OR</u></i></b>  <b><i>Directing an operator to locally start the 'B' EDG,</i></b>  <b><i><u>AND</u></i></b>  <b><i>Closes 'B' EDG output breaker.</i></b></p>	
	<ul style="list-style-type: none"> <li>CRS implements AB.ZZ-0135.</li> </ul>	
<p><u>IF</u> dispatched to investigate the failure of 'D' EDGs to start,  <u>THEN</u> <b>REPORT</b> 'D' EDG has Lube Oil Low Pressure Shutdown alarm. There is oil on 'D' EDG room floor.</p>	<ul style="list-style-type: none"> <li>Crew dispatches NEO and/or Maintenance to investigate failure of D EDG to start.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF dispatched to investigate the failure of the 'A' EDG to start,  <b>THEN REPORT</b> there is a blown fuse on DC Circuit 3 on the AC421 panel.</p> <p>IF directed to start the EDG using either local control switch,  <b>THEN REPORT</b> it did not work.  (AR.KJ-0001 Att. 37A)</p> <p>IF dispatched to check 86, SFR, and SDR relays for 'A' EDG,  <b>THEN REPORT:</b></p> <ul style="list-style-type: none"> <li>86 lockout relays are reset (AC422, elev 137')</li> <li>Blue buttons on SFR and SDR are out (de-energized) (AC421 elev 102')</li> </ul>	<ul style="list-style-type: none"> <li>Crew dispatches NEO and/or Maintenance to investigate failure of 'A' EDG to start.</li> </ul>	
<p>IF dispatched to determine status of HPCI,  <b>THEN REPORT</b></p> <ul style="list-style-type: none"> <li>HPCI is idle</li> <li>HPCI Aux oil pump is running.</li> <li>HV-F001 is open</li> <li>Oil in the floor surrounding the pump skid</li> </ul> <p>IF directed to open the breaker for the HPCI Aux Oil pump,  (72-251042)  <b>THEN TRIGGER ET-10.</b></p>	<ul style="list-style-type: none"> <li>Crew recognizes HPCI Oil line break problem by: <ul style="list-style-type: none"> <li>⇒ HPCI Aux Oil Pump running</li> <li>⇒ HV- F001 open</li> <li>⇒ "HPCI INIT AND SEALED IN" light on</li> <li>⇒ HPCI Governor valve closed</li> <li>⇒ HPCI Turbine Speed 0 rpm</li> </ul> </li> </ul>	
<p>IF dispatched to investigate RCIC trip,  <b>THEN REPORT</b> the Overspeed device is tripped.</p>	<ul style="list-style-type: none"> <li>Crew dispatches NEO to investigate RCIC trip.</li> </ul>	

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF directed to reset the RCIC Overspeed device,</p> <p><u>THEN</u> TRIGGER ET-8.</p>	<ul style="list-style-type: none"> <li>Crew resets Overspeed trip IAW SO.BD-0001.</li> </ul>	
	<ul style="list-style-type: none"> <li>CRS directs injecting with 'B' SLC pump.</li> </ul>	Only available injection source.
	<ul style="list-style-type: none"> <li>RO/PO start the 'B' SLC pump.</li> </ul>	
	<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>	Given the lowering RPV water level, and 'B' RHR being the only available RHR pump, the Crew may not place 'B' RHR in Suppression Pool cooling at this time.
	<ul style="list-style-type: none"> <li>Crew recognizes Supp Pool Level Above 78.5 In EOP entry condition by:               <ul style="list-style-type: none"> <li>⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO"</li> <li>⇒ Various Suppression Pool level indicators</li> </ul> </li> </ul>	Given the LOP and the unavailability of HPCI and RCIC, there is nothing the Crew can do to lower Suppression Pool water level at this time.
	<ul style="list-style-type: none"> <li>CRS recognize RPV level continues to lower and Emergency Depressurization is required.</li> </ul>	
	<ul style="list-style-type: none"> <li><u>WHEN</u> RPV water level reaches -129", <u>THEN</u> CRS directs inhibiting ADS.</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 inhibit ADS IAW AB.ZZ-0001 Att. 13.</li> <li><u>BEFORE</u> RPV water level reaches -185", <u>THEN</u> CRS directs opening five ADS SRVs.</li> <li>RO/PO open five ADS SRVs IAW AB.ZZ-0001 Att. 13.</li> <li>* <b><i>WHEN RPV Compensated water level cannot be maintained above -185", <u>THEN</u> Before Compensated RPV water level is below -185", the Crew opens five SRVs to Emergency Depressurize the reactor and then restores RPV water level to above -185".</i></b></li> </ul>	
<p><u>IF</u> directed to restore the 'A' EDG to service, <u>AND</u> after level has been restored with 'B' EDG, <u>THEN TRIGGER ET-12 AND REPORT</u> the 'A' EDG has been successfully restarted.</p>	<ul style="list-style-type: none"> <li>Crew recognizes start of the 'A' EDG by: <ul style="list-style-type: none"> <li>⇒ Diesel engine START light</li> <li>⇒ Generator breaker CLOSE light</li> <li>⇒ OVLD/PWR FAIL lights extinguished on associated channel loads</li> </ul> </li> <li>CRS directs restoring PCIG to the SRVs.</li> <li>RO/PO restores PCIG to the SRVs IAW AB.ZZ-0001 Att. 9.</li> <li>CRS directs placing the 'A' RHR pump in Drywell Spray as required by EOP-102.</li> </ul>	<p>The restoration of the 'A' EDG makes the 'A' Core Spray Loop available for RPV water level control.</p>

## V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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### **Termination Requirement:**

The scenario should be terminated at the discretion of the Lead Examiner when:

- The reactor has been depressurized
- RPV water level is being maintained above -129"
- Drywell Spray is initiated.

- RO/PO places 'A' RHR pump in Drywell Spray IAW AB.ZZ-0001.

## VI. SCENARIO REFERENCES:

- A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Emergency Plan (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
- J. OP-AA-101-111-1004 Operations Standards
- K. OP-AA-101-112-1002 On-Line Risk Assessment
- L. OP-AA-106-101-1001 Event Response Guidelines
- M. OP-HC-108-106-1001 Equipment Operational Control
- N. OP-AA-108-114 Post Transient Review
- O. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- P. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- Q. **HC.OP-AB.IC-0001 Control Rod**
- R. **HC.OP-AB.MISC-0001 Acts of Nature**
- S. **HC.OP-AB.ZZ-0172 Loss of 4.16KV Bus 10A403 C Channel**
- T. **HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**
- U. **HC.OP-AB.ZZ-000 Reactor Scram**
- V. **HC.OP-EO.ZZ-0101 RPV Control**
- W. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- X. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
- Y. Strategies For Successful Transient Mitigation

ESG-NRC-S1 / 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,**  
**AND**  
**Closes 'B' EDG output breaker.**

**K/A 2.0 Generic Knowledges and Abilities**

2.1.8 Ability to coordinate personnel activities outside of the control room RO 3.8 SRO 3.6

**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

The 'A' RHR pump is not available because of failure of 'A' EDG. This leaves the 'B' RHR pump as the only immediately available means of removing decay heat from the containment. Initiation of RHR for decay heat removal is one of the operator actions important to preventing core damage in our PRA. RCIC is not able to maintain RPV level under the current LOCA conditions. Energization of the 10A402 bus makes the 'B' SLC pump available for injection which will prolong the time before adequate core cooling will be lost and Emergency Depressurization is required. The unavailability of 10A401, 10A403 and 10A404 buses leaves limited injection sources available for core reflood following Emergency Depressurization. Availability of the 'B' RHR and Core Spray pumps will reduce the time the core is uncovered.

2.

\* **WHEN RPV Compensated water level cannot be maintained above -185",**  
**THEN Before RPV Compensated water level is below -185", the Crew opens five SRVs**  
**to Emergency Depressurize the reactor and then restores RPV water level to above**  
**-185".**

**K/A 295031 Reactor Low Water Level**

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

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

EA1.06 Automatic depressurization system RO 4.4 SRO 4.4

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

EA2.04 Adequate core cooling RO 4.6 SRO 4.8

When Reactor water level cannot be maintained above -185" with injection to the RPV, adequate core cooling cannot be assured (MSCRWL). EOPs direct action to initiate emergency depressurization before RPV water level reaches this value if there are injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restore level with low pressure ECCS. The combination of vital bus losses, and manually inhibiting ADS, prevents the ADS logic from completing to initiate an automatic blowdown. Crew action is required. The failure to control the ADS blowdown should be viewed as a procedure use issue.

**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>      </u>	Loss of 1E AC/DC Buses
<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>      </u>	Loss of Instrument Air
<u>      </u>	Inadvertent MSIV Closure		
<u>      </u>	Inadvertent SRV Opening		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY  
THAT INCREASES CORE DAMAGE FREQUENCY**

<u>Y/N</u>	<u>KEY EQUIPMENT</u>	<u>Y/N</u>	<u>KEY EQUIPMENT</u>
<u>Y</u>	1E 4.16KV Bus	<u>      </u>	120VAC 481 Inverter
<u>      </u>	Hard Torus Vent	<u>      </u>	Switchgear Room Cooler
<u>      </u>	1E 125VDC Bus	<u>Y</u>	RCIC
<u>      </u>	SACS Loop	<u>      </u>	SSW Ventilation
<u>      </u>	SSW Loop	<u>      </u>	SSW Pump
<u>      </u>	A/B RHR	<u>      </u>	RACS Heat Exchanger
<u>Y</u>	HPCI	<u>      </u>	SLC
<u>      </u>	Core Spray Loop	<u>      </u>	Torus D/W Vacuum Breakers
<u>Y</u>	EDG	<u>      </u>	SACS Heat Exchanger

**OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE**

<u>Y/N</u>	<u>OPERATOR ACTION</u>
<u>Y</u>	Emergency Depressurize RPV W/O High Pressure Injection
<u>      </u>	Emergency Venting of Primary Containment
<u>Y</u>	Aligning RHR for Suppression Pool Cooling
<u>      </u>	Restore Switchgear Cooling
<u>      </u>	Control Plant via Remote Shutdown Panel
<u>      </u>	Manually Start SW Pump
<u>      </u>	Cross-tie DC Charger to Portable Supply
<u>      </u>	Isolate SW Pipe Rupture in RACS Room
<u>Y</u>	Initiating LP ECCS with No High Pressure Injection Available
<u>      </u>	Monitoring and Control of SACS heat loads

Complete this evaluation form for each ESG.

## VIII. TURNOVER SHEET:

Rx Power: 100%  
Work Week: B  
Risk Color: Green

**Activities Completed Last Shift:**

Tagged BP116 EHC pump for discharge line leak repair.

**Major Activities Next 12 Hours:**

Release BP116 after leak repaired.

**Protected Equipment:**

AP116 EHC pump

**Tagged Equipment:**

BP116 EHC pump

## IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST

### EXAMINATION SCENARIO GUIDE (ESG) REVIEW/VALIDATION

**Note:** This form is used as guidance for an examination team to conduct a review for the proposed exam scenario(s). Attach a separate copy of this form to each scenario reviewed.

SELF-  
CHECK

ESG- NRC-S1

REVIEWER: Andrew E. Till

- Q57 1. The scenario has clearly stated objectives in the scenario.
- Q57 2. The initial conditions are realistic, equipment and/or Instrumentation may be out of service, but it does not cue crew into expected events.
- Q57 3. Each event description consists of:
- The point in the scenario when it is to be initiated
  - The malfunction(s) that are entered to initiate the event
  - The symptoms/cues that will be visible to the crew
  - The expected operator actions (by shift position)
  - The event termination point
- Q47 4. The use of non-mechanistic failures (e.g. pipe break) should be limited to one or a credible preceding event has occurred.
- Q57 5. The events are valid with regard to physics and thermodynamics.
- Q47 6. Sequencing/timing of events is reasonable (e.g. the crew has time to respond to the malfunctions in an appropriate time frame and implements procedures and/or corrective actions).
- Q47 7. Sequencing/timing of events is reasonable, and allows for the examination team to obtain complete evaluation results commensurate with the scenario objectives.
- NA 8. If time compression techniques are used, scenario summary clearly so indicates.
- Q47 9. The simulator modeling is not altered.
- Q57 10. All crew competencies can be evaluated.
- Q57 11. Appropriate reference materials are available (SOERs, LERs, etc.)
- Q47 12. Proper critical task methodology used IAW NRC procedures.

## EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)

**Note:** The following criteria list scenario traits that are numerical in nature. A second set of numbers indicates a range to be met for a set of two scenarios. Therefore, to complete this part of the review, the set of scenarios must be available. The section below should be completed once per scenario set.

ESG: NRC-S1

ESG: \_\_\_\_\_

### SELF-CHECK

- Q57 1. Total malfunctions inserted: 4-8/10-14 7
- Q57 2. Malfunctions that occur after EOP entry: 1-4/3-6 2
- Q57 3. Abnormal Events: 1-2/2-3 3
- Q57 4. Major Transients: 1-2/2-3 1
- Q57 5. EOPs used beyond primary scram response EOP: 1-3/3-5 2
- Q57 6. EOP Contingency Procedures used: 0-3/1-3 1
- Q57 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes) 80 min
- Q57 8. EOP run time: 40-70% of scenario run time
- Q57 9. Crew Critical Tasks: 2-5/5-8 2
- Q57 10. Technical Specifications are exercised during the test 2
- Q57 11. Events used in the two scenarios are not repeated (Only Applicable for an exam set)

Comments:

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**EXAMINATION SCENARIO GUIDE (ESG) VALIDATION (con't)**

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**Crew Validation**      **Rev:** 00      **Date Validated:** 1/3/12

Validated with a 3 man crew from B Shift. Runtime 80 minutes.

**Validation Comments**

**Disposition**

//////  
The crew thought the scenario was pretty tough for a 3 man crew.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

//////  
Disagree. Remains as is.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

**Validation Comments**

**Disposition**

//////  
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