

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

JPM NUMBER: 305H-JPM.ZZ016

[RO A1-1]

REVISION: 03

SAP BET: NOH05JPZZ16E

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: RO: 3.6

SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-DL.ZZ-0026, Rev. 144

TOOLS, AND EQUIPMENT: Black pen and Red Pen

ESTIMATED COMPLETION TIME: 19 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 4010010201

TASK: Complete The Daily Surveillance Logs

INITIAL CONDIITONS:

1. A Plant Startup is in progress following a Forced Outage.
2. HC.OP-IO.ZZ-0003, Startup from Cold Shutdown to Rated Power, is being implemented.
3. Current power is 95%.
4. Power ascension has been on hold for 3 hours while Reactor Engineers evaluate core conditions.

INITIATING CUE:

COMPLETE the **Day Shift** daily Surveillance Logs for 10C609, 10C611, AND MSL Radiation (Items 61-74 of Attachment 1a) in accordance with HC.OP-DL.ZZ-0026.

JPM NUMBER: 305H-JPM.ZZ016
 REV NUMBER: 03

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue. START TIME: _____			
	Operator obtains the correct procedure.	Operator obtains HC.OP-DL.ZZ-0026.		
3.1	COMPLETE Attachment 1 (all subsections) daily.	*Operator records readings for Items 61-74 of Attachment 1a, Day Shift. Examiner Note: 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 exactly match observed values. Readings are SAT if they are within ± 1 meter division of actual reading.		
		Examiner Note: Completion of Note 54 calculation is not appropriate due to transient plant conditions.		
3.2	IF in OP CON 4 or 5, THEN COMPLETE Attachment 2 ...	Operator determines this step is N/A.		
3.3	COMPLETE Attachment 4 to perform surveillances ...	Operator determines this step is N/A.		
3.4	ENTER the Operational Condition and date on each page of the log in the blanks provided.	*Operator enters the Operational Condition and date in the appropriate blanks.		
3.5	COMPLETE the applicable subsections of Attachment 3 ...	Operator determines this step is N/A.		
3.6	COMPLETE all surveillances as indicated in each log. IF a Technical Specification Surveillance cannot be successfully completed OR is out-of-spec, THEN IMMEDIATELY NOTIFY the SM/CRS AND the Duty RO AND corrective action initiated shall be noted in the comments section.	Examiner Note: The Operator may not perform this step until completion of Step 3.7. Operator may perform Step 3.6.3 and include the T/S references. *Operator determines that the deviation for Item 63 exceeds the MAX DEVIATION, THEN IMMEDIATELY NOTIFIES the SM/CRS AND the Duty RO, AND notes corrective action in the comments section.		

JPM NUMBER: 305H-JPM.ZZ016
 REV NUMBER: 03

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	Repeat back message from Operator on Item 63 deviation.			
		<p>*Operator determines that the deviation for Item 65 exceeds the MAX DEVIATION,</p> <p><u>THEN IMMEDIATELY NOTIFIES</u> the SM/CRS <u>AND</u> the Duty RO, <u>AND</u> notes corrective action in the comments section.</p> <p>Examiner Note: Operator may perform Step 3.6.3 and include the T/S references.</p>		
CUE:	Repeat back message from Operator on Item 65 deviation.			
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.	Operator determines this step is N/A.		
3.6.2	<u>IF</u> an Action Statement Log Sheet is issued ...	Operator determines this step is N/A.		
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.	Operator refers to Step 3.11 <u>AND</u> determines applicable T/S reference numbers and notes for items 63 and 65.		
CUE:	Repeat back message from Operator on T/S 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.	<p>*Operator performs channel checks and records the differences between the high and low values and trip status.</p> <p>Examiner Note: IAW the Initiating Cue, only Items 61-74 of Attachment 1a Day Shift is required. Refer to Exhibit 1 for expected values. Values may not exactly match due to differences in the observed values. MAX DEVIATION readings are SAT if they are mathematically correct.</p>		

JPM NUMBER: 305H-JPM.ZZ016
 REV NUMBER: 03

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u>: REPEAT BACK any message from the operator on the status of the JPM; then state "This JPM is complete"; <u>AND</u> RECORD the STOP TIME.</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator completes required Daily Surveillance Log entries in accordance with HC.OP-DL.ZZ-0026.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: 305H-JPM.ZZ016
REV NUMBER: 03

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE**JPM NUMBER:** 305H-JPM.ZZ016**REVISION HISTORY**

Rev #	Date	Description	Validation Required?
1	1/14/12	Reference procedure change only. No changes to operator actions. No validation required.	N
2	7/1/2013	Revised due to Reference procedure revision. Added additional action item. Added to Initiating Cue due to simulator equipment out of service.	Y
3	10/31/2014	Revised format. Changed initial conditions. Modified Malfunctions to change OOS items. Validated with 2 ROs. Validation time 19 minutes. Added place screen prints over XR11497 due to equipment unavailability.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: 305H-JPM.ZZ016

REV#: 03

TASK: Complete The Daily Surveillance Logs

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

VALIDATED BY:

Qualification Level Required:

ROJ. KOSKEYROON FILE10/31/2014

Name

Qual

Signature

Date

R. KEFERROON FILE10/31/2014

Name

Qual

Signature

Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: 305H-JPM.ZZ016

REV#: 03

INITIAL CONDITIONS:

<i>Initial</i>	
	INITIALIZE the simulator to 100% power, MOL.
	LOWER power to 95% using TCF.
	STABILIZE Xenon concentration.
	TAKE Cross-Flow to Not Applied and Blocked.
	INSERT Malfunctions and Overrides

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

<i>Initial</i>	Description
	PLACE pictures of Main Screen and RWCU Delta-Flow on NUMAC 1SKXR-11497.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENTS

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

EXERCISE SCHEDULE

<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert malfunction RP18C to 41.20000	RPS LT-N080 C 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

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

SCHEDULE				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert override 12A6_A_AO to 0.20000	MASTER TRIP UNIT B21-N675A METER (COND VAC LO) - C71A-Z2A (AO)

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

EXAMINER'S COPY

Surveillance Log - Control Room -Day Shift

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Operational Condition 1Date Today

ITEM	SURVEILLANCE	OPER COND	PANEL 10C609				PANEL 10C611				INST DEVIATION	MAX DEVIATION	ACCEPTABLE LIMITS			INST TRIPPED YES/NO
			INST	VALUE	INST	VALUE	INST	VALUE	INST	VALUE			MIN	NORM	MAX	
61@	RPV PRESSURE	1,2	N678A	1010	N678C	1000	980	980	N678D	980	30	100	---	---	1037	No
62@	DRYWELL PRESSURE	1,2,3 NOTE 29.	N650A	0.6	N650C	0.5	N650B	0.5	N650D	0.7	0.2	1	---	---	1.68	No
63@	CONDENSER VACUUM	1,2,3	N675A	24.5	N675C	27.5	N675B	27.0	N675D	27.5	3	1	2.5	8.5	---	No
64@	MSL PRESSURE	1	N676A	950	N676C	950	N676B	950	N676D	960	10	80	756	---	---	No
65@	RPV LEVEL 3	1,2,3	N680A	38	N680C	40	N680B	34	N680D	35	6	2	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	70	N686C	70	N686B	70	N686D	55	15	18	---	---	162.8	No
69@	MSL B FLOW	1,2,3	N687A	65	N687C	70	N687B	60	N687D	70	10	18	---	---	162.8	No
70@	MSL C FLOW	1,2,3	N688A	60	N688C	70	N688B	60	N688D	65	10	18	---	---	162.8	No
71@	MSL D FLOW	1,2,3	N689A	70	N689C	65	N689B	60	N689D	65	10	18	---	---	162.8	No
72@	RPV LEVEL 2 (NOTE 27.)	1,2,3,* NOTE 29.	N681A	36	N681C	35	N681B	40	N681D	41	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	38	9RX510	39	9RX511	36	9RX512	37	3	(NOTE 53) 15.0	---	---	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 IS 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, K810A, K810B, K810C, OR K810D (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). [70041230]

NOTE 54: SEE NEXT PAGE

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, K810A/K810B) ALSO SATISFIES A MECHANICAL VACUUM PUMP TRIP INSTRUMENTATION CHANNEL CHECK IAW T/S 4.3.10.2.

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)

EXAMINER'S COPY

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

ATTACHMENT 1a
Surveillance Log - Control Room -Day Shift

Page 14 of 18Operational Condition 1Date Today

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).

MSL AVERAGE FULL POWER BACKGROUND CHECK		MIN	MSLRMS A	MSLRMS B	MSLRMS C	MSLRMS D
a	RM-11 LAST HOURLY AVERAGE		37	38	36	37
b	RM-11 HI SETPOINT		105	114	112	114
c	$c = a / b \times 3$ (RATIO OF ACTUAL TO BASELINE AFBP)	0.850	1.057	1.000	0.964	0.974

- 1 Item 63, Condenser Vacuum exceeds max deviation.
- 2 Item 65, RPV Level 3 exceeds max deviation.

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A Plant Startup is in progress following a Forced Outage.
2. HC.OP-IO.ZZ-0003, Startup from Cold Shutdown to Rated Power, is being implemented.
3. Current power is 95%.
4. Power ascension has been on hold for 3 hours while Reactor Engineers evaluate core conditions.

INITIATING CUE:

COMPLETE the **Day Shift** daily Surveillance Logs for 10C609, 10C611, AND MSL Radiation (Items 61-74 of Attachment 1a) in accordance with HC.OP-DL.ZZ-0026.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Recirculation

TASK NUMBER: 3000260101

TASK: Perform Power Changes During Operation

JPM NUMBER: 305H-JPM.ZZ047

[RO A1-2]

REVISION: 0

SAP BET: NOH05JPZZ47E

K/A NUMBER: 2.1.23

IMPORTANCE FACTOR: RO: 4.3 SRO: 4.4

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☐

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.BB-0007 Rev. 16

TOOLS, AND EQUIPMENT: Black Pen and Red Pen, Calculator, Straight-Edge, HC.OP-ST.BB-0007

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 UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Reactor Recirculation

TASK NUMBER: 3000260101

TASK: Perform Power Changes During Operation

INITIAL CONDITONS:

1. Plant is operating in OPCIION 1.
2. Entered Single Loop Operations in accordance with HC.OP-IO.ZZ-0006, Power Changes During Operation, to remove Reactor Recirculation Pump AP201 from service due to seal degradation.
3. HC.OP-IO.ZZ-0006 is completed through Step 5.3.9.
4. This is the second entry into single loop operation this cycle with Reactor Recirculation Pump BP201 in operation.
5. No other testing or maintenance is in progress that will adversely affect the performance of this test.
6. The 3D Monocore Computer display is out of service. Use CRIDS OD3 for Thermal Power data.

INITIATING CUE:

In accordance with Step 5.3.10 of HC.OP-IO.ZZ-0006,

PERFORM Section 5.1, Jet Pump Operability Verification, of HC.OP-ST.BB-0007. An Equipment Operator is standing by at Panel 10C619, Aux Bldg Control Area El. 102', to obtain individual Jet Pump dp's.

Another operator will perform the rest of the procedure.

JPM NUMBER: ZZ047
 REV NUMBER: 0

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
5.1.1	<u>IF</u> this is the first subsection of the procedure to be performed THEN LOG test start time in the Control Room log(s).	Operator requests that the procedure be logged in the Control Room logs.		
CUE:	Respond that "The procedure is logged in the Control Room logs."			
5.1.2	ENSURE that all prerequisites have been satisfied IAW Section 2.1 of this procedure.	Operator ensures that all Prerequisites have been satisfied (completes Attachment 1, Section 3.0) and INITIALS each prerequisite.		
5.1.3	ENSURE Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed <u>AND</u> Regular Surveillance <u>OR</u> Retest is indicated.	Operator ensures Attachment 1, Section 1.0 has been completed <u>AND</u> INITIALS Step.		
EXAMINER'S NOTE: Refer to the attached Examiner's Copy during the performance of the following Steps.				
5.1.4	RECORD the following information in the appropriate spaces on Attachment 2: A. ENTER Recirculation Pump "A" speed <u>IF</u> operating, <u>OTHERWISE</u> N/A.	Operator marks Step as N/A.		
	B. ENTER Recirculation Pump "B" speed <u>IF</u> operating, <u>OTHERWISE</u> N/A.	*Operator determines Recirculation Pump "B" speed as indicated by 1-BB-SIC-R621A and enters this value on Attachment 2. [$\pm 1\%$]		
	C. ENTER Recirculation Pump "A" flow <u>IF</u> operating, <u>OTHERWISE</u> N/A.	Operator marks Step as N/A.		

JPM NUMBER: ZZ047
 REV NUMBER: 0

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	D. ENTER Recirculation Pump "B" flow <u>IF</u> operating, <u>OTHERWISE</u> N/A.	*Operator determines Recirculation Pump "B" flow as indicated by 1-BB-FI-R613-B31 or 1-BB-FR-R614-B31 (blue), enters this value and circles the indicator used on Attachment 2. [± 4 KGPM]		
	E. <u>IF</u> Recirculation Pump "A" is operating, ENTER SAT <u>IF</u> Recirculation Pump "A" flow is within $\pm 10\%$ of the established curve (at given speed) on Attachment 4, (otherwise, UNSAT). [T/S 4.4.1.2.b.1]	Operator marks Step as N/A.		
	F. <u>IF</u> Recirculation Pump "B" is operating, ENTER SAT <u>IF</u> Recirculation Pump "B" flow is within $\pm 10\%$ of the established curve (at given speed) on Attachment 5, (otherwise, UNSAT). [T/S 4.4.1.2.b.1]	*Operator refers to Attachment 5 and determines that flow is within $\pm 10\%$ of the established curve (at given speed), and enters SAT on Attachment 2. [± 0.5 MLB/HR]		
NOTE	If the operating loop drive flow is ≥ 23 kgpm ($\approx 48\%$ Recirc Pump speed) then the flow in the idle loop is negative (reverse) flow. If the operating loop drive flow is < 23 kgpm ($\approx 48\%$ Recirc Pump speed) then the flow in the idle loop is positive (forward) flow.	Operator reads and initials the Note.		
	G. CALCULATE Total Core Flow as follows: 1. ENTER Jet Pump Loop Total Flow A.	*Operator determines Jet Pump Loop Total Flow A as indicated by FI-R611A-B21 or A3189, and enters this value on Attachment 2. [± 0.5 MLB/HR]		
	2. ENTER Jet Pump Loop Total Flow B.	*Operator determines Jet Pump Loop Total Flow A as indicated by FI-R611B-B21 or A3190, and enters this value on Attachment 2. [± 0.5 MLB/HR]		

JPM NUMBER: ZZ047
 REV NUMBER: 0

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<p>3. IF the operating loop drive flow is ≥ 23 kgpm ($\approx 48\%$ Recirc Pump speed) PERFORM the following:</p> <p>a. IF Recirculation Pump A is operating, ...</p> <p>b. IF Recirculation Pump B is operating, MULTIPLY the value obtained in Step 1 by 0.85, THEN SUBTRACT the resultant value from the value obtained in Step 2 AND ENTER calculated Total Core Flow. PROCEED to Step 5.1.4.H.</p>	<p>Operator determines that the operating loop drive flow is ≥ 23 kgpm ($\approx 48\%$ Recirc Pump speed) and determines that this step is applicable.</p> <p>Operator marks Step as N/A.</p> <p>*Operator multiplies the value obtained in Step 1 by 0.85, then subtracts the resultant value from the value obtained in Step 2, and enters calculated Total Core Flow on Attachment 2. [± 0.5 MLB/HR]</p> <p>Operator then initials Step and proceeds to Step 5.1.4.H.</p>		
	<p>H. ENTER SAT IF calculated Total Core Flow is within $\pm 10\%$ of the established curve (at given operating Recirc Pump flow) on Attachment 6, Recirculation Pump Flow "A" vs Total Core Flow Curve, OR on Attachment 7, Recirculation Pump Flow "B" vs Total Core Flow Curve, (otherwise, UNSAT). [T/S 4.4.1.2.b.2]</p>	<p>*Operator refers to Attachment 7 and determines that Total Core Flow is NOT within $\pm 10\%$ of the established curve (at given operating Recirc Pump flow) and enters UNSAT on Attachment 2.</p>		

JPM NUMBER: ZZ047
 REV NUMBER: 0

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
NOTE	<p>The constant motion of the individual jet pump d/p indicators makes data acquisition difficult. The recommended method is to take a high and a low reading and use their average. Noise is the most positive indication that the jet pump is operating.</p> <p>Jet Pump d/p indication accuracy and readability are marginal during periods of low Core flow. Attempt to maximize Recirc Pump speeds before performing the following steps.</p> <p>Jet pump data is only required for jet pumps 1 - 10 when "B" Recirc. Loop is in operation, and jet pumps 11 - 20 WHEN "A" Recirc. Loop is in operation.</p>	Operator reads and initials the Note.		
5.1.5	COMPLETE Attachment 3 for individual Jet Pumps in the operating Recirc. Loop <u>ONLY</u> .	*Operator contacts the Equipment Operator to perform/provide the individual Jet Pump data for Jet Pumps 1-10.		
CUE:	Respond as the Equipment Operator and provide the operator with the requested data on Attachment 3.			
5.1.6	DETERMINE on Attachment 3 whether the % dp is within $\pm 20\%$ of the established curve for the appropriate operating Recirc Pump (at a given speed) on Attachment 8 or 9.	Operator determines that all % dp are within $\pm 20\%$ of the established curves for the appropriate operating Recirc Pump (at a given speed) on Attachment 8.		
5.1.7	RECORD SAT <u>OR</u> UNSAT on Attachment 3.	*Operator enters SAT for each Jet Pump on Attachment 3.		
5.1.8	On Attachment 2 ENTER SAT <u>IF</u> all individual Jet Pumps are recorded as SAT on Attachment 3 (otherwise, UNSAT). [T/S 4.4.1.2.b.3]	Operator enters SAT on Attachment 2.		

JPM NUMBER: ZZ047
REV NUMBER: 0

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.1.9	ENTER THERMAL POWER from the 3D Monicore P1 Report <u>OR</u> OD3 on Attachment 2.	Operator obtains Thermal Power as indicated on CRIDS OD3 and enters value on Attachment 2.		
5.1.10	<u>IF</u> this is the final subsection of the procedure <u>THEN LOG</u> test end time in the Control Room log(s).	Operator determines that this is NOT the final subsection and marks Step as N/A.		
5.1.11	<u>IF</u> this is the final subsection of the procedure to be performed <u>THEN SUBMIT</u> this procedure to the SM/CRS for review <u>AND</u> completion of Attachment 1.	Operator determines that this is NOT the final subsection and marks Step as 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 RECORD</u> the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____			
Task Standard: Operator				

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ047
REV NUMBER: 0

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT:

SAT

☐

UNSAT

☐

QUESTION: _____

RESPONSE: _____

RESULT:

SAT

☐

UNSAT

☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ047

REVISION HISTORY

Rev #	Date	Description	Validation Required?
0	10/31/2014	Initial issue. Significantly modified ZZ013. Validated with 2 ROs. Validation time 27 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ047

REV#: 0

TASK: Perform Power Changes During Operation

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

VALIDATED BY:Qualification Level Required: RO

<u>R. KEFER</u>	<u>RO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date
<u>J. KOSKEY</u>	<u>RO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ZZ047

REV#: 0

INITIAL CONDITIONS:

<i>Initial</i>	
	INITIALIZE to 100% power MOL.
	INSERT 10C, 10B, and 10A Control Rods.
	LOWER Reactor Recirculation Pump Demands to 74.5%.
	REMOVE AP201 from service, and isolate, in accordance with HC.OP-IO.ZZ-0006 and HC.OP-SO.BB-0002, Sections 5.3 and 5.6.

PREFLIGHTING (i.e., RM-11 set points, procedures, bezel covers)

<i>Initial</i>	Description
	MARKUP HC.OP-ST.BB-0007, Attachment 3, Jet Pump data.
	MARKUP HC.OP-ST.BB-0007 for completion of Regular Surveillance.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT

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

MALFUNCTION SCHEDULE:

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

REMOVAL SCHEDULE:

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

OVERRIDE SCHEDULE:

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

EXAMINER'S COPY

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

ATTACHMENT 2
CONTROL ROOM DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY
 Page 1 of 1

1.0 Jet Pump Operability Verification

STEP	NOMENCLATURE	VALUE	
5.1.4.A	RECIRCULATION PUMP "A" SPEED (1-BB-SIC-R621A)	N/A	%
5.1.4.B	RECIRCULATION PUMP "B" SPEED (1-BB-SIC-R621B)	74.25	%
5.1.4.C	RECIRCULATION PUMP "A" FLOW 1-BB-FI-R617-B31 or 1-BB-FR-R614-B31 (red) (Circle indicator used)	N/A	KGPM #
5.1.4.D	RECIRCULATION PUMP "B" FLOW 1-BB-FI-R613-B31 or 1-BB-FR-R614-B31 (blue) (Circle indicator used)	39.330	KGPM #
5.1.4.E	"A" PUMP SPEED/FLOW DEVIATION CHECK	N/A	*
5.1.4.F	"B" PUMP SPEED/FLOW DEVIATION CHECK	SAT	*
5.1.4.G.1	JET PUMP LOOP TOTAL FLOW "A" FI-R611A-B21 or A3189	18.15	MLB/HR
5.1.4.G.2	JET PUMP LOOP TOTAL FLOW "B" FI-R611B-B21 or A3190	67.98	MLB/HR
5.1.4.G.3 OR 5.1.4.G.5	TOTAL (CALCULATED) CORE FLOW	52.55	MLB/HR
5.1.4.H	RECIRC PUMP FLOW vs TOTAL CORE FLOW CHECK	UNSAT	*
5.1.8	JET PUMP DIFFERENTIAL PRESSURE CHECK	SAT	*
5.1.9	CORE THERMAL POWER (P1 OR OD3)	2030.9	MWTH #

* **Acceptance Criterion** - At least two of three blocks must be marked SAT (REFER to Tech Spec 4.4.1.2.b).

IF Thermal Power is $\leq 38\%$ (1459.2 MWTH) of Rated Thermal Power
OR Recirculation Loop flow in the operating loop is ≤ 22.6 KGPM,
SEE Precaution 3.1.2.

**ATTACHMENT 3
INPLANT DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY**

1.0 Jet Pump Operability Verification

(LOCATED ON PANEL 10C619)

Step Error! Reference source not found.	COLUMN A	
JET PUMP	INDIVIDUAL JET PUMP % dp	COLUMN A WITHIN $\pm 20\%$ OF ESTABLISHED % dp on ATTACHMENT 8 or 9 ENTER SAT OR UNSAT
JP-1	55	
JP-2	57	
JP-3	51	
JP-4	63	
JP-5	58	
JP-6	53	
JP-7	60	
JP-8	60	
JP-9	56	
JP-10	54	
JP-11	9	
JP-12	10	
JP-13	9	
JP-14	11	
JP-15	7	
JP-16	10	
JP-17	7	
JP-18	12	
JP-19	9	
JP-20	7	

**ATTACHMENT 3
INPLANT DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY**

2.0 JET PUMP OPERABILITY VERIFICATION

(LOCATED ON PANEL 10C619)

Step Error! Reference source not found.	COLUMN A	
JET PUMP	INDIVIDUAL JET PUMP % dp	COLUMN A WITHIN $\pm 20\%$ OF ESTABLISHED % dp on ATTACHMENT 8 <u>or</u> 9 ENTER SAT <u>OR</u> UNSAT
JP-1		
JP-2		
JP-3		
JP-4		
JP-5		
JP-6		
JP-7		
JP-8		
JP-9		
JP-10		
JP-11	9	
JP-12	10	
JP-13	9	
JP-14	11	
JP-15	7	
JP-16	10	
JP-17	7	
JP-18	12	
JP-19	9	
JP-20	7	

**ATTACHMENT 3
INPLANT DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY**

3.0 JET PUMP OPERABILITY VERIFICATION

(LOCATED ON PANEL 10C619)

Step Error! Reference source not found.	COLUMN A	
JET PUMP	INDIVIDUAL JET PUMP % dp	COLUMN A WITHIN $\pm 20\%$ OF ESTABLISHED % dp on ATTACHMENT 8 <u>or</u> 9 ENTER SAT <u>OR</u> UNSAT
JP-1	55	
JP-2	57	
JP-3	51	
JP-4	63	
JP-5	58	
JP-6	53	
JP-7	60	
JP-8	60	
JP-9	56	
JP-10	54	
JP-11		
JP-12		
JP-13		
JP-14		
JP-15		
JP-16		
JP-17		
JP-18		
JP-19		
JP-20		

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Plant is operating in OPCON 1.
2. Entered Single Loop Operations in accordance with HC.OP-IO.ZZ-0006, Power Changes During Operation, to remove Reactor Recirculation Pump AP201 from service due to seal degradation.
3. HC.OP-IO.ZZ-0006 is completed through Step 5.3.9.
4. This is the second entry into single loop operation this cycle with Reactor Recirculation Pump BP201 in operation.
5. No other testing or maintenance is in progress that will adversely affect the performance of this test.
6. The 3D Monocore Computer display is out of service. Use CRIDS OD3 for Thermal Power data.

INITIATING CUE:

In accordance with Step 5.3.10 of HC.OP-IO.ZZ-0006,

PERFORM Section 5.1, Jet Pump Operability Verification, of HC.OP-ST.BB-0007. An Equipment Operator is standing by at Panel 10C619, Aux Bldg Control Area El. 102', to obtain individual Jet Pump dp's.

Another operator will perform the rest of the procedure.

HOPE CREEK GENERATING STATION

HC.OP-ST.BB-0007(Q) - Rev. 16

RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY

USE CATEGORY: I

- Packages and Affected Document Numbers incorporated into this revision:
CP No. _____ CP Rev. _____ AD No. _____ Rev No. _____ None ☒
- The following OPEX were incorporated into this revision: None
- The following OTSCs were incorporated into this revision: None

REVISION SUMMARY

70137263-0010

- Adds Step 2.1.3 to Attachment 1 to allow an Evaluation / Engineering Judgment to determine satisfactory performance.

IMPLEMENTATION REQUIREMENTS

Effective date 7/9/12

None

RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY

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1.0 PURPOSE

The purpose of this test is to determine the operability of the Reactor Recirculation Jet Pumps IAW the requirements specified in Technical Specifications Section 4.4.1.2.b, and, perform a comparison of established core flow at the existing recirculation loop flow (APRM % flow) to total core flow IAW the requirements specified in Technical Specifications Table 4.3.1.1-1 item 2.b footnote (g).

2.0 PREREQUISITES

2.1 Jet Pump Operability Verification

- 2.1.1. **ENSURE** permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. _____
- 2.1.2. **ENSURE** all personnel who are to perform any step(s) in this procedure have completed Attachment 1, Section 3.0 prior to performing any part of this procedure. _____
- 2.1.3. **ENSURE** no other testing or maintenance is in progress that will adversely affect the performance of this test. _____
- 2.1.4. The NCO has been informed that the following test is to be performed and the following alarms, indications and functions will be observed. _____

None _____
- 2.1.5. Plant is in Condition 1 or 2. _____
- 2.1.6. Thermal Power is $\leq 60.86\%$ of Rated Thermal Power **[T/S 3.4.1.1.a.1]** _____
- 2.1.7. Recirculation Pump speed shall be maintained $\leq 80\%$ of Rated Pump Speed. (Maintain speed ≤ 1344 rpm via System 1) **[T/S 3.4.1.1.a.1, 70110871]** _____
- 2.1.8. Total Core Flow shall not exceed 60% of Rated Core Flow (60 Mlbm/hr) when entering AND while in Single Loop Operation. **[UFSAR Appendix 15C]** _____
- 2.1.9. IF this is the first time the unit has entered single loop operation this operating cycle, WITH the current loop in operation, new single loop baseline data for the operating loop must be recorded IAW HC.OP-FT.BB-0001(Q), Jet Pump Data Acquisition. Reactor Engineering must be notified to start analyzing data collected, AND a revision to this surveillance must be initiated. _____

2.2 APRM % Flow to Total Core Flow Comparison

- 2.2.1. Permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. _____
- 2.2.2. All personnel performing any steps in this procedure should complete Attachment 1, Section 3.0, prior to performing any part of this procedure _____
- 2.2.3. The NCO has been informed that the following test is to be performed and the following alarms, indications and functions will be observed: _____
 None _____
- 2.2.4. Plant is in Condition 1 or 2. _____
- 2.2.5. NO other testing OR maintenance is in progress that will adversely affect the performance of this test. _____

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions

- 3.1.1. IF at any time during the performance of this test, a step can NOT be completed OR is observed to be unsatisfactory; IMMEDIATELY **NOTIFY** the NCO and SM/CRS. [CD-927E] _____
- 3.1.2. Within NO more than 15 minutes prior to either Thermal Power increase or Recirculation Loop flow increase, **VERIFY** the following differential temperature requirements are met if Thermal Power is $\leq 38\%$ (1459.2 MWTH) of Rated Thermal Power OR the Recirculation Loop flow in the operating loop is $\leq 50\%$ (22.6 KGPM) of rated loop flow by performing Attachment 3v of HC.OP-DL.ZZ-0026(Q), Surveillance Log. The temperature requirements in Steps 3.1.2.B and 3.1.2.C do not apply when the loop not in operation is isolated from the reactor pressure vessel:
 - A. $\leq 145^{\circ}\text{F}$ between Reactor Vessel steam space coolant AND bottom head drain line coolant. _____
 - B. $\leq 50^{\circ}\text{F}$ between the Reactor coolant within the loop not in operation AND the coolant in the reactor vessel. _____
 - C. $\leq 50^{\circ}\text{F}$ between the Reactor coolant within the loop not in operation AND the operating loop. _____

3.2 Limitations

- 3.2.1. The Surveillance requirements of Technical Specifications Section 4.4.1.2.b AND Technical Specifications Table 4.3.1.1-1, item 2.b footnote (g), can be satisfied using curves generated from data collected during previous operating cycles (i.e., use current rev.), while new baseline data is being analyzed AND processed into a new revision to this surveillance. _____
- 3.2.2. IF satisfactory results can not be obtained using the curves generated from data collected during previous operating cycles, but can be obtained using the curves generated from data collected for the current operating cycle using HC.OP-FT.BB-0001(Q), Jet Pump Data Acquisition (following data analysis), THEN an On-The-Spot change to this procedure should be processed to incorporate the new single loop baseline data for the operating loop. _____
- 3.2.3. T/S does not provide the numerical basis for the "established core flow" used in the APRM Flow Unit Channel Check (Table 4.3.1.1-1 item 2.b, footnote g). Attachments 10 and 11 start with the nominal relationship between Recirculation Drive Flow and Total Core Flow and then subtract 5.0% to account for plant parameter variation and methodology limitations. This technique is the basis for "Line A". The APRM Flow Unit is INOPERABLE if it fails the Channel Check and would normally be bypassed pending resolution. In a bypassed state, it no longer provides input to the APRM, RBM, or OPRM circuitry. _____

3.2.4. Section 5.2 includes criteria to detect overly conservative APRM Flow Units (i.e. "**Line B**" on Attachments 10 and 11). If above "**Line B**", the APRM Flow Unit reading is still acceptable for T/S since it results in conservative behavior. This criteria triggers Reactor Engineering to determine whether the condition represents an unacceptable reduction in margin. The APRM Flow Unit is still OPERABLE but has the following potential impacts for the instrumentation using the affected APRM Flow Unit reading.

- APRM Flow-Biased Upscale and Scram Setpoints will be lower than required by T/S.
- RBM Flow-Biased Rod Block Setpoints will be lower than required by T/S.
- OPRM Module will "enable" at a higher Total Core Flow than normal (OHA C3-F1).
- There will be a higher likelihood of reaching the setpoint for the high APRM Flow Unit deviation alarm (OHA C6-D1).
- There will be a higher likelihood of reaching the setpoint for the high APRM Flow Unit deviation within the OPRM software (OHA C3-F3).

4.0 EQUIPMENT REQUIRED

None

5.0 PROCEDURE

NOTE

Individual Jet Pump dp's are obtained on Panel 10C619, Aux Bldg Control Area El. 102'.

5.1 Jet Pump Operability Verification

- 5.1.1. IF this is the first subsection of the procedure to be performed THEN LOG test start time in the Control Room log(s). _____
- 5.1.2. **ENSURE** that all prerequisites have been satisfied IAW Section 2.1 of this procedure. _____
- 5.1.3. **ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed AND Regular Surveillance OR Retest is indicated. _____
- 5.1.4. **RECORD** the following information in the appropriate spaces on Attachment 2:
 - A. **ENTER** Recirculation Pump "A" speed IF operating, OTHERWISE N/A. _____
 - B. **ENTER** Recirculation Pump "B" speed IF operating, OTHERWISE N/A. _____
 - C. **ENTER** Recirculation Pump "A" flow IF operating, OTHERWISE N/A. _____
 - D. **ENTER** Recirculation Pump "B" flow IF operating, OTHERWISE N/A. _____
 - E. IF Recirculation Pump "A" is operating, **ENTER** SAT IF Recirculation Pump "A" flow is within $\pm 10\%$ of the established curve (at given speed) on Attachment 4, (otherwise, UNSAT). [T/S 4.4.1.2.b.1] _____
 - F. IF Recirculation Pump "B" is operating, **ENTER** SAT IF Recirculation Pump "B" flow is within $\pm 10\%$ of the established curve (at given speed) on Attachment 5, (otherwise, UNSAT). [T/S 4.4.1.2.b.1] _____

Continued next page

5.1.4 (continued)

NOTE

If the operating loop drive flow is ≥ 23 kgpm ($\approx 48\%$ Recirc Pump speed) then the flow in the idle loop is negative (reverse) flow.

If the operating loop drive flow is < 23 kgpm ($\approx 48\%$ Recirc Pump speed) then the flow in the idle loop is positive (forward) flow.

G. **CALCULATE** Total Core Flow as follows:

1. **ENTER** Jet Pump Loop Total Flow A. _____
2. **ENTER** Jet Pump Loop Total Flow B. _____
3. IF the operating loop drive flow is ≥ 23 kgpm ($\approx 48\%$ Recirc Pump speed) **PERFORM** the following:
 - a. IF Recirculation Pump A is operating, **MULTIPLY** the value obtained in Step 2 by 0.85, **THEN SUBTRACT** the resultant value from the value obtained in Step 1 **AND ENTER** calculated Total Core Flow. **PROCEED** to Step 5.1.4.H. _____
 - b. IF Recirculation Pump B is operating, **MULTIPLY** the value obtained in Step 1 by 0.85, **THEN SUBTRACT** the resultant value from the value obtained in Step 2 **AND ENTER** calculated Total Core Flow. **PROCEED** to Step 5.1.4.H. _____
4. IF the operating loop drive flow is < 23 kgpm ($\approx 48\%$ Recirc Pump speed) **ADD** the values obtained in Steps 1 and 2. _____
5. **ENTER** the total obtained in Step 4 as calculated Total Core Flow. _____

Continued next page

5.1.4 (continued)

- H. **ENTER SAT** IF calculated Total Core Flow is within $\pm 10\%$ of the established curve (at given operating Recirc Pump flow) on Attachment 6, Recirculation Pump Flow "A" vs Total Core Flow Curve, OR on Attachment 7, Recirculation Pump Flow "B" vs Total Core Flow Curve, (otherwise, UNSAT). [T/S 4.4.1.2.b.2]

NOTE

The constant motion of the individual jet pump d/p indicators makes data acquisition difficult. The recommended method is to take a high and a low reading and use their average. Noise is the most positive indication that the jet pump is operating.

Jet Pump d/p indication accuracy and readability are marginal during periods of low Core flow. Attempt to maximize Recirc Pump speeds before performing the following steps.

Jet pump data is only required for jet pumps 1 - 10 when "B" Recirc. Loop is in operation, and jet pumps 11 - 20 WHEN "A" Recirc. Loop is in operation.

- 5.1.5. **COMPLETE** Attachment 3 for individual Jet Pumps in the operating Recirc. Loop ONLY.
- 5.1.6. **DETERMINE** on Attachment 3 whether the % dp is within $\pm 20\%$ of the established curve for the appropriate operating Recirc Pump (at a given speed) on Attachment 8 or 9.
- 5.1.7. **RECORD SAT** OR UNSAT on Attachment 3.
- 5.1.8. On Attachment 2 **ENTER SAT** IF all individual Jet Pumps are recorded as SAT on Attachment 3 (otherwise, UNSAT). [T/S 4.4.1.2.b.3]
- 5.1.9. **ENTER THERMAL POWER** from the 3D Monicore P1 Report OR OD3 on Attachment 2.
- 5.1.10. IF this is the final subsection of the procedure THEN **LOG** test end time in the Control Room log(s).
- 5.1.11. IF this is the final subsection of the procedure to be performed THEN **SUBMIT** this procedure to the SM/CRS for review AND completion of Attachment 1.

5.2 **APRM % Flow to Total Core Flow Comparison**

- 5.2.1. IF this is the first subsection of the procedure to be performed
THEN LOG test start time in the Control Room log(s). _____
- 5.2.2. **ENSURE** that all prerequisites have been satisfied IAW
Section 2.2 of this procedure. _____
- 5.2.3. **ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and
Signature Sheet has been completed
AND Regular Surveillance OR Retest is indicated. _____
- 5.2.4. At APRM panel 10C608, at each APRM channel,
PLACE the Meter Function Switch to FLOW. _____
- 5.2.5. **RECORD** the value indicated for each APRM's flow on
Attachment 2. _____
- 5.2.6. **RETURN** the Meter Function Switch at each APRM to the
AVERAGE position. _____
- 5.2.7. **ENTER** the Total Core Flow obtained in Step 5.1.4.G on
Attachment 2. _____
- 5.2.8. For the HIGHEST and LOWEST APRM values, **PLOT** the point
for APRM % Flow vs. Total Core Flow on Attachment 10 or 11. _____
- 5.2.9. IF BOTH points are ON or ABOVE Line A (-5.0%),
THEN ENTER SAT on Attachment 2.
[T/S Table 4.3.1.1-1 Item 2.b Footnote (g)] _____
- 5.2.10. IF EITHER point is BELOW Line A (-5.0%), **ENTER** UNSAT on
Attachment 2 AND DECLARE INOPERABLE any APRM Flow
Unit with a reading BELOW Line A. _____
- 5.2.11. IF EITHER point is ABOVE Line B (+5.0%) THEN INITIATE a
Notification to Reactor Engineering to investigate the condition. _____
- 5.2.12. IF this is the final subsection of the procedure
THEN LOG test end time in the Control Room log(s). _____
- 5.2.13. IF this is the final subsection of the procedure to be performed
THEN SUBMIT this procedure to the SM/CRS for review
AND completion of Attachment 1. _____

6.0 RECORDS

6.1 **RETAIN** the following IAW RM-AA-101; Records Management Program:

- Attachment 1 - SM/CRS Data and Signature Sheet
- Attachment 2 - Control Room Data Sheet
- Attachment 3 - Inplant Data Sheet

7.0 REFERENCES

- 7.1 GEK 90333 and 90334
- 7.2 GE SIL No. 330
- 7.3 GE SIL No. 517
- 7.4 HCGS FSAR TABLE 5.4.1 (for loop flow rated)
- 7.5 DCP 80048085, Rev. 2, EXTENDED POWER UPRATE (EPU) IMPLEMENTATION, AD P273, Rev 0.
- 7.6 70110871, Jet Pump Wedge Wear
Recirc Pump administrative limit of 80% (1344 rpm) when in single loop.
- 7.7 80097556, Disable Recirc Master Manual Control and Remove Associated Hardware

TRAINING ONLY

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

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY
Page 1 of 3

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1. Regular Surveillance JS
Initials

1.1.2. Retest _____
Initials

1.1.3. IF not performing the complete test, THEN LIST subsection to be performed, as well as marking N/A on the applicable subsection on the Attachment(s) that will not be performed, OR, that do not require an independent verification IAW OP-AA-108-101-1002, Component Configuration Control.

Subsection(s)

1.2 Plant Conditions

1.2.1. Operational Condition 1

1.2.2. Reactor Power Level 53%

1.2.3. GMWe 641

1.3 Permission to Perform the Test

1.3.1. Permission granted to perform this test:

John Smith
SM/CRS

Today/Now
Date-Time

1.3.2. Order No. **60003952**

TRAINING ONLY

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

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY
Page 2 of 3

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 4.4.1.2.b and Table 4.3.1.1-1 item 2.b footnote (g) 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 T/S ACTION statement has been implemented.

SM/CRS

Date-Time

2.1.3. SATISFACTORY per Evaluation / Engineering Judgment
(Refer to NF-HC-701-1003)

Evaluator

Date-Time

2.1.4. Remarks: _____

Formatted: Normal

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

**ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY
Page 3 of 3**

3.0 PROCEDURE PERFORMER(S) AND VERIFIER(S)

3.1 I have read and understand the steps of this procedure that I am required to perform
(All Departments)

[illegible]

TRAINING ONLY

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

**ATTACHMENT 2
CONTROL ROOM DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY
Page 1 of 2**

1.0 Jet Pump Operability Verification

STEP	NOMENCLATURE	VALUE	
5.1.4.A	RECIRCULATION PUMP "A" SPEED (1-BB-SIC-R621A)	%	
5.1.4.B	RECIRCULATION PUMP "B" SPEED (1-BB-SIC-R621B)	%	
5.1.4.C	RECIRCULATION PUMP "A" FLOW 1-BB-FI-R617-B31 or 1-BB-FR-R614-B31 (red) (Circle indicator used)	KGPM	#
5.1.4.D	RECIRCULATION PUMP "B" FLOW 1-BB-FI-R613-B31 or 1-BB-FR-R614-B31 (blue) (Circle indicator used)	KGPM	#
5.1.4.E	"A" PUMP SPEED/FLOW DEVIATION CHECK		*
5.1.4.F	"B" PUMP SPEED/FLOW DEVIATION CHECK		*
5.1.4.G.1	JET PUMP LOOP TOTAL FLOW "A" FI-R611A-B21 or A3189	MLB/HR	
5.1.4.G.2	JET PUMP LOOP TOTAL FLOW "B" FI-R611B-B21 or A3190	MLB/HR	
5.1.4.G.3 <u>OR</u> 5.1.4.G.5	TOTAL (CALCULATED) CORE FLOW	MLB/HR	
5.1.4.H	RECIRC PUMP FLOW vs TOTAL CORE FLOW CHECK		*
5.1.8	JET PUMP DIFFERENTIAL PRESSURE CHECK		*
5.1.9	CORE THERMAL POWER (P1 <u>OR</u> OD3)	MWTH	#

* Acceptance Criterion - At least two of three blocks must be marked SAT (REFER to Tech Spec 4.4.1.2.b).

IF Thermal Power is $\leq 38\%$ (1459.2 MWTH) of Rated Thermal Power OR Recirculation Loop flow in the operating loop is ≤ 22.6 KGPM, SEE Precaution 3.1.2.

TRAINING ONLY

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

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

2.0 APRM % Flow To Total Core Flow Comparison

STEP	NOMENCLATURE	VALUE
5.2.5	APRM F % FLOW	
	APRM D % FLOW	
	APRM B % FLOW	
	APRM A % FLOW	
	APRM C % FLOW	
	APRM E % FLOW	
5.2.7	TOTAL (CALCULATED) CORE FLOW	

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

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

TRAINING ONLY

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

**ATTACHMENT 3
INPLANT DATA SHEET
RECIRCULATION JET PUMP OPERABILITY-SINGLE LOOP - DAILY**

1.0 Jet Pump Operability Verification

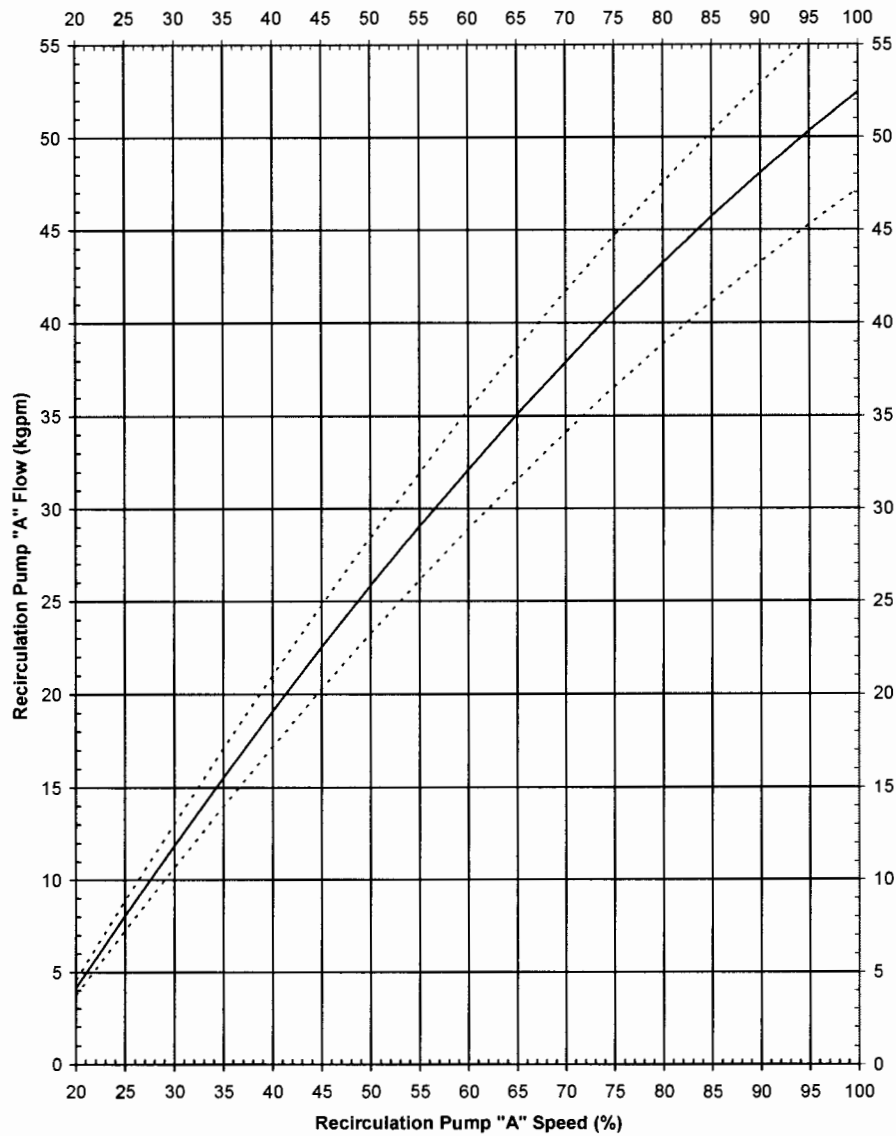
(LOCATED ON PANEL 10C619)

Step 5.1.7	COLUMN A	
JET PUMP	INDIVIDUAL JET PUMP % dp	COLUMN A WITHIN $\pm 20\%$ OF ESTABLISHED % dp on ATTACHMENT 8 or 9 ENTER SAT <u>OR</u> UNSAT
JP-1		
JP-2		
JP-3		
JP-4		
JP-5		
JP-6		
JP-7		
JP-8		
JP-9		
JP-10		
JP-11		
JP-12		
JP-13		
JP-14		
JP-15		
JP-16		
JP-17		
JP-18		
JP-19		
JP-20		

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

ATTACHMENT 4
PUMP SPEED/FLOW CURVE RECIRCULATION LOOP "A"



(1-BB-SIC-R621A-B31)

Cycle 17, SLO A

Hope Creek

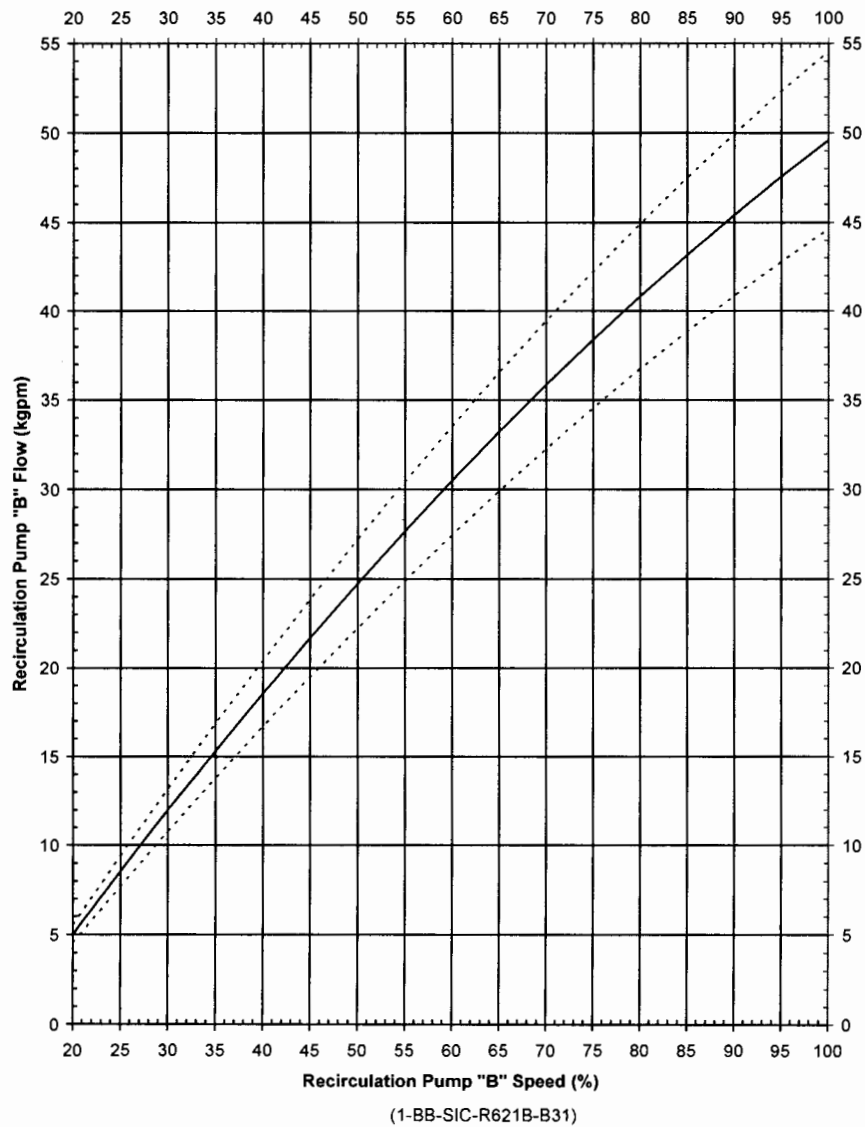
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**ATTACHMENT 5
PUMP SPEED/FLOW CURVE RECIRCULATION LOOP "B"**



Cycle 16, SLO B

Hope Creek

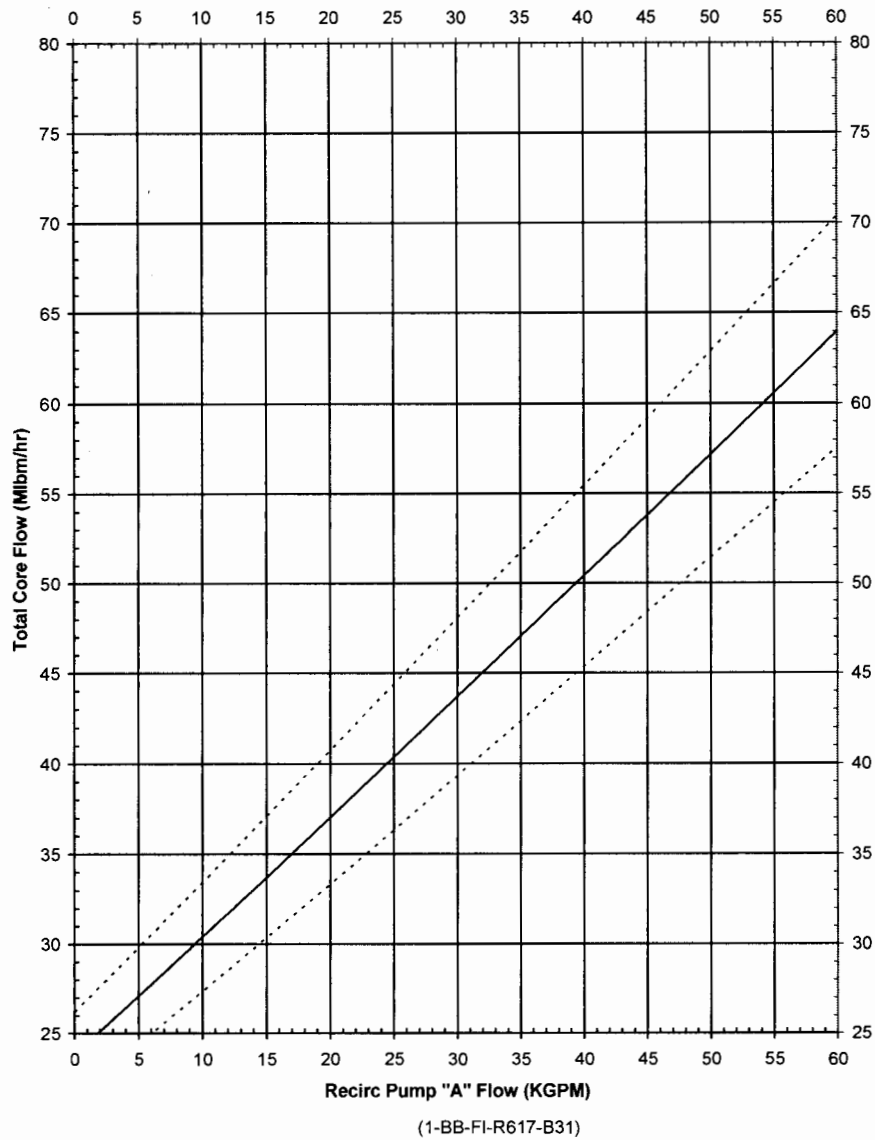
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HC.OP-ST.BB-0007(Q)

ATTACHMENT 6
RECIRC PUMP "A" FLOW vs TOTAL CORE FLOW CURVE

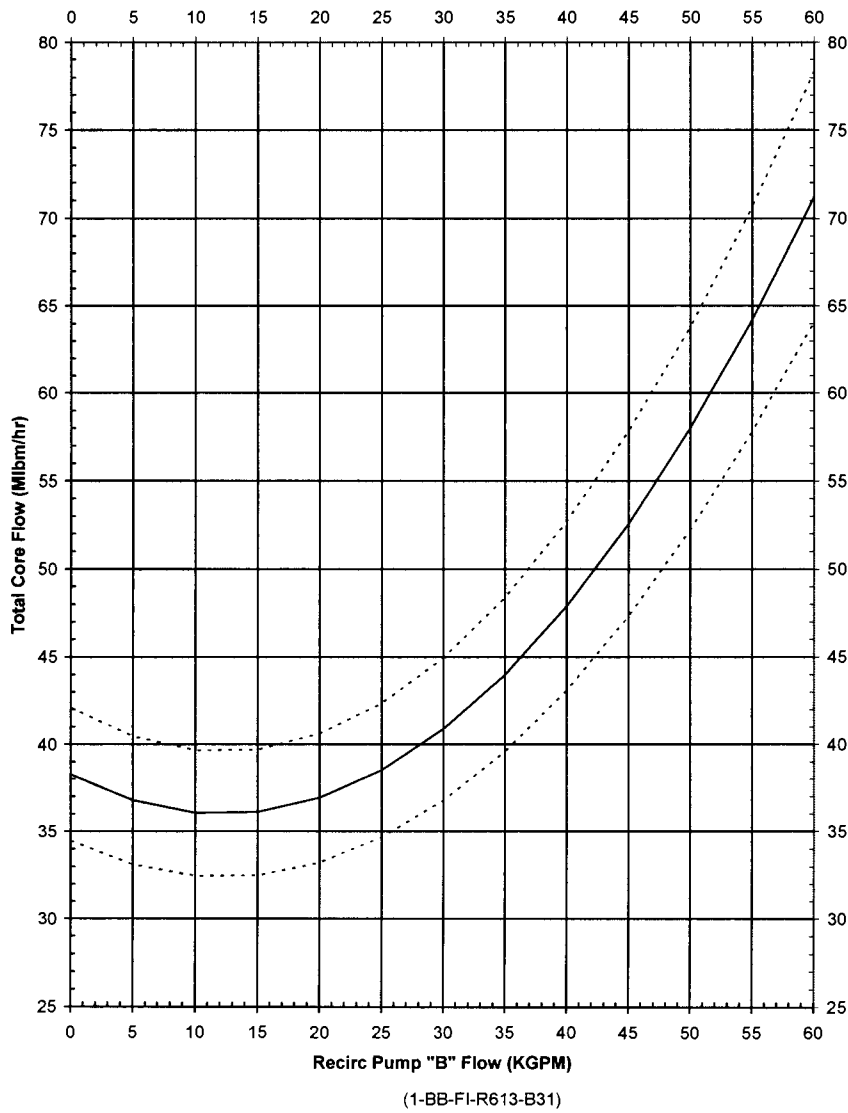


Cycle 17, SLO A

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

ATTACHMENT 7
RECIRC PUMP "B" FLOW vs TOTAL CORE FLOW CURVE

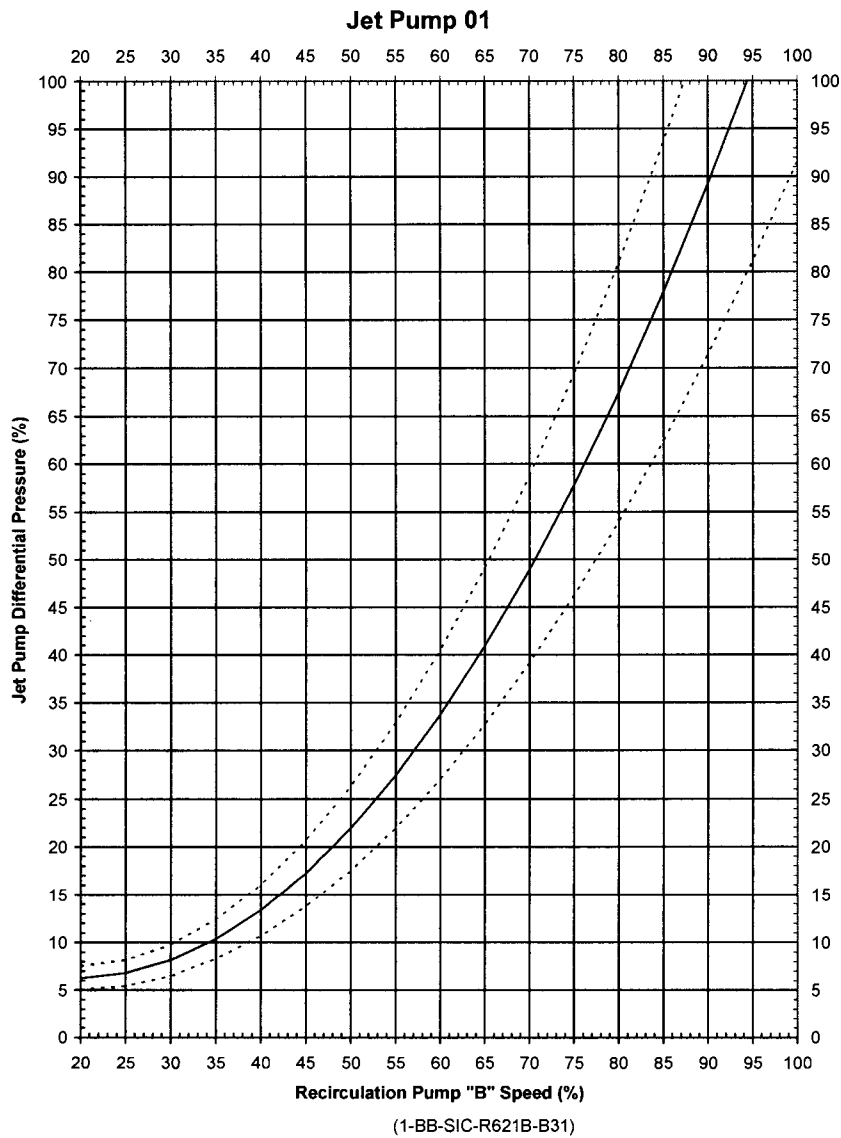


Cycle 16, SLO B

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

ATTACHMENT 8
ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

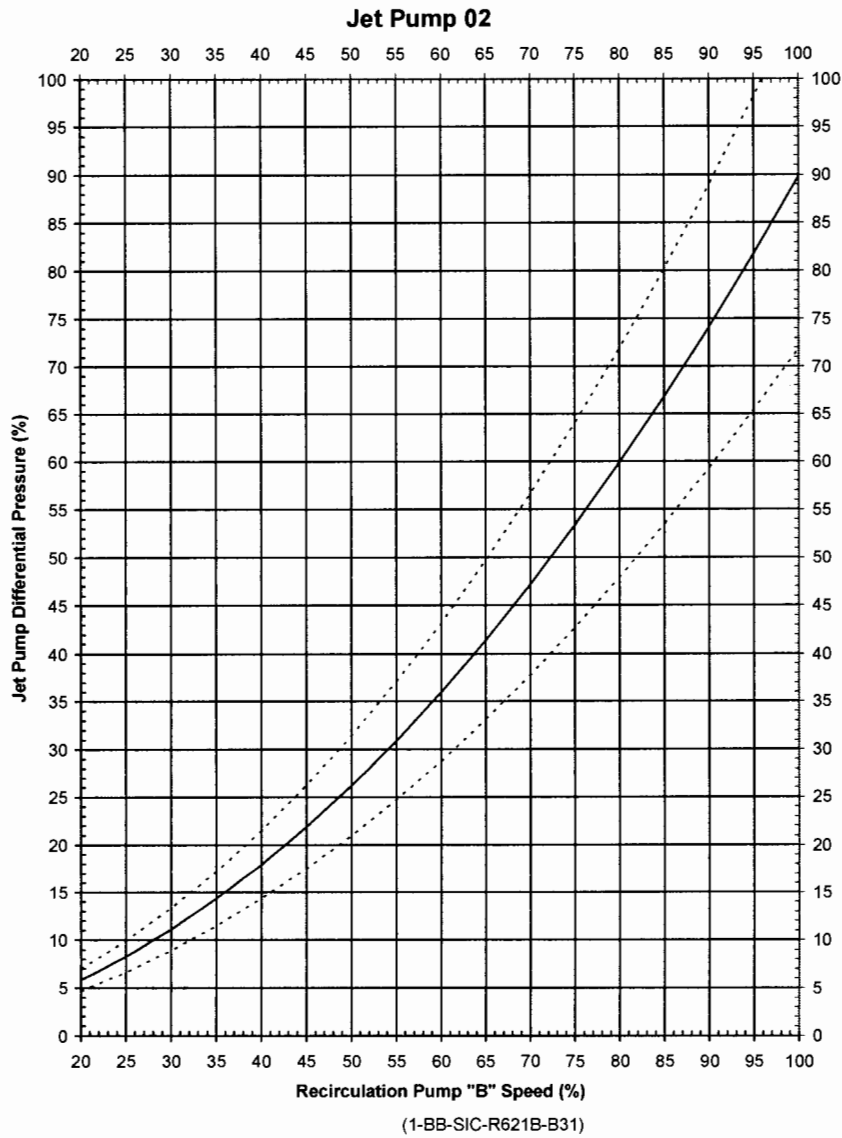
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ATTACHMENT 8
ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

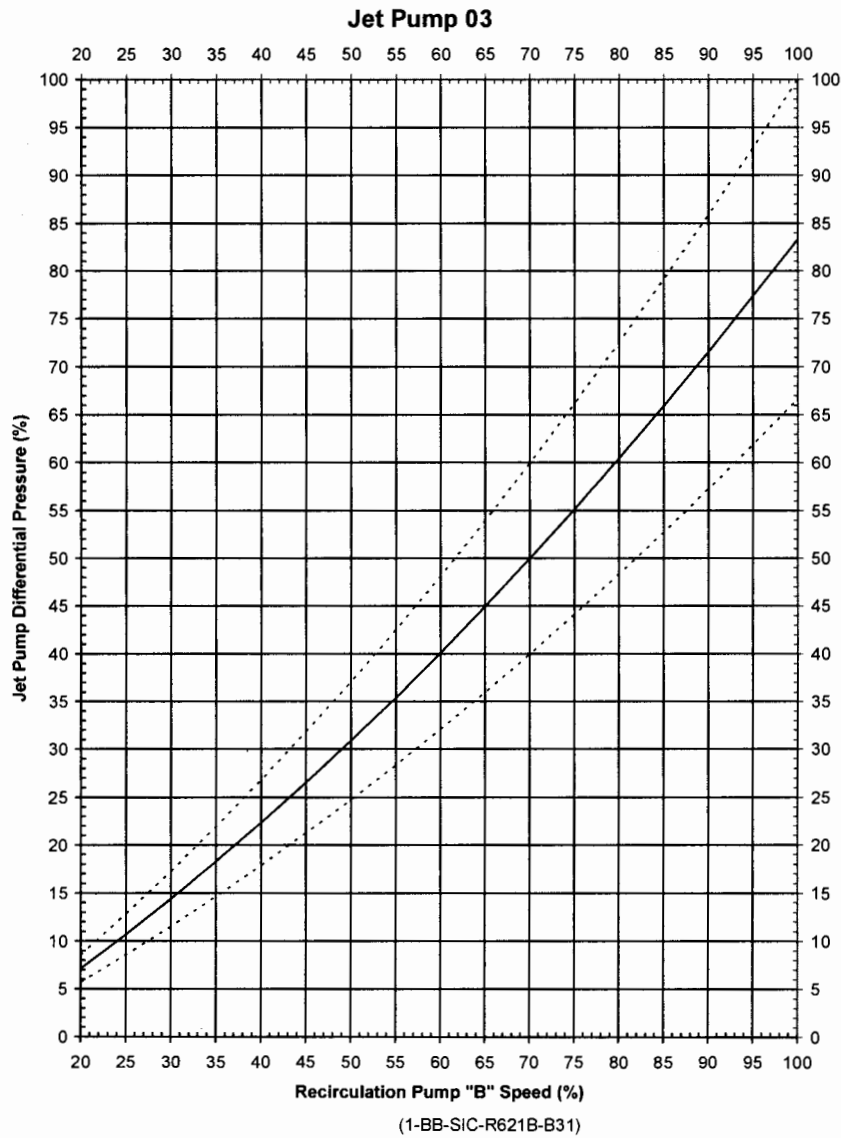
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ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Hope Creek

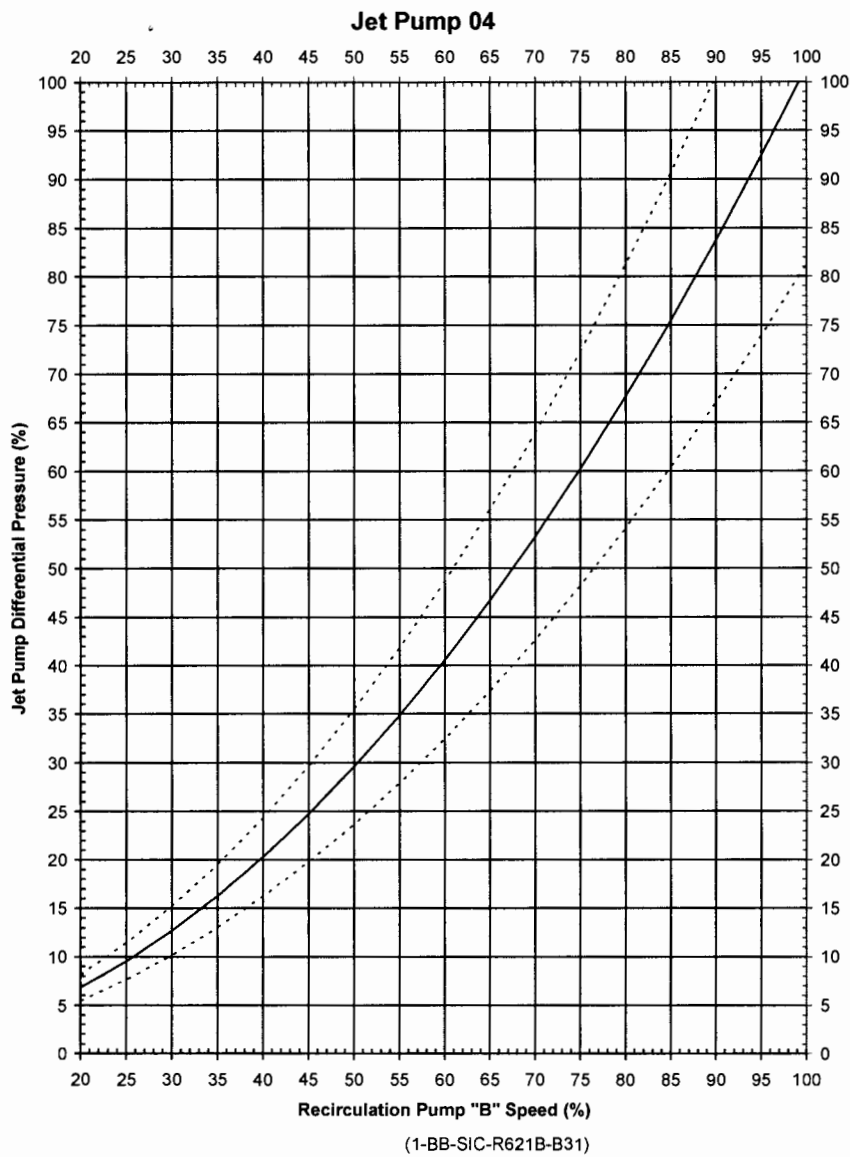
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ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Hope Creek

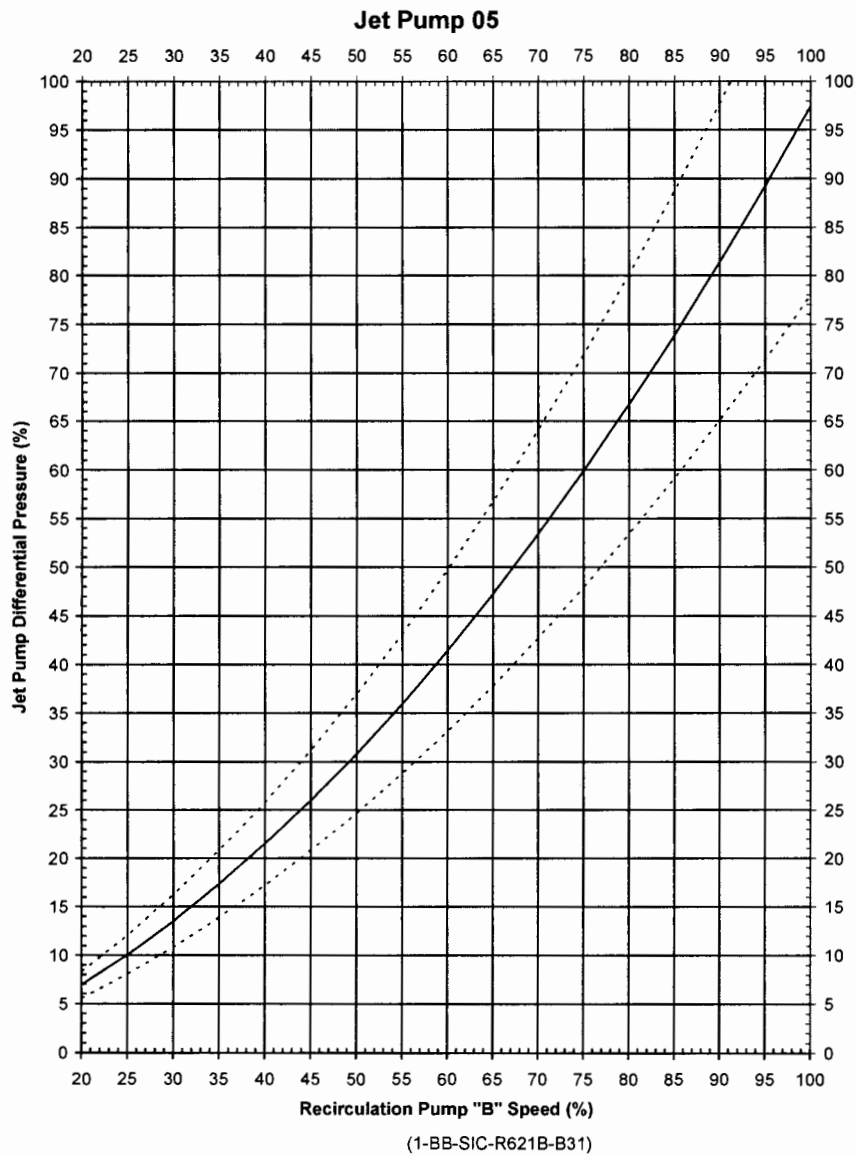
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ATTACHMENT 8
ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

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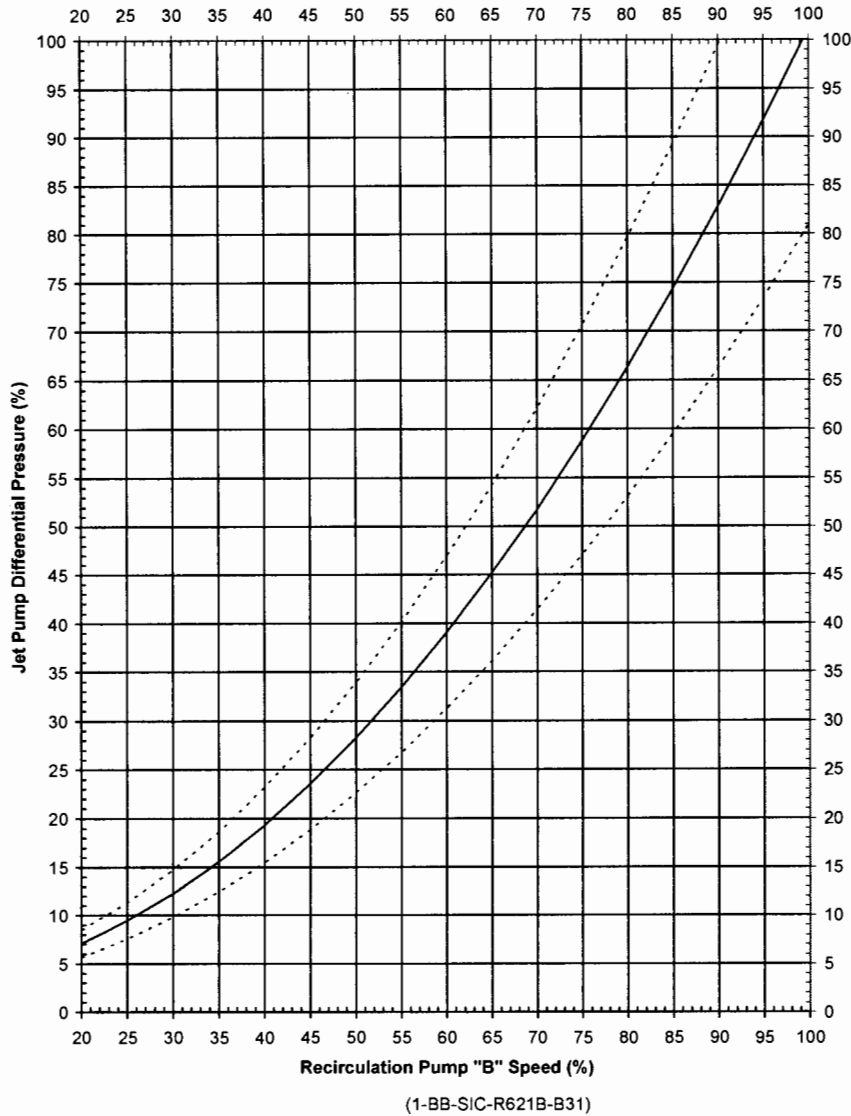
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ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Jet Pump 06



Cycle 16, SLO B

Hope Creek

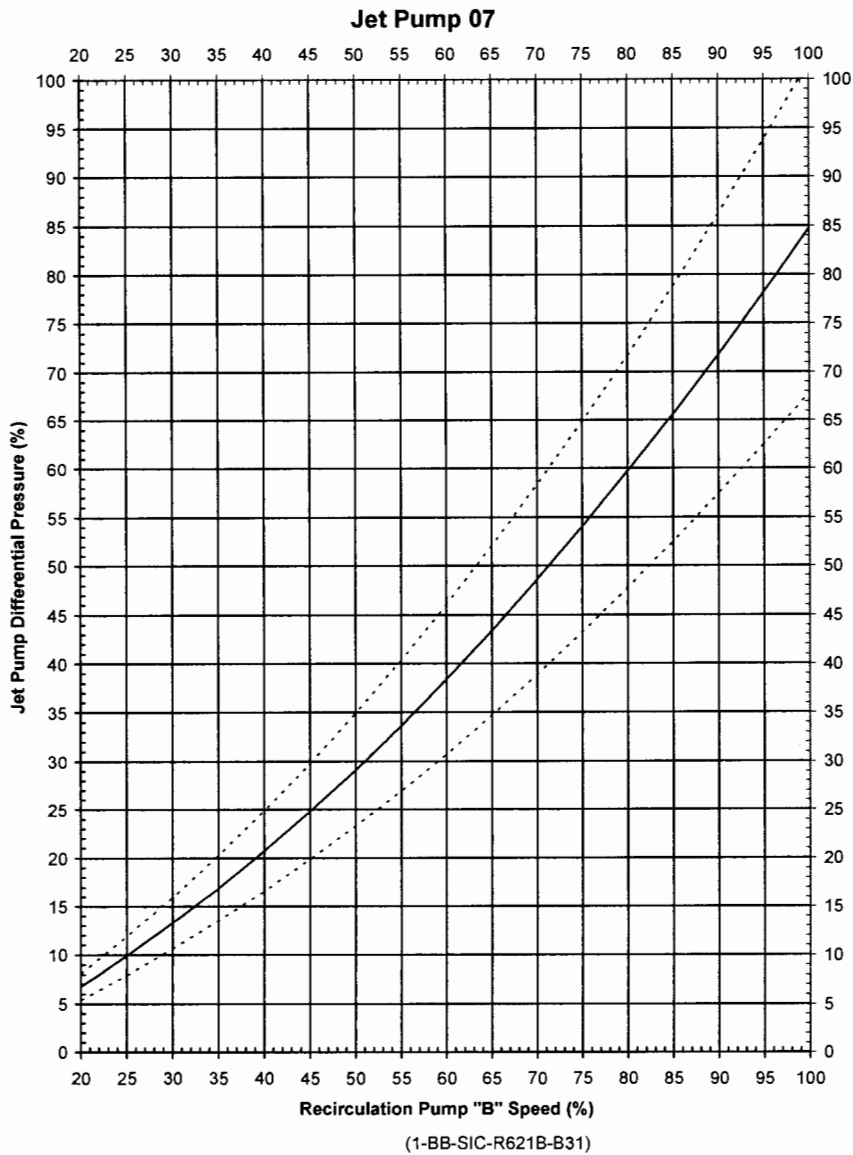
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ATTACHMENT 8
ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

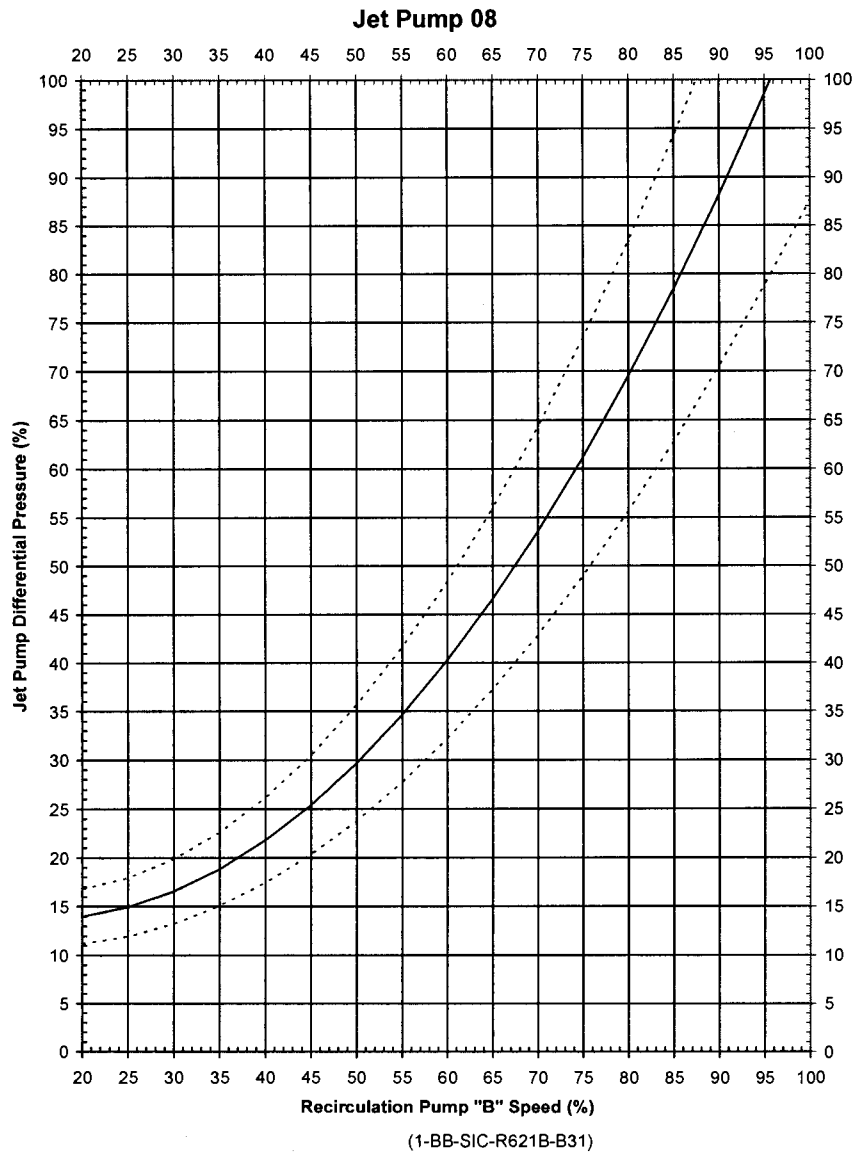
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ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Hope Creek

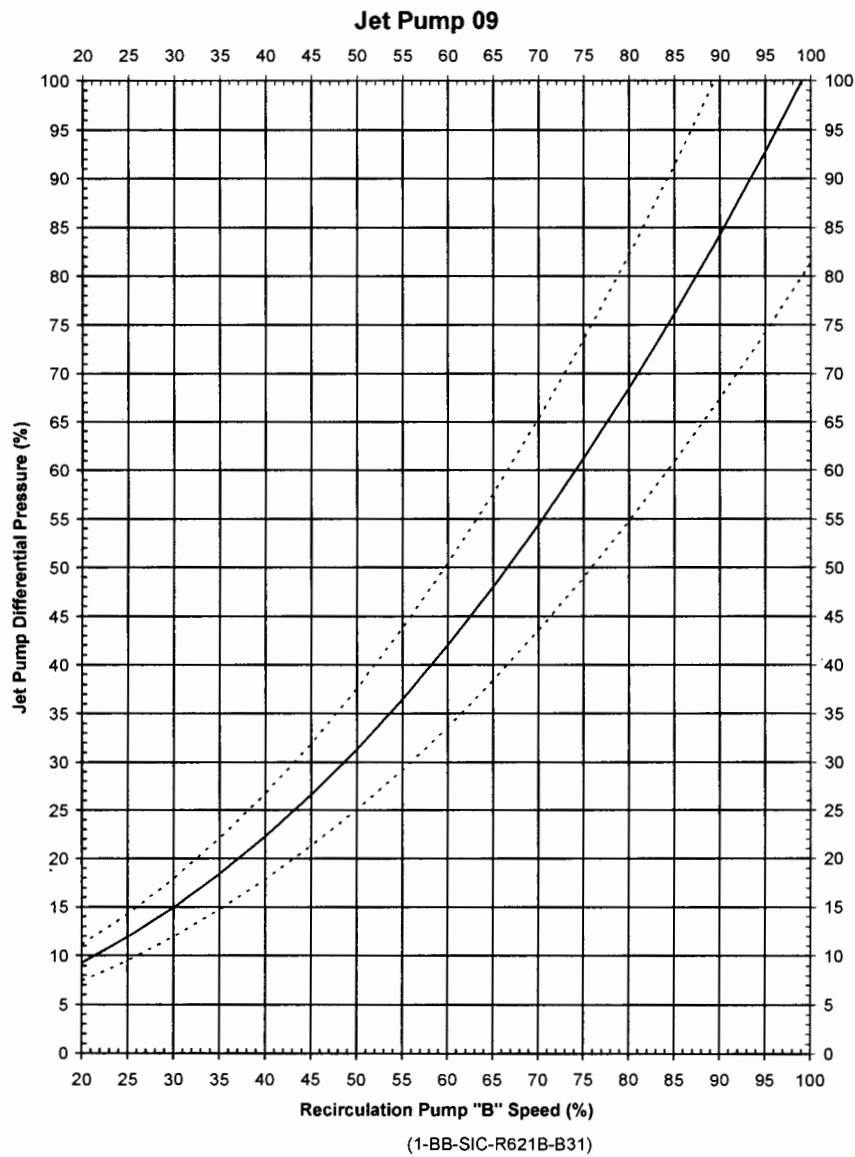
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ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

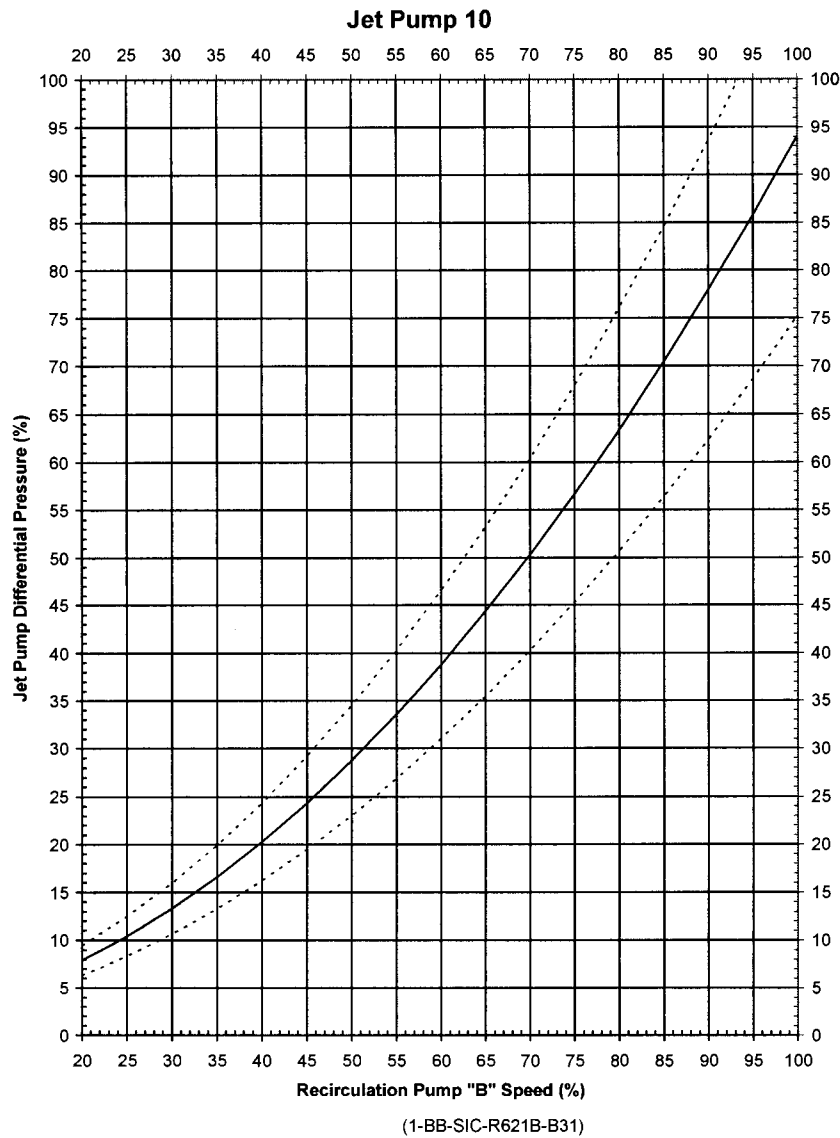
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ATTACHMENT 8
ESTABLISHED % dP GRAPH - "B" RECIRC PUMP OPERATING
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Cycle 16, SLO B

Hope Creek

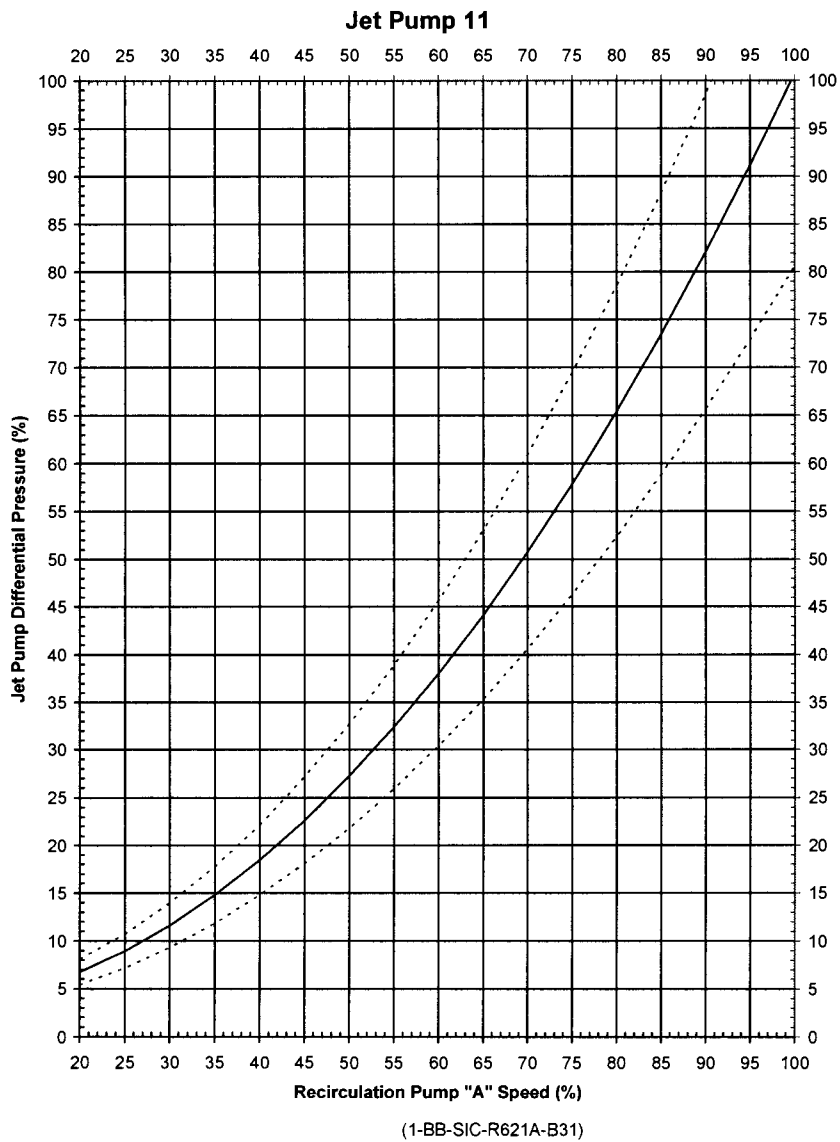
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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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Cycle 17, SLO A

Hope Creek

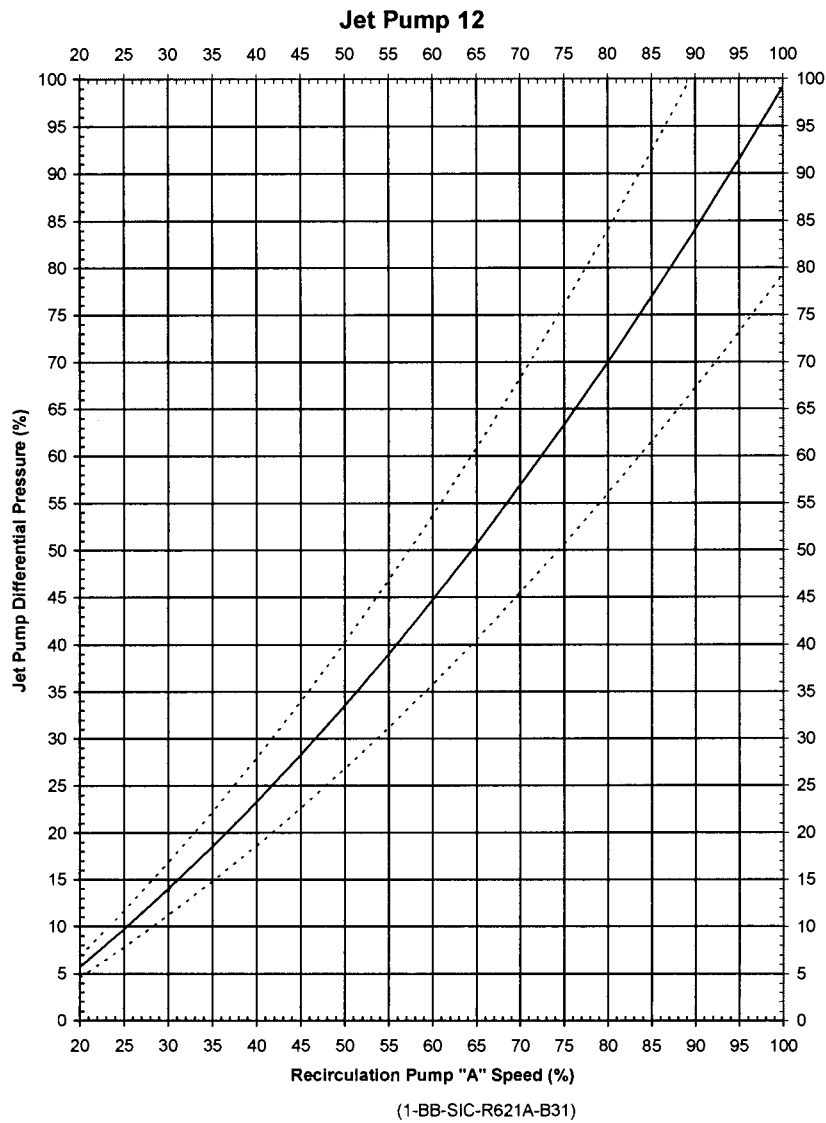
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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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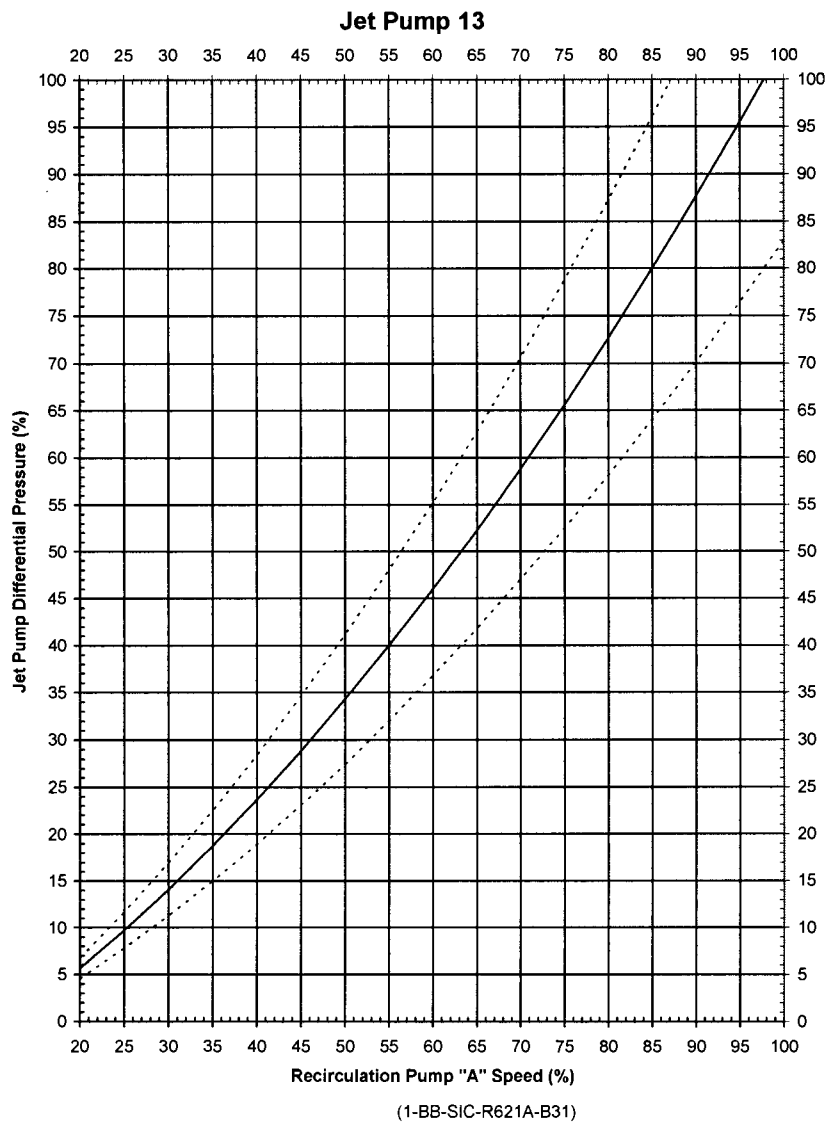


Cycle 17, SLO A

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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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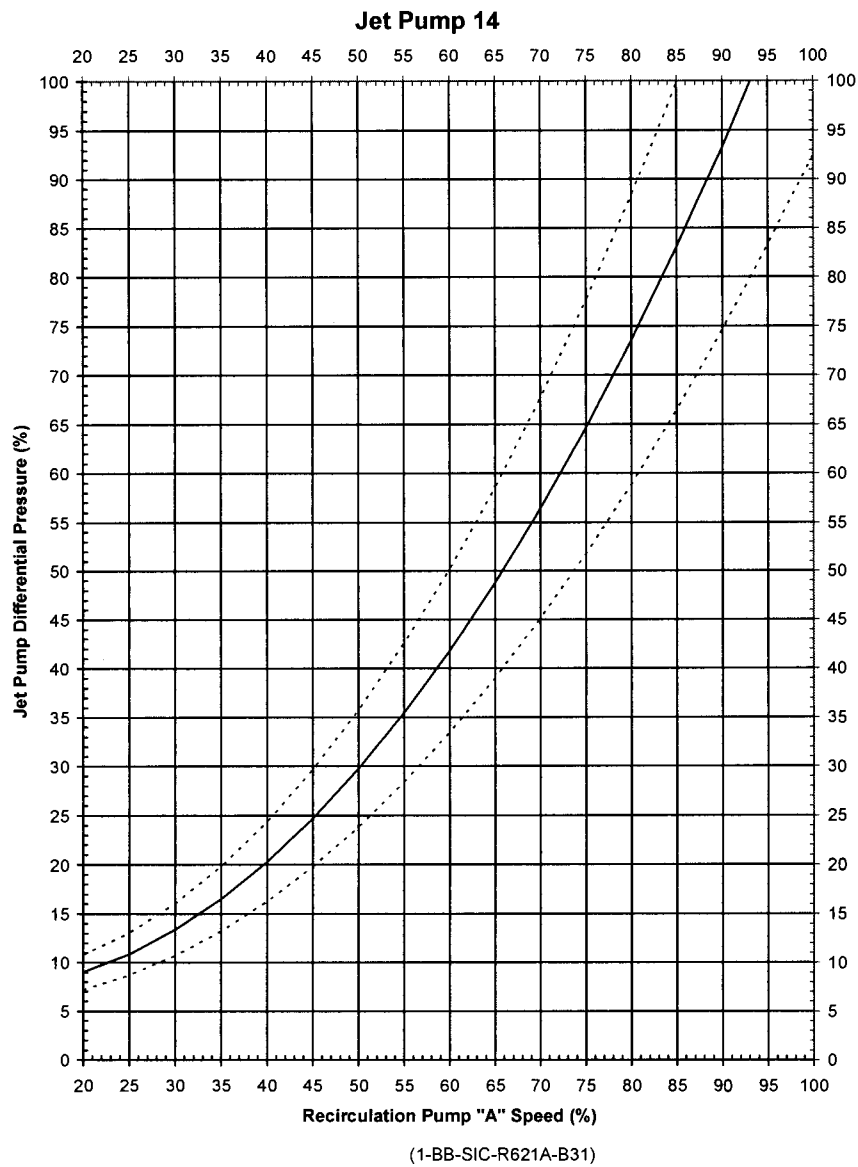


Cycle 17, SLO A

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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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Cycle 17, SLO A

Hope Creek

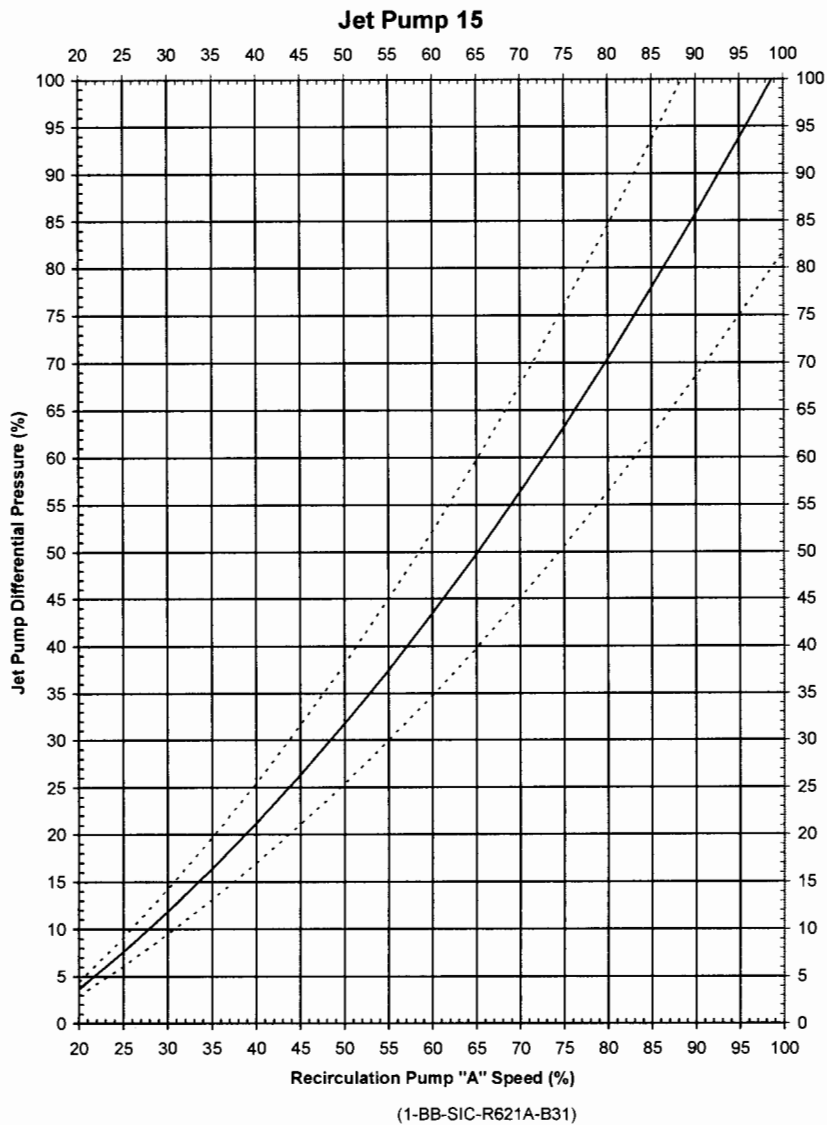
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ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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Cycle 17, SLO A

Hope Creek

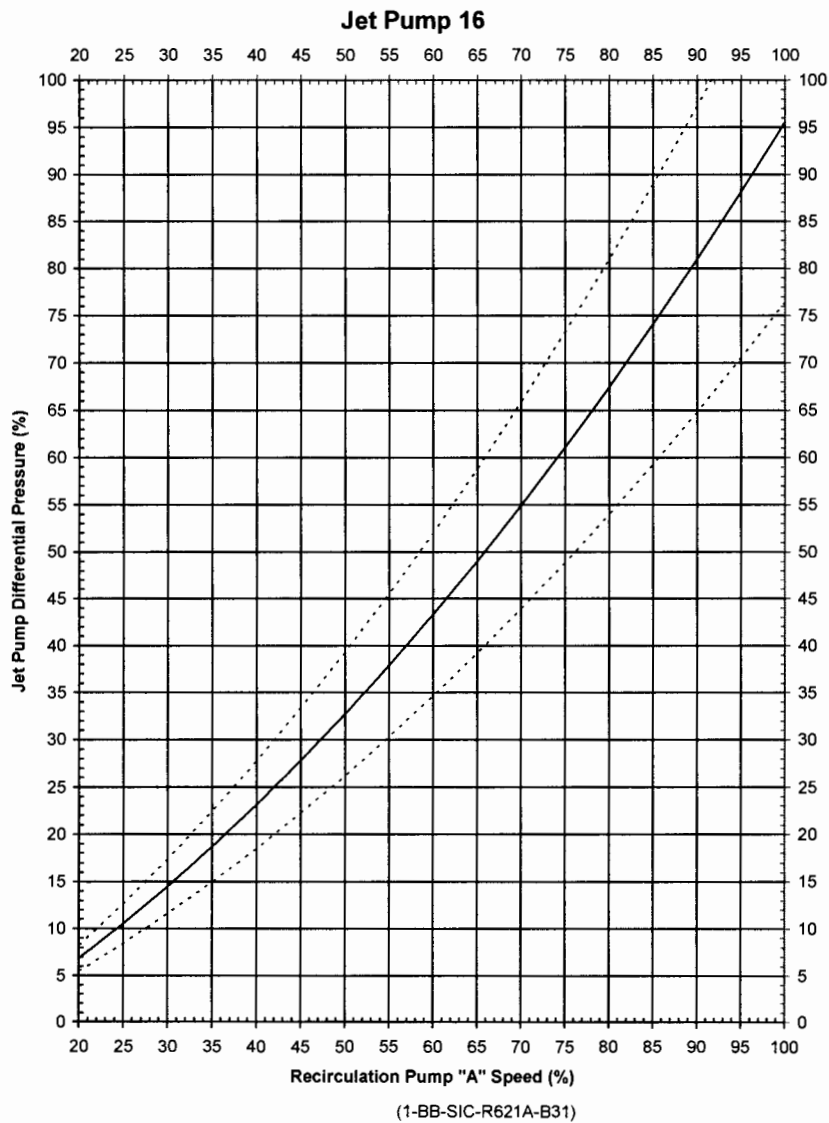
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ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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Hope Creek

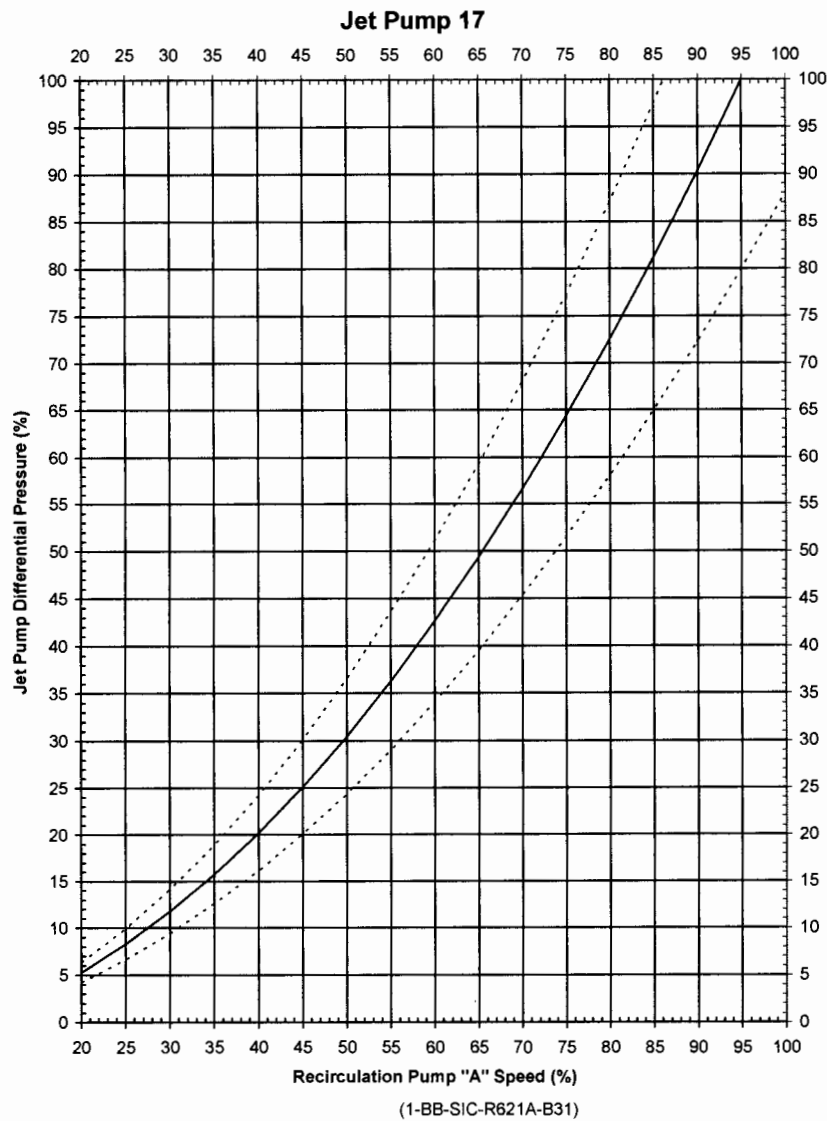
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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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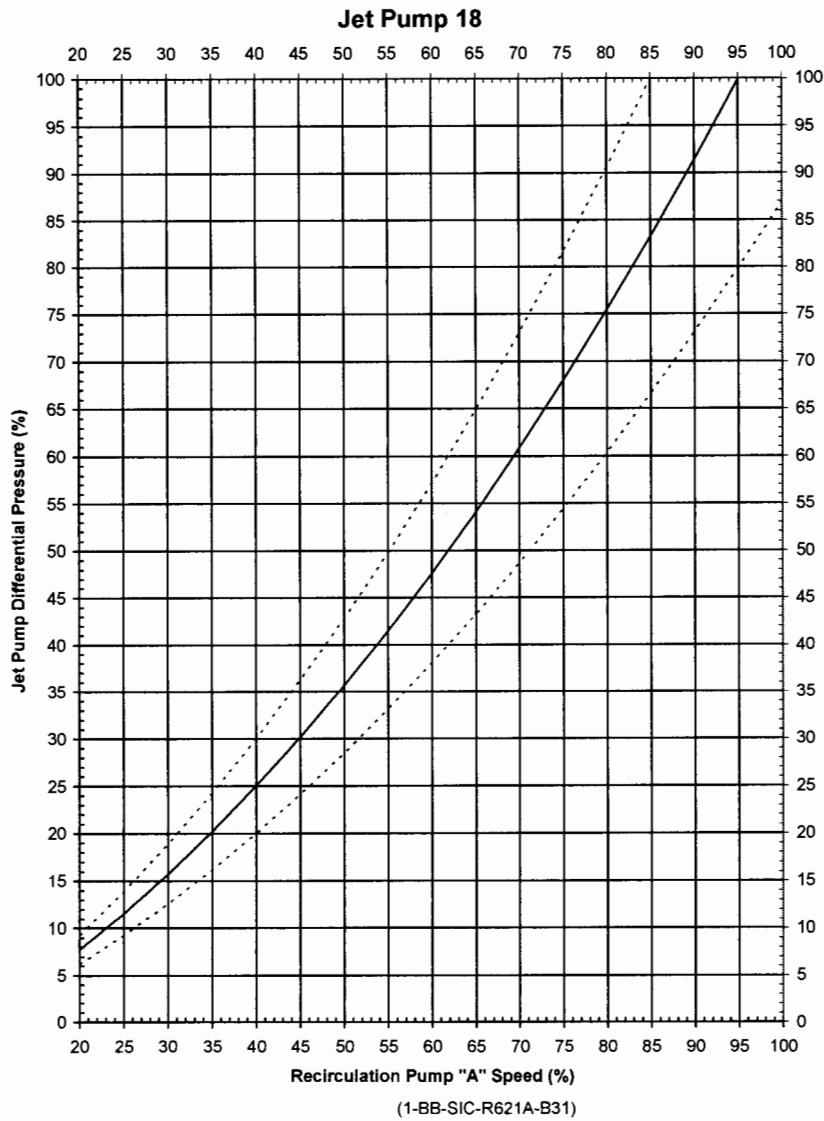


Cycle 17, SLO A

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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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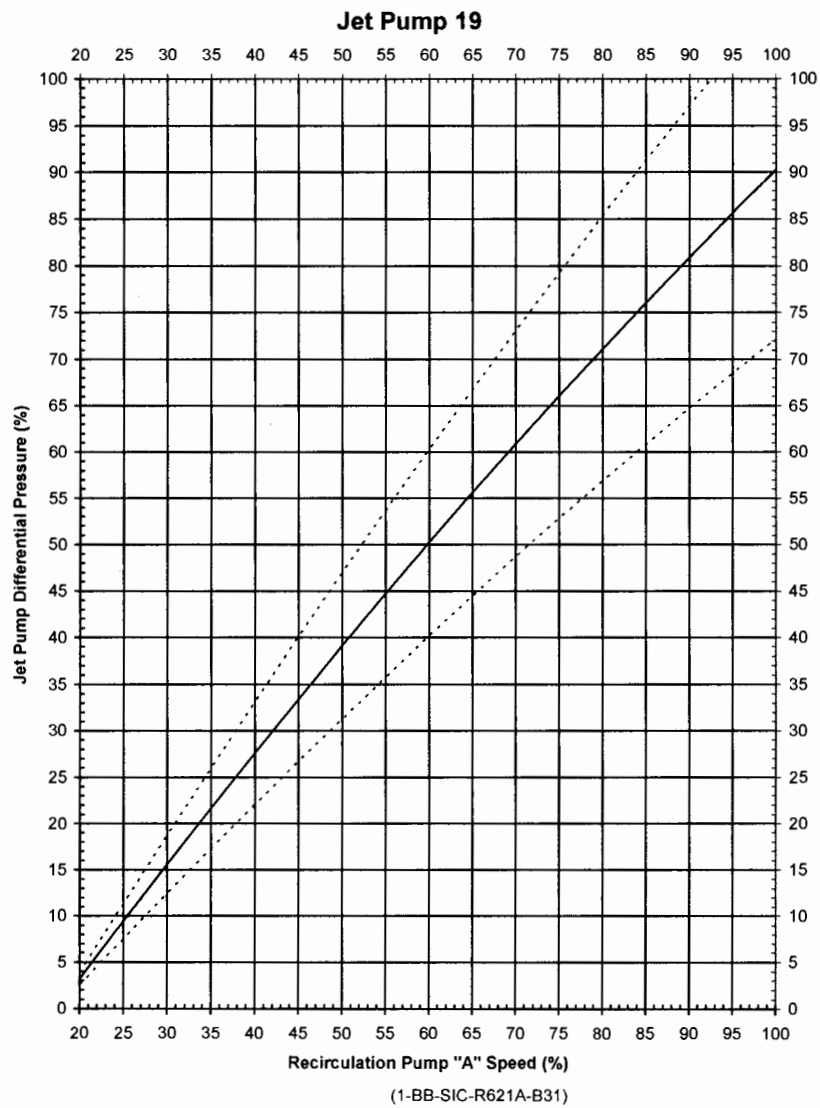


Cycle 17, SLO A

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ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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Cycle 17, SLO A

Hope Creek

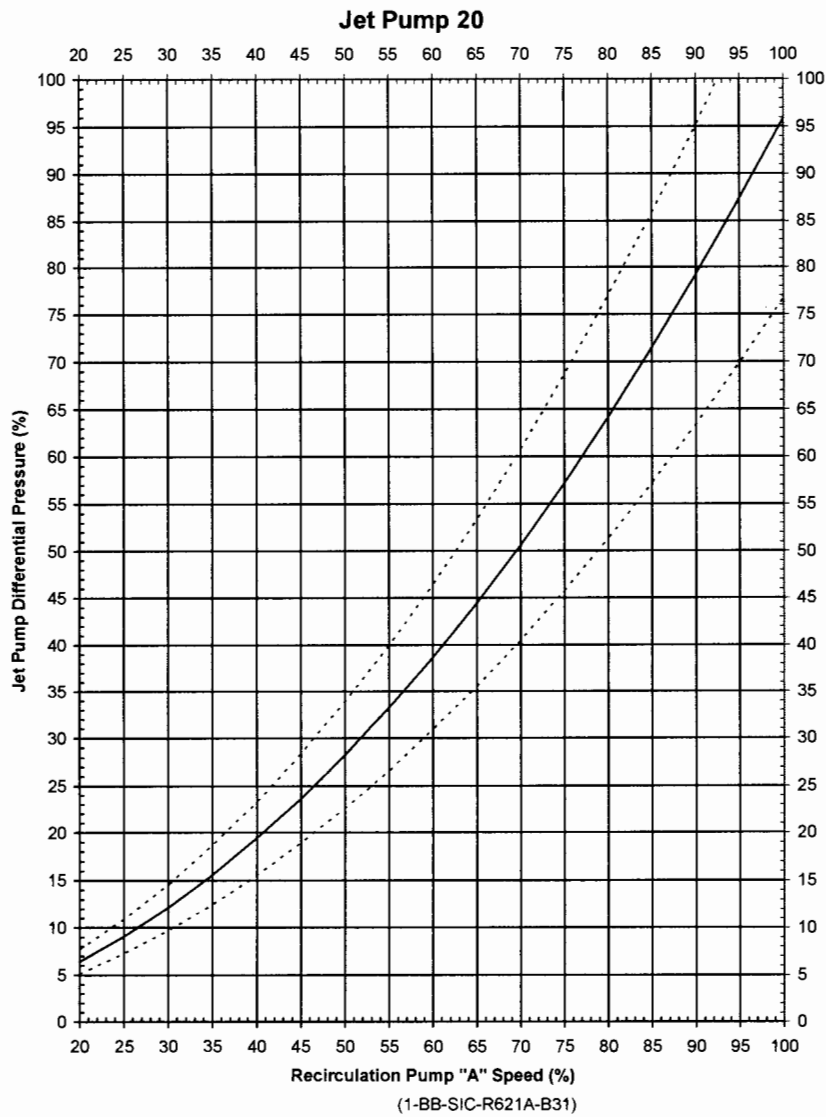
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HC.OP-ST.BB-0007(Q)

ATTACHMENT 9
ESTABLISHED % dP GRAPH - "A" RECIRC PUMP OPERATING
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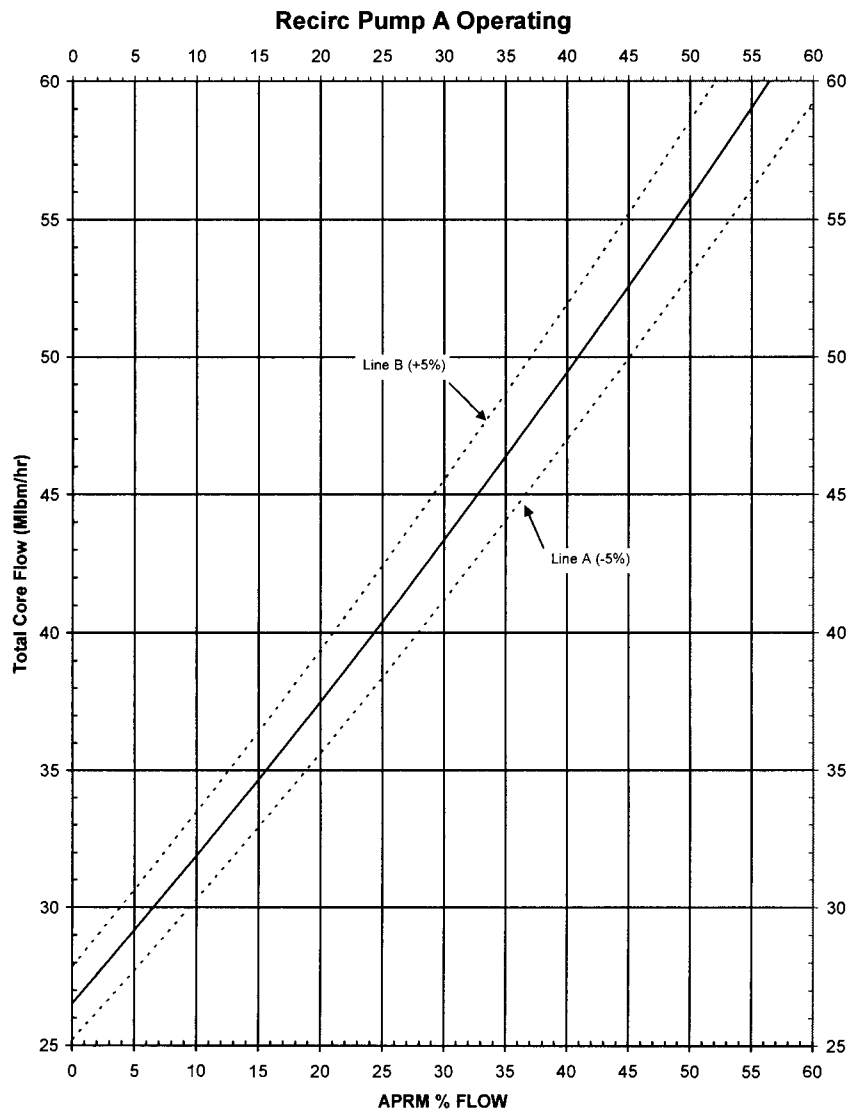


Cycle 17, SLO A

TRAINING ONLY

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

ATTACHMENT 10
ESTABLISHED TOTAL CORE FLOW vs APRM % FLOW

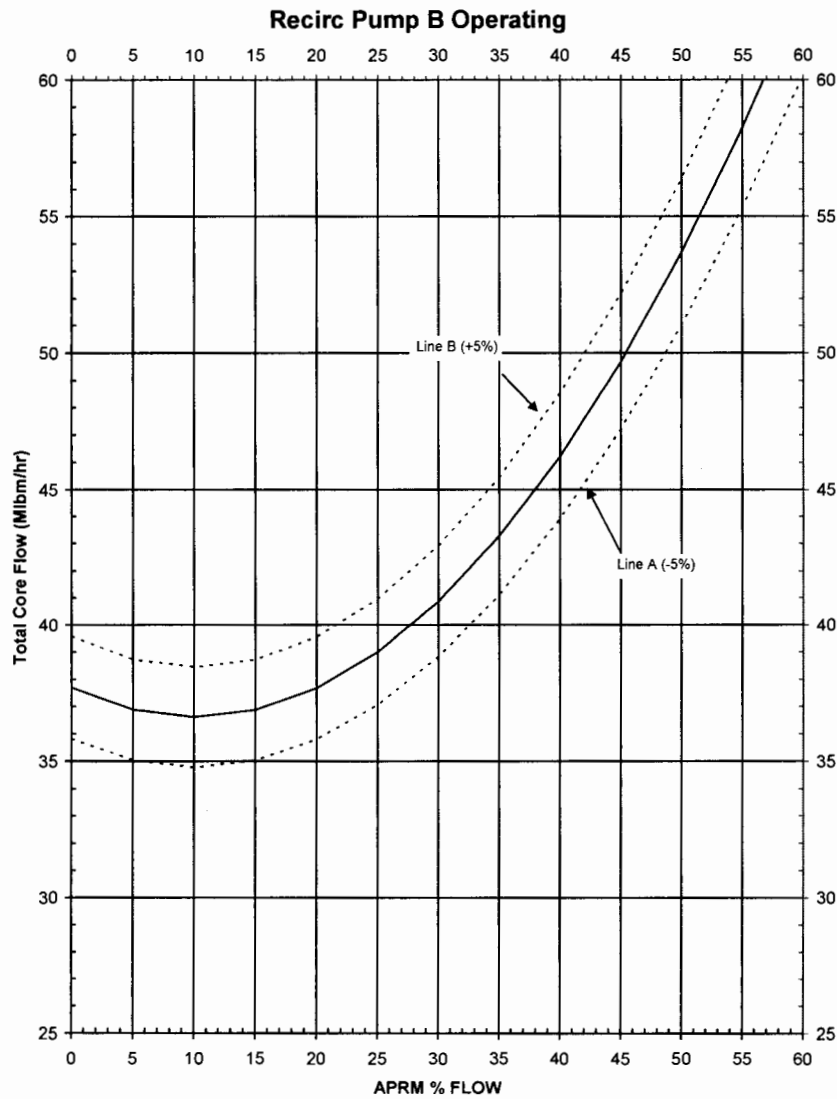


Cycle 17, SLO A

TRAINING ONLY

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

ATTACHMENT 11
ESTABLISHED TOTAL CORE FLOW vs APRM % FLOW



Cycle 16, SLO B

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990090301

TASK: Generate An SAP System Valve/Breaker Alignment

JPM NUMBER: 305H-JPM.ZZ048

[RO A2]

REVISION: 00

SAP BET: NOH05JPZZ48E

K/A NUMBER: 2.2.41

IMPORTANCE FACTOR: RO: 3.5 SRO: 3.9

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: M-51-1 Sheet 2, Rev. 42 OP-AA-109-115, Rev. 7

TOOLS, AND EQUIPMENT: Mechanical P&IDs, M-00-0 through M-104-0

ESTIMATED COMPLETION TIME: 16 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐ UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990090301

TASK: Generate An SAP System Valve/Breaker Alignment

INITIAL CONDIITONS:

1. The plant is operating at 100% power.
2. The Residual Heat Removal (RHR) System is in its normal standby lineup.
3. A small leak (approximately 1 gallon per hour) has developed on the suction piping to RHR Pump AP202 between HV-F004A, RHR PMP A SUP POOL SUCT, and the pump.

INITIATING CUE:

The affected pipe needs to be **ISOLATED, VENTED, AND DRAINED** to perform repairs. Using controlled station Mechanical Drawings:

1. **IDENTIFY** the Mechanical components that are required to be tagged, and their required positions.
2. **IDENTIFY** the Electrical components that are required to be tagged. Identification of Electrical breaker number(s) is(are) NOT required.

JPM NUMBER: ZZ048
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	OP-AA-109-115			
4.1.2	Determine Blocking Points and Tag Types (Initiator) 1. Review the following: <ul style="list-style-type: none"> Controlled Documents and Drawings from the TDR or DCRMS. If... 	Operator obtains M-51-1, Sheet 2.		
	<ul style="list-style-type: none"> Select blocking points and tag types. 	Operator determines the blocking points AND required positions by reviewing the controlled drawings.		
		Applicant identifies the following mechanical isolation valves: <ul style="list-style-type: none"> *HV-F004A, RHR PMP A SUP POOL SUCT, SHUT *V106, RHR PMP A DSCH VLV, SHUT *V129, RHR PMP A MIN FL VLV ISLN VLV, OR HV-F007A, RHR PUMP A MIN FLOW MOV, SHUT *HV-F006A(V104), RHR PMP A(B) SUCT FROM RECIRC, SHUT(normally closed) V142(V141), RHR PMP A SUCT HDR TO RW SUP V, SHUT(normally locked closed) 		
		Applicant identifies the following mechanical VENT paths (valves in the OPEN position): <ul style="list-style-type: none"> *V143 AND V144 		
		Applicant identifies the following mechanical DRAIN valves in the OPEN position: <ul style="list-style-type: none"> *V293 AND V294 		

JPM NUMBER: ZZ048
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		<p>Applicant identifies the following ELECTRICAL components required to ISOLATE the leak:</p> <ul style="list-style-type: none"> • *HV-F004A [MCC 10B212 Breaker 52-212031] • *AP202 [10A401, Breaker 52-40106] <p>Examiner Note: Breaker numbers are not critical.</p>		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator IDENTIFIES the mechanical and electrical components, and their required positions, to ISOLATE, VENT, AND DRAIN the affected pipe using controlled station Mechanical Drawings as noted.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ048
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ048

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/7/2014	Modified ZZ046. Validated with 2 ROs. Validation Time was 16 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ048

REV#: 00

TASK: Generate An SAP System Valve/Breaker Alignment

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

VALIDATED BY:Qualification Level Required: RO

<u>T. HENDRICKS</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date
<u>J. NERE</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. The Residual Heat Removal (RHR) System is in its normal standby lineup.
3. A small leak (approximately 1 gallon per hour) has developed on the suction piping to RHR Pump AP202 between HV-F004A, RHR PMP A SUP POOL SUCT, and the pump.

INITIATING CUE:

The affected pipe needs to be **ISOLATED, VENTED, AND DRAINED** to perform repairs. Using controlled station Mechanical Drawings:

1. **IDENTIFY** the Mechanical components that are required to be tagged, and their required positions.
2. **IDENTIFY** the Electrical components that are required to be tagged. Identification of Electrical breaker number(s) is(are) NOT required.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

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

TASK NUMBER:

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

JPM NUMBER: 305H-JPM.ZZ014

[RO A4]

REVISION: 02

SAP BET: NOH05JPZZ14E

K/A NUMBER: 2.4.30

IMPORTANCE FACTOR: RO: 2.7 SRO: 4.1

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: EP-HC-111-F8, Rev. 8

TOOLS, AND EQUIPMENT: Black pen

ESTIMATED COMPLETION TIME: 7 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-8-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

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

TASK NUMBER:

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

INITIAL CONDIITONS:

1. You are the On-Shift Reactor Operator.
2. The plant has experienced a LOCA followed by a LOP.
3. An Alert has been declared.
4. The Secondary Communicator has submitted the Major Equipment and Electrical Status (MEES) Form for your review.

INITIATING CUE:

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

JPM NUMBER: 305H-JPM.ZZ014
 REV NUMBER: 02

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
B.1.a.	OBTAIN Licensed Operator review.	Examiner Note: See attached completed form. Examiner Note: PCIG compressors may be marked as OUT OF SERVICE(N) or as IN SERVICE(Y). Operator reviews the provided Major Equipment and Electrical Status (MEES) Form, while walking-down the control room boards.		
		*Operator observes that CRD Pump B is not available due to breaker clearance and corrects the Form.		
CUE:	IF the operator asks for the status of BC663, B Hydrogen Recombiner, state that "it is not in service, but is available." [Equipment is Not available in the simulator.]			
		*Operator observes that RHR Pump A is Out of Service (or not available) based on indications of pump not running and/or inoperable breaker, and corrects the form [N or X].		
		*Operator initials the Major Equipment and Electrical Status (MEES) Form.		
CUE:	WHEN operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete". STOP: _____			
Task Standard: Operator performs the Licensed Operator Review of the Major Equipment and Electrical Status (MEES) Form.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: 305H-JPM.ZZ014
REV NUMBER: 02

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: 305H-JPM.ZZ014

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	10/31/2014	Revised format. Updated Simulator Initial Conditions. Validated with 2 ROs. Validation Time 7 minutes. Incorporated comments on RHR pump and CRD pump status.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: 305H-JPM.ZZ014

REV#: 02

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

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

VALIDATED BY:

Qualification Level Required: RO

<u>R. KEFER</u>	<u>RO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date
 <u>J. KOSKEY</u>	 <u>RO</u>	 <u>ON FILE</u>	 <u>10/31/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: 305H-JPM.ZZ014

REV#: 02

INITIAL CONDITIONS:

I.C.	
<i>Initial</i>	
	RESET to 100% power IC.

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
<i>Initial</i>	Description
	PLACE bezel covers over CRD Pump BP207
	PLACE INFO Cover over breaker 52-44014
	INSERT Override
	INSERT Malfunctions
	PLACE Simulator in RUN
	TAKE Scram Actions
	RESTORE 1E Breakers, EXCEPT 52-44014
	RESTORE PCIG
	ALLOW conditions to stabilize
	PLACE Simulator in FREEZE
	MARKUP MEES with CRD Pump B as "N", and RHR Pump A as "Y"

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

MALFUNCTION SCHEDULE:				
Initial	@Time	Event	Action	Description
	None	None	Insert malfunction RR31A2 to 100.00000	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction QQ20 to SHORT	RHR pump AP202 Malfunctions
	None	None	Insert malfunction EG12 after 120	Loss of all off site power

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

REMOTE SCHEDULE:				
<i>Initial</i>	@Time	Event	Action	Description

OVERRIDE SCHEDULE:				
<i>Initial</i>	@Time	Event	Action	Description
	None	None	Insert override 3A83_F_LO to Off	BP207 STOP (LO)

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

MEES

EXAMINER'S COPY

EP-HC-111-F8

ATT 8

Page 7 of 13

HOPE CREEK						DATE: _____ Today									
MAJOR EQUIPMENT AND ELECTRICAL STATUS (MEES)						UPDATE TIME: _____ Now									
Instructions: Y = IN SERVICE N = OUT OF SERVICE ("X" OUT UNAVAILABLE EQUIPMENT)			REACTIVITY CONTROL		ELECT. FEED	Y/N	CONTAINMENT CONTROL		ELECT. FEED	Y/N					
			SLC PUMPS	A	B212	N	FRVS RECIRC	A	B410	Y					
				B	B222	N	FANS	E	B450	Y					
			RWCU PUMPS	A	B254	X		B	B420	Y					
				B	B264	X		F	B460	Y					
			REACTOR	A	A110	X		C	B430	Y					
RECIRC PUMPS	B	A120	X		D	B440	Y								
WATER COOLING SYSTEMS			ELECT. FEED	Y/N	CRD PUMPS		A	B430	N	FRVS VENT	A	B212	Y		
							B	B440	X N	FANS	B	B222	Y		
SW PUMPS	A	A401	Y	ELECTRICAL STATUS			H2		A	B410	N				
	C	A403	Y				RECOMBINERS		B	B480	N				
	B	A402	Y	OFFSITE AC POWER AVAILABLE			PCIG		A	B232	Y				
	D	A404	Y	EMERGENCY DIESELS			RUN	LOADED	B	B242	Y				
SACS PUMPS	A	A401	Y	EDG			A	Y	Y	SERVICE AIR COMPRESSORS		ELECT. FEED	Y/N		
	C	A403	Y				B	Y	Y						
	B	A402	Y				C	Y	Y						
	D	A404	Y				D	Y	Y			00K107	A120	X	
												10K107	A110	X	
RACS PUMPS	A	B415	N	HVAC			ELECT. FEED	Y/N	EMER. INST. AIR COMPRESSOR		ELECT. FEED	Y/N			
	B	B426	N												
	C	B250	X	TURBINE BLDG			A	A110	X	10K100		B450	X		
CIRC WATER PUMPS	A	A501	X	CHILLED WATER			B	A120	X	ECCS		ELECT. FEED	Y/N		
	B	A502	X	CHILLERS			C	A101	X						
	C	A501	X				D	A110	X	RHR PUMPS		A	A401	Y	
	D	A502	X	TURBINE BLDG			A	B130	X			C	A403	Y	
CONDENSATE/FEEDWATER			ELECT. FEED	Y/N	CHILLED WATER			B	B120	X			B	A402	Y
					CIRC PUMPS			C	B110	X			D	A404	Y
PRIMARY	A	A110	X	CONTROL AREA			A	B431	Y	RCIC PUMPS		STEAM		X	
CONDENSATE	B	A120	X	CHILLED WATER						HPCI PUMPS		STEAM		X	
PUMPS	C	A102	X	CIRC PUMPS			B	B441	Y	CORE SPRAY		A	A401	Y	
SECONDARY	A	A110	X	CONTROL AREA			A	A403	Y	PUMPS		C	A403	Y	
CONDENSATE	B	A120	X	CHILLED WATER								B	A402	Y	
PUMPS	C	A104	X	CHILLERS			B	A404	Y			D	A404	Y	
FEED	A	STEAM	X	TSC			A	B451	Y						
WATER	B	STEAM	X	CHILLED WATER											
PUMPS	C	STEAM	X	CIRC PUMPS			B	B461	Y						
				TSC			A	A401	Y						
				CHILLED WATER											
				CHILLERS			B	A402	Y						

LICENSED OPERATOR REVIEW: Initials
 INITIALS

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. You are the On-Shift Reactor Operator.
2. The plant has experienced a LOCA followed by a LOP.
3. An Alert has been declared.
4. The Secondary Communicator has submitted the Major Equipment and Electrical Status (MEES) Form for your review.

INITIATING CUE:

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

JOB PERFORMANCE MEASURE

MEES

TRAINING ONLY

EP-HC-111-F8

ATT 8

Page 7 of 13

HOPE CREEK						DATE: <u>Today</u>						
MAJOR EQUIPMENT AND ELECTRICAL STATUS (MEES)						UPDATE TIME: <u>Now</u>						
Instructions: Y = IN SERVICE N = OUT OF SERVICE ("X" OUT UNAVAILABLE EQUIPMENT)			REACTIVITY CONTROL		ELECT. FEED	Y/N	CONTAINMENT CONTROL	ELECT. FEED	Y/N			
			SLC PUMPS A		B212	N	FRVS RECIRC FANS	A	B410	Y		
			B		B222	N		E	B450	Y		
			RWCU PUMPS A		B254	X		B	B420	Y		
			B		B264	X		F	B460	Y		
			REACTOR A		A110	X	C	B430	Y			
			RECIRC PUMPS B		A120	X	D	B440	Y			
			WATER COOLING SYSTEMS		ELECT. FEED	Y/N	CRD PUMPS A	B430	N	FRVS VENT A	B212	Y
			B		B440	N	B	B222	Y	B	B222	Y
			SW PUMPS A		A401	Y	ELECTRICAL STATUS			Y/N	H2 RECOMBINERS A	B410
C		A403	Y					B	B480	N		
B		A402	Y	OFFSITE AC POWER AVAILABLE			X	PCIG COMPRESSORS A	B232	Y		
D		A404	Y	EMERGENCY DIESELS			RUN	B	B242	Y		
SACS PUMPS A		A401	Y	EDG A			Y	Y	SERVICE AIR COMPRESSORS	ELECT. FEED	Y/N	
C		A403	Y	B			Y	Y	00K107	A120	X	
B		A402	Y	C			Y	Y	10K107	A110	X	
D		A404	Y	D			Y	Y				
RACS PUMPS A		B415	N	HVAC		ELECT. FEED	Y/N	EMER. INST. AIR COMPRESSOR	ELECT. FEED	Y/N		
B		B426	N	TURBINE BLDG A		A110	X	10K100	B450	X		
C		B250	X	CHILLED WATER CHILLERS B		A120	X	ECCS	ELECT. FEED	Y/N		
CIRC WATER PUMPS A		A501	X	C		A101	X	RHR PUMPS	A	A401	Y	
B		A502	X	D		A110	X		C	A403	Y	
C		A501	X	TURBINE BLDG A		B130	X		B	A402	Y	
D		A502	X	CHILLED WATER CIRC PUMPS B		B120	X		D	A404	Y	
CONDENSATE/FEEDWATER		ELECT. FEED	Y/N	C		B110	X	RCIC PUMPS		STEAM	X	
PRIMARY CONDENSATE PUMPS A		A110	X	CONTROL AREA		A	B431	Y	HPCI PUMPS		STEAM	X
B		A120	X	CHILLED WATER				CORE SPRAY PUMPS A		A401	Y	
C		A102	X	CIRC PUMPS B		B441	Y	C		A403	Y	
SECONDARY CONDENSATE PUMPS A		A110	X	CONTROL AREA		A	A403	Y	B		A402	Y
B		A120	X	CHILLED WATER CHILLERS B		A404	Y	D		A404	Y	
C		A104	X	TSC		A	B451	Y				
FEED WATER PUMPS A		STEAM	X	CHILLED WATER								
B		STEAM	X	CIRC PUMPS B		B461	Y					
C		STEAM	X	TSC		A	A401	Y				
				CHILLED WATER CHILLERS B		A402	Y					

 LICENSED OPERATOR REVIEW: _____
 INITIALS

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK NUMBER: 4010590202/2990640305

TASK: Complete an Action Statement Log Sheet

JPM NUMBER: 305H-JPM.ZZ029

[SRO A1-1]

REVISION: 05

SAP BET: NOH05JP29E

K/A NUMBER: 2.1.18

IMPORTANCE FACTOR: RO: 3.6

SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☐

STA ☒

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-115-1001 Rev 27

HC.OP-ST.GS-0003 Rev 8

Tech Spec 3.6.4.2 Amendment 194

HC Technical Specifications

TOOLS, AND EQUIPMENT: OP-HC-108-115-1001 Attachment 3-1,
OP-HC-108-115-1001, Form 1

ESTIMATED COMPLETION TIME: 11 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Equipment Control

TASK NUMBER: 4010590202/2990640305

TASK: Complete an Action Statement Log Sheet

INITIAL CONDITONS:

1. The plant was at 100% power performing the monthly HC.OP ST.GS 0003 Reactor Building/Suppression Chamber Vacuum Breaker Operability Test - Monthly.
2. The GS PSV 5032 failed to stroke open when tested.
3. Local observation confirms the valve is failing to stroke due to a problem with the test actuator and the valve fully closed.
4. All other valves passed the surveillance.
5. The failure occurred one hour ago at _____. (**NOTE: ENTER** Current Time minus one hour here AND on the Trainee's Cue Sheet.)
6. SAP is currently unavailable, and no NOTF has been written.
7. SAP LCO Tracking is NOT available.

INITIATING CUE:

You are the CRS.

COMPLETE a manual Action Statement log entry for the failure of GS-PSV-5032, AND **SUBMIT** for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.

Determination of retests is NOT required at this time.

NOTE: A blank copy of HC.OP-ST.GS-0003 is provided for reference.

JPM NUMBER: ZZ029
REV NUMBER: 05

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> : <ul style="list-style-type: none"> • A blank OP-HC-108-115-1001 Attachment 3-1 • Copy of OP- HC-108-115-1001 • A blank OP-HC-108-115-1001 Form 1 • Copy of HC.OP-ST.GS-0003 • Technical Specifications 			
CUE:	PROVIDE the operator the Initiating Cue [ENTER Current Time minus one hour] <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.		
5.3.1	Any time it is determined that a TECH SPECS/Tech Spec Implementation SSC is or will be INOPERABLE either due to a Condition Adverse to Quality identified via the NOTF process (Section 5.1), a planned activity (Section 5.2), or following a Plant Transient, the appropriate T/S LCO/Tech Spec Implementation Action Statement is entered.	Operator determines a T/S LCO must be entered.		
5.3.2	DETERMINE if the T/S LCO/Tech Spec Implementation Action Statement is ACTIVE or TRACKING based on the following criteria:	N/A	N/A	N/A

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	ACTIVE: An Active T/S LCO/Tech Spec Implementation Action Statement is entered for those conditions where the SSC is INOPERABLE and the SSC design function is specifically required to be OPERABLE in the current Operational Condition by Technical Specifications/Tech Spec Implementation. An example of an Active T/S LCO/Tech Spec Implementation Action Statement is a failure of an Emergency Diesel Generator to satisfy its surveillance requirements in Operational Condition 1.	Operator determines failure requires ACTIVE LCO due to INOPERABLE SSC and the SSC design function is specifically required to be OPERABLE in the current Operational Condition by Technical Specification 3.6.4.2.		
	TRACKING: A Tracking T/S LCO/Tech Spec Implementation Action Statement is entered whenever any of the following conditions exists: ...	Operator determines failure requires ACTIVE LCO due to absence of 100% redundant equipment IAW T/S 3.6.4.2.		
5.3.3	<u>IF</u> the cause of the SSC being INOPERABLE is a planned Operations, Maintenance, Radiation Protection, or Chemistry Evolution that satisfies the following criteria: [CD-524G CD-538G CD-421Y]	Operator determines the cause was NOT planned and this step does NOT apply.		
5.3.4	For short duration entry into a Tech Spec Action statement for unplanned transient conditions (i.e. less than one shift), the Control Room Narrative Log may be used to track the LCO entry and exit time. The entry should contain the following information: ...	Operator determines that this step does not apply.		
5.3.5	For activities that cause a TECH SPECS/Tech Spec Implementation SSC to be INOPERABLE that do not meet the criteria of Section 5.3.3, DOCUMENT the condition as follows: ...	Operator determines the cause does NOT meet the criteria of Section 5.3.3 and the following steps apply to document the condition.		

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
NOTE:	TS LCO/Tech Spec Implementation Action Statement Tracking may be accomplished using either the computerized SAP LCO Tracking System or Attachment 3-1 and Form 1.	Operator reads NOTE.		
5.3.5.1	For SAP LCO tracking, REFER TO guidance provided in OP-AA-108-115-1001, SAP LCO Entry.	Based on Initial Conditions (Electronic LCO Tracking NOT available), operator recognizes this step does NOT apply.		
NOTE:	Preparation of Form 1 is not limited to the SM/CRS. Form 1 may be prepared by appropriate personnel in advance to support planned activities or, after the fact during plant transients. During normal operations, the SM/CRS remains responsible for the accuracy of the information provided and authorizing entry into T/S LCO/Tech Spec Implementation Action Statements.	Operator reads NOTE.		
5.3.5.2	For LCO tracking using Attachment 3-1 and Form 1, PERFORM the following:	Based on Initial Conditions (Electronic LCO Tracking NOT available) and Initiating Cue, operator recognizes the following steps apply.		
A.	ASSIGN the next consecutive LCO Index Number obtained from the Action Statement Log Index (Attachment 3-1) ...	Operator determines that this is the first entry for the current year (CUE) and ..		
CUE:	"This is the first LCO of the new year."			
A. (CONT)	... and LOG the T/S LCO/Tech Spec Implementation ACTION Statement on the Index. IF this is the first LCO of the new year, ENSURE the first two digits reflect the proper year (i.e. 12-001).	Operator assigns log number YY-001 from Attachment 3-1.		

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
B.	IF the unit is shutdown, COMPLETE the Mode Restraint column by indicating Yes or No AND the restricted mode number, OTHERWISE leave blank.	Operator determines the unit is not shutdown and leaves field blank.		
C.	COMPLETE Sections 1 and 2 of Form 1 by performing the following: — RECORD the LCO Index Number (from Attachment 3-1)	Operator records YY-001 in LCO INDEX NUMBER. [YY=Year]		
	— RECORD the LCO Status (Active / Tracking)	Operator records *ACTIVE in LCO STATUS.		
	— RECORD the applicable Technical Specification/ Tech Spec Implementation LCO number. When an INOPERABLE TECH SPECS/Tech Spec Implementation SSC affects multiple LCO Action Statements, RECORD the LCO number with the most limiting Action Time.	Operator records *3.6.4.2 in TECH SPEC NUMBER.		
	— RECORD the Date/Time Entered.	Operator records *current date and *failure time from Initial Conditions in DATE/TIME ENTERED.		
	— RECORD the Operational Condition Applicability for the LCO.	Operator records *1, 2 and 3 in the APPLICABILITY.		
	— RECORD the expiration Date/Time.	Operator records a Date/Time of failure time plus 72 hours in DATE/TIME ACTION REQUIRED.		

JPM NUMBER: ZZ029
REV NUMBER: 05

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	— RECORD the Date/Time Action Required. When recording the date and time that Action is required for an LCO Action Statement that has multiple actions, use the most limiting Action time. For Tracking Action Statements, record 'N/A'.	Operator records a Date/Time of *failure time plus 72 hours in DATE/TIME ACTION REQUIRED.		
	— RECORD Other Applicable T/S. List only active LCOs. Applicable tracking LCOs should be listed separately in the Summary Description of the Log Sheet.	Operator recognizes no other T/S apply and leaves blank.		
	— RECORD the Equipment description.	Operator records GS-PSV-5032, or similar in EQUIPMENT.		
	— Briefly STATE the reason for the SSC condition in the Summary Description section and include a brief summary of actions required, including submittal of any special reports to the NRC. NOTIFY the Shift Operations Superintendent of any reporting requirements.	Operator enters verbiage from T/S 3.6.4.2 Action a. or similar.		

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<ul style="list-style-type: none"> For unavailable conditions associated with Fire in (A)(4) systems or components (refer to Exhibit 9) INITIATE Fire Department Notifications for required ... The individual being notified will come to the Control Room and sign the NOTIF# box next to ... For unavailable conditions associated with Fire in (A)(4) systems or components ... For recurring samples, analysis, hook-up of sample equipment, etc., the departmental ... When actions are no longer required or an instrument is to be restored to the ... 	Due to absence of compensatory actions, operator determines these Steps do not apply.		
C.	<ul style="list-style-type: none"> ENSURE all applicable Non-Conforming Component/ Material (NCCM) Evaluations, Notifications/ Orders, Work Clearance Documents (WCD) etc., are entered on the Order and WCD Addendum. INCLUDE any surveillances required to restore the equipment to operability as part of the Addendum. Surveillance tests should be reviewed to determine if the appropriate prerequisites would exist for the equipment scheduled restoration. 	Operator leaves ORDER AND WCD ADDENDUM blank, since none is available and determination of retests is NOT required IAW Initiating Cue.		
	<ul style="list-style-type: none"> RECORD Redundant Equipment Operable (Y/N). 	Operator enters Y in REDUNDANT EQUIPMENT OPERABLE.		
D.	<u>IF</u> the INOPERABLE SSC will impact Secondary Containment Integrity per T/S 3.6.5.1 - during Fuel ...	Based on Initial Conditions (OPCON 1), and absence of effect on Secondary Containment, operator recognizes this step does not apply.		

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
NOTE:	<p>For a planned entry into an action statement, SRO/STA concurrence is required, ...</p> <p>For an unplanned entry into an action statement, SRO/STA concurrence should be obtained as soon as practical after entering the action statement.</p> <p>If the person who completed Sections 1 and 2 of Form 1 (Step 5.3.5.2.B) was not an actively licensed and proficient SRO, or a qualified and proficient STA, then the following step requires concurrence review from an actively licensed and proficient SRO, and/or a qualified and proficient STA. The actively licensed and proficient SRO, and/or the qualified and proficient STA completing the concurrence review shall not be the same person who authorizes entry into the TECH SPECS/Tech Spec Implementation Action Statement in 5.3.4.B.5.</p>	Operator reads NOTE.		

JPM NUMBER: ZZ029
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
E.	OBTAIN CONCURRENCE REVIEW from an actively licensed and proficient SRO and/or a qualified and proficient STA of plant conditions, T/S, existing active and tracking action statements, and, the T/S Action Statement Log, to ensure the equipment can be, or, is properly removed from service (for unplanned entry into a T/S LCO/ Tech Spec Implementation Action Statement) and, that redundant equipment is operable. For planned entry into a T/S LCO/ Tech Spec Implementation Action Statement, this review should be performed within a reasonable time prior to removal of the equipment from service to ensure plant conditions are reflective of conditions when the SSC will be removed from service. [CD-079A]	Operator submits for CONCURRENCE REVIEW.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, THEN RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator COMPLETES a manual Action Statement log entry for the failure of GS-PSV-5032, AND SUBMITS for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ029
REV NUMBER: 05

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ029

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	12/6/2008	<p>Converted JPM ZZ029 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.</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, validation not required.</p> <p>Incorporation of significant governing procedure change requires validation.</p>	Y
02	6/1/2010	Updates all reference procedure revisions. Validated with 2 SROs. Avg validation time was 9 minutes.	Y
03	12/30/2011	Updates all reference procedure revisions. Editorial changes only. No change to operator actions.	N
04	7/2/2013	Updates all reference procedure revisions. Editorial changes only. No change to operator actions.	N
05	10/31/2014	Revised format and revision numbers. Validated with 2 SROs. Validation Time 11 minutes. Incorporated comments.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ029

REV#: 05

TASK: Complete an Action Statement Log Sheet

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

VALIDATED BY:

Qualification Level Required: SRO

<u>L. MYERS</u>	<u>SRO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date
 <u>M. CHARLES</u>	 <u>SRO</u>	 <u>ON FILE</u>	 <u>10/31/2014</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

EXAMINER'S COPY

OP-HC-108-115-1001

Error! Reference source not found.

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**ATTACHMENT 3-1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG INDEX**

LCO INDEX NUMBER	TECH SPEC NUMBER	ACTIVE/ TRACKING	MODE RESTRAINT Y/N **	SUMMARY DESCRIPTION	PLANNED Y/N	ENTRY DATE/ TIME	EXPIRATION DATE/TIME/ CONDITION	EXIT DATE/ TIME
YY-001	3.6.4.2	ACTIVE	Y	GSV-PSV-5032	N	DATE/ TIME	(Date+72H)/Time	

** IF unit mode changes, RE-EVALUATE and REVISE mode column as necessary.

EXAMINER'S COPY

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FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
Page 1 of 4

1.0 ACTION STATEMENT LOG SHEET

LCO INDEX NUMBER:	YY-001	LCO STATUS (ACTIVE/TRACKING):	Active
TECH SPEC NUMBER:	3.6.4.2	DATE/TIME ENTERED:	Date/Time
APPLICABILITY:	1, 2, 3	DATE/TIME EXPIRATION:	(Date+72H)/Time
OTHER APPLICABLE T/S:		DATE/TIME ACTION REQUIRED:	(Date+72H)/Time

EQUIPMENT: GS-PSV-5032, REACTOR BLDG TO SUPP CHAMBER VAC BRKR

SUMMARY DESCRIPTION (Include Summary of Actions Required)

3.6.4.2-Restore the VAC Breaker assembly to operable status within 72 hours or be in at least Hot Shutdown Within the next 12 hours and in Cold Shutdown within the following 24 hours.

GS-PSV-5032 failed to open

RESPONSIBLE DEPARTMENT NOTIFICATION(S)

SPECIAL REPORT REQUIRED YES ☐ NO ☒ **REPORT INITIATION DUE DATE** N/A

NOTIFICATIONS FOR COMPENSATORY ACTIONS OR SURVEILLANCES *

NAME of DEPARTMENT and PERSON NOTIFIED	NOTIFICATION (DATE/TIME)		NAME of PERSON MAKING NOTIFICATION	NOTIF# (If applicable)
	ENTRY	EXIT		
		N/A		

* IF entry into an Action Statement or failure to meet an Action Statement time limitation requires the submittal of a special report to the NRC,
THEN:
ENSURE the responsible department is notified of the reporting requirements,
AND, NOTIFY the SOS or other Operations Management within one hour,
AND, ENSURE Station Regulatory Assurance is notified of the reporting requirements,
AND, INITIATE a Notification IAW LS-AA-120, Notification Process.

REDUNDANT EQUIPMENT OPERABLE (Y/N) : Y

Entry has been logged in the Control Room Narrative logs (SM/CRS Initial) _____

APPROVAL TO REMOVE FROM SERVICE, VERIFICATION OF REDUNDANT EQUIPMENT

<p align="center">CONCURRENCE</p> <p>_____ SRO/STA (print name)</p> <p>_____ SRO/STA (signature)</p> <p>_____ DATE/TIME</p>	<p align="center">AUTHORIZATION</p> <p>_____ Printed Name</p> <p>_____ SM/CRS (print name)</p> <p>_____ Signature</p> <p>_____ SM/CRS (signature)</p> <p>_____ Current Date/Time</p> <p>_____ DATE/TIME</p>
--	--

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

EXAMINER'S COPY

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FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
Page 2 of 4

1.0 ORDER AND WCD ADDENDUM

DR / NOTF / ORDER WCD NUMBER	DESCRIPTION	SYSTEM	TASK/ TYPE	RESP. DEPT/ GROUP	STATUS
	PSV-5032 Failed to open	GS	NOTF	H-0	
	HC.OP-ST.GS-0003	GS	ST	H-0	

(Continue on Page 3)

RETURN TO SERVICE (SM/CRS INITIAL OR N/A ALL BOXES)

TAGS RELEASED, SYSTEM/EQUIPMENT FILLED & VENTED,
RESTORED FOR OPERATION

SURVEILLANCE RETESTS & SPECIAL TEST/ACTIONS COMPLETE

RESPONSIBLE DEPARTMENTS - INFORMED

DCP TURNOVER CHECKLIST COMPLETED

ACTION STATEMENT LOG INDEX UPDATED

EXIT HAS BEEN LOGGED IN THE CONTROL ROOM NARRATIVE LOGS

: _____
: _____
: _____
: _____
: _____
: _____

VERIFICATION OF OPERABILITY REQUIREMENTS AND SYSTEM RESTORATION

CONCURRENCE

AUTHORIZATION

SRO/STA (print name)

SM/CRS (print name)

SRO/STA (signature)

DATE/TIME

SM/CRS (signature)

DATE/TIME

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FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
Page 3 of 4

1.0 ORDER AND WCD ADDENDUM(Continued)

INDEX NUMBER YY-001

Page Number 2 of

DR / NOTF / ORDER WCD NUMBER	DESCRIPTION	SYSTEM	TASK/ TYPE	RESP. DEPT/ GROUP	STATUS

EXAMINER'S COPY

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FORM 1

TECHNICAL SPECIFICATION ACTION STATEMENT LOG SHEET

Page 4 of 4

3.0 DESCRIPTION ADDENDUM

INDEX NUMBER YY-001

Page Number 1 of [illegible]

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant was at 100% power performing the monthly HC.OP-ST.GS-0003, Reactor Building/Suppression Chamber Vacuum Breaker Operability Test - Monthly.
2. The GS-PSV-5032 failed to stroke open when tested.
3. Local observation confirms the valve is failing to stroke due to a problem with the test actuator and the valve fully closed.
4. All other valves passed the surveillance.
5. The failure occurred one hour ago at
6. SAP is currently unavailable, and no NOTF has been written.
7. SAP LCO Tracking is NOT available.

INITIATING CUE:

You are the CRS.

COMPLETE a manual Action Statement log entry for the failure of GS-PSV-5032, AND **SUBMIT** for CONCURRENCE REVIEW in accordance with OP-HC-108-115-1001.

Determination of retests is NOT required at this time.

NOTE: A blank copy of HC.OP ST.GS-0003 is provided for reference.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2992320302

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

JPM NUMBER: 305H-JPM.ZZ049

[SRO A1-2]

REVISION: 00

SAP BET: NOH05JPZZ49E

K/A NUMBER: 2.1..25

IMPORTANCE FACTOR: RO: 3.9 SRO: 4.2

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☐

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-116-1001, Rev. 2 HC.OP-DL.ZZ-0020, Rev. 38

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

ESTIMATED COMPLETION TIME: 8 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐ UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2992320302

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

INITIAL CONDIITONS:

1. Plant is operating at 100% power fifteen (15) days following the last refueling outage ending on 2/10/2015.
2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicated 93F.
4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.
5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

JPM NUMBER: ZZ049
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)				
CUE:	PROVIDE the operator the initiating cue and Attachment 3 of OP-HC-108-116-1001, AND ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____							
OP-HC-108-116-1001								
4.4	Submit the completed time to CRS for review.	N/A	N/A	N/A				
	Operator obtains/requests a copy of OP-HC-108-116-1001.	Operator obtains or requests a copy of OP-HC-108-116-1001						
CUE:	Provide operator copy of OP-HC-108-116-1001 if requested.							
OP-HC-108-116-1001								
4. MAIN BODY								
4.1	Utilizing Attachment 1, Spent Fuel Pool Decay Heat Load Determination, determine the approximate SFP decay heat rate for the current date.	*#Operator determines that the approximate SFP decay heat rate for the current date is approximately 8.5 [+0.3] MBtu/hr.						
4.2	Select the series of curves from Attachment 2 for loss of cooling, with the initial pool temperature that most closely matches current pool temperature, (round up to the next highest Fuel Pool Temperature curve).	*# Operator selects Page 6 of ATTACHMENT 2 (rounding up 93 to 95).						
4.3	Utilizing the decay heat rate determined in 4.1, determine the time in hours for the SFP to reach 200 °F in the event normal cooling is lost. IF necessary, interpolate the heat load between lines.	*# Operator determines the time in hours for the SFP to reach 200°F in the event normal cooling is lost is approximately 45 [+3] hours. Therefore, Attachment 3 is <u>NOT</u> properly completed in accordance with OP-HC-108-116-1001.						
CUE:	If the operator does NOT correct the calculation, ask "What would be the correct number of hours to reach 200°F?"							
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____							

JPM NUMBER: ZZ049
REV NUMBER: 00

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
Task Standard: Operator performs the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: ZZ049
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ049

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	10/31/2014	New JPM. Validated with 2 SROs. Validation Time 8 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ZZ049

REV#: 00

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

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

VALIDATED BY:

Qualification Level Required: SRO

<u>L. MYERS</u>	<u>SRO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date
 <u>M. CHARLES</u>	 <u>SRO</u>	 <u>ON FILE</u>	 <u>10/31/2014</u>
Name	Qual	Signature	Date

TRAINING ONLY

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ATTACHMENT 3

Spent Fuel Pool

Time to 200 °F

54 Hrs

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Plant is operating at 100% power fifteen (15) days following the last refueling outage ending on 2/10/2015.
2. Fuel Pool Cooling Heat Exchanger AE202 is isolated for maintenance.
3. CRIDS A3175, FUEL POOL HX COMMON INLET TEMP, indicated 93F.
4. The Reactor Operator is performing Step 3.6.7 of HC.OP-DL.ZZ-0020, SUNDAY SHIFT ROUTINE LOG.
5. The Reactor Operator has provided a completed Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

INITIATING CUE:

PERFORM the CRS review of Attachment 3 of OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2990400102

TASK: Ensure Plant Operations Are In Accordance With Technical Specifications

JPM NUMBER: 305H-JPM.ZZ022

[SRO A2]

REVISION: 01

SAP BET: NOH05JPZZ22E

K/A NUMBER: 2.2.40

IMPORTANCE FACTOR: RO: 3.4

SRO: 4.7

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☐

STA ☒

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-ST.ZZ-0001, Rev. 36

TOOLS, AND EQUIPMENT: Completed copy of HC.OP-ST.ZZ-0001.

ESTIMATED COMPLETION TIME: 11 Minutes

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

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

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____ **DATE:** _____
Signature

DEVELOPED BY: S. DENNIS/SIGNATURE ON FILE **DATE:** 12-9-2014
Instructor

REVIEWED BY: L. KOBERLEIN/SIGNATURE ON FILE **DATE:** 12-11-2014
Operations Representative

APPROVED BY: M.A. SHAFFER/SIGNATURE ON FILE **DATE:** 12-9-2014
Training Department

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2990400102

TASK: Ensure Plant Operations Are In Accordance With Technical Specifications

INITIAL CONDIITONS:

1. Emergency Diesel Generator AG400 was cleared and tagged due to scheduled maintenance and declared inoperable at 0700 yesterday. It is expected to return in the next 10 hours.
2. All previous performances of HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, have been completed satisfactorily and within the required Technical Specification time periods.
3. BS1-3, 500KV BUS SECTION 1-3 BKR, AND Station Power Transformer T1 were just cleared and tagged for maintenance. The switchyards were re-aligned to support all tagging operations IAW the ESO instructions.
4. Salem Unit 3 Gas Turbine Generator is available.
5. Current River Temperature is 75F. Current River Level is 93 feet.
6. HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, is due. This procedure is being performed to satisfy Technical Specification Surveillance requirement 4.8.1.1.1.a.

INITIATING CUE:

PERFORM the SM/CRS review of the HC.OP-ST.ZZ-0001. **RECORD** any remarks on this Cue Sheet.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JPM NUMBER: ZZ022 **NAME:** _____
REV NUMBER: 01 **DATE:** _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue, the copy of HC.OP-ST.ZZ-0001, AND ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
5.9	SUBMIT this procedure to the SM/CRS for review AND completion of Attachment 1.	Operator completes Attachment 3, Step 3.1, and reviews the surveillance for completion and satisfactory performance.		
		*Operator determines (using E-0001 or equivalent) that the lineup is unsatisfactory based on the guidance in the note below the table, and includes this determination in section 2.1.4 of attachment 1. Examiner Note: The remarks made in 2.1.4 need to reflect the operator's decision to determine that the Surveillance is UNSATISFACTORY.		
	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: 2.1.2 UNSATISFACTORY AND IF necessary the T/S ACTION statement has been implemented.	*Operator signs and dates the UNSATISFACTORY line of Attachment 1. *Operator identifies that Technical Specification 3.8.1.1.c applies.		
CUE:	If the operator identifies and asks if T/S action statement(s) is(are) being implemented, inform the operator that "actions are being implanted in accordance with Technical Specifications."			
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____			
Task Standard: Operator performs the SM/CRS review of a completed Surveillance Test.				

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ022 **NAME:** _____
REV NUMBER: 01 **DATE:** _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ022

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00		Initial creation.	
01	12/11/2014	Revised format. Updated procedure reference. Significantly modified the initial condition and outcome. Revised based on validation comments. Validated with 2 SROs.	Y

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

VALIDATION CHECKLIST

JPM NUMBER: ZZ022

REV#: 01

TASK: Ensure Plant Operations Are In Accordance With Technical Specifications

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

VALIDATED BY:

Qualification Level Required:

SRO

<u>M. DAVIS</u>	<u>SRO</u>	<u>ON FILE</u>	<u>12/10/2014</u>
Name	Qual	Signature	Date
<u>G. MCKEOWN</u>	<u>SRO</u>	<u>ON FILE</u>	<u>12/11/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

EXAMINER'S COPY

HC.OP-ST.ZZ-0001(Q)

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 1 of 3

1.0 POST TEST INFORMATION

1.1 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:

1.1.1. SATISFACTORY (All acceptance criteria is marked SAT)

SM/CRS

Date-Time

1.1.2. UNSATISFACTORY AND IF necessary the T/S ACTION statement has been implemented.

Signature
SM/CRS

Current Date-Time
Date-Time

1.1.3. Order No. _____

1.1.4. Remarks _____

Unsatisfactory due to 20X supplying both Station Service Transformers

AX501 and BX501.

Technical Specification 3.8.1.1, ACTION c applies.

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Emergency Diesel Generator AG400 was cleared and tagged due to scheduled maintenance and declared inoperable at 0700 yesterday. It is expected to return in the next 10 hours.
2. All previous performances of HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, have been completed satisfactorily and within the required Technical Specification time periods.
3. BS1-3, 500KV BUS SECTION 1-3 BKR, AND Station Power Transformer T1 were just cleared and tagged for maintenance. The switchyards were re-aligned to support all tagging operations IAW the ESO instructions.
4. Salem Unit 3 Gas Turbine Generator is available.
5. Current River Temperature is 75F. Current River Level is 93 feet.
6. HC.OP-ST.ZZ-0001, Power Distribution Lineup-Weekly, is due. This procedure is being performed to satisfy Technical Specification Surveillance requirement 4.8.1.1.1.a.

INITIATING CUE:

PERFORM the SM/CRS review of the HC.OP-ST.ZZ-0001. **RECORD** any remarks on this Cue Sheet.

PSEG Internal Use Only

PSEG NUCLEAR L.L.C.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

Page 1 of 1

HOPE CREEK GENERATING STATION

HC.OP-ST.ZZ-0001(Q) - Rev. 36

POWER DISTRIBUTION LINEUP - WEEKLY

USE CATEGORY: I

- Packages and Affected Document Numbers incorporated into this revision:
CP No. _____ CP Rev. _____ AD No. _____ Rev No. _____ None ☒
- The following OPEX were incorporated into this revision: None
- The following OTSCs were incorporated into this revision: None

REVISION SUMMARY

20596049

- Reformats Step 5.4.1 and substeps to make it more clear. HC was added to positively identify Hope Creek breakers. The distribution table on Attachment 2 was updated. This is an editorial change.

TRAINING ONLY

IMPLEMENTATION REQUIREMENTS

Effective Date 3/1/13

None

POWER DISTRIBUTION LINEUP - WEEKLY**TABLE OF CONTENTS**

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TRAINING ONLY

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

HC.OP-ST.ZZ-0001(Q)

1.0 PURPOSE

The purpose of this procedure is to ensure the Class 1E electrical distribution is aligned pursuant to Technical Specification 4.8.3.1, 4.8.3.2, or 4.8.1.1.1.a.

2.0 PREREQUISITES

- 2.1 **ENSURE** permission to perform this test has been obtained from the SM/CRS as indicated by the completion of Attachment 1, Section 1.0. R
- 2.2 **ENSURE** all personnel involved in the performance of this procedure, should complete Attachment 1, Section 3.0, prior to performing any part of this procedure. R
- 2.3 **ENSURE** no other testing OR maintenance is in progress that will adversely affect the performance of this test. R

3.0 PRECAUTIONS AND LIMITATIONS**3.1 Precautions**

- 3.1.1. IF at any time during the performance of this test, a step cannot be completed or is observed to be unsatisfactory; immediately **NOTIFY** the NCO and the SM/CRS. **[CD-927E]** R

3.2 Limitations

None

4.0 EQUIPMENT REQUIRED

- Fluke - Model 45

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HC.OP-ST.ZZ-0001(Q)

5.0 PROCEDURE

- 5.1 **LOG** test start time in the Control Room log(s). R
- 5.2 **ENSURE** that all prerequisites have been satisfied IAW Section 2.0 of this procedure. R
- 5.3 **ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed and Regular Surveillance or Retest is indicated. R

NOTE

Correct voltages (not including 4.16KV 1E Bus voltages) may be checked by local or remote indication, CRIDS, and/or proper equipment operation. 4.16KV 1E Bus voltages may only be checked with CRIDS or FLUKE measurements IAW

HC.OP-SO.MC-0001. Alternate CRIDS point(s) may be used for 4.16KV 1E Bus voltages as defined in note associated with 4.16KV 1E Bus Voltage Readings.

250 VDC need not be performed when HPCI and/or RCIC are not required to be operable (i.e., condition 4 and 5).

Only 2 channels may be required in Condition 4 or 5 (T/S 3.8.2.2 and 3.8.3.2) R

- 5.4 **IF** performing this procedure to satisfy T/S Surveillance 4.8.1.1.1.a **ONLY, PERFORM** the following sections: [T/S 4.8.1.1.1.a] R

- 4.16KV SWITCHGEAR 10A401 R
- 4.16KV SWITCHGEAR 10A402 R
- 4.16KV SWITCHGEAR 10A403 R
- 4.16KV SWITCHGEAR 10A404 R
- OFFSITE TO ONSITE DISTRIBUTION R

(continued on next page)

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HC.OP-ST.ZZ-0001(Q)

5.4.1. When in an extended outage for A or B EDG, **PERFORM** the following:

Formatted: Font: Bold

5.4.1.A

V

Formatted: Para A

Formatted: Bullets and Numbering

VERIFY, the following are available to supply Hope Creek #2 Station Power Transformer:

- S3, Salem Gas Turbine Generator (Engine A, Engine B and not protected for Salem use, defense in depth)
- Salem T-2, #2 Station Power transformer
- Salem 20X, 500 KV BREAKER 1-8
- Salem 21X, 500 KV BREAKER 2-8
- Salem 31X, 500 KV BREAKER 2-10
- HC T-2, #2 Station Power transformer
- HC 2T60 STA XFMR T2 CIRCUIT SWITCHER
- HC BS4-5, 13.8 KV breaker-4-5 BKR
- HC BS2-3, 13.8 KV breaker-2-3 BKR
- HC BX501, Station Service Transformer

N/A R

B. IF all of the required equipment is available for an extended outage for A or B EDG, THEN **ENTER SAT** on Attachment 2 for Salem Unit 3 under OFFSITE TO ONSITE DISTRIBUTION, OTHERWISE **ENTER UNSAT**.

N/A R

Formatted: Outline numbered + Level: 4 + Numbering Style: A, B, C, ... + Start at: 1 + Alignment: Left + Aligned at: 1.5" + Tab after: 1.91" + Indent at: 1.91"

Formatted: Bullets and Numbering

5.5 **RECORD** M&TE identification numbers and calibration due dates for test equipment utilized for this test on Attachment 3 and the PSEG Nuclear Home Page.

N/A R

NOTE

The line-up provided in Attachment 2 verifies that the Class 1E electrical distribution is aligned IAW Technical Specification requirements. Indications other than those provided in Attachment 2 may be utilized to verify the required line-up. This may be necessary due to maintenance, abnormal line-ups, etc.

R

5.6 **PERFORM** Power Distribution Lineup by completing Attachment 2.

R

5.7 **IF** any indication not specified in Attachment 2 was used to satisfy this surveillance

THEN DOCUMENT AND JUSTIFY its use in Section 2.1.4 of Attachment 1.

N/A R

5.8 **LOG** test end time in Control Room log(s).

R

5.9 **SUBMIT** this procedure to the SM/CRS for review **AND** completion of Attachment 1.

R

6.0 RECORDS

6.1 **RETAIN** the following in accordance with RM-AA-101; Records Management Program:

- Procedure cover page
- Attachment 1 - SM/CRS Data and Signature Sheet
- Attachment 2 - Power Distribution Lineup (include applicable pages)
- Attachment 3 - Measuring and Test Equipment Data Sheet

7.0 REFERENCES**7.1 Drawings:**

- E-0001-0
- E-0002-1, Shts. 1 & 2
- E-0003-1
- E-0004-1
- E-0005-1, Shts. 1 & 2
- E-0006-1, Shts. 1 & 2
- E-0009-1, Shts. 1 – 5
- E-0011-1, Shts. 1 & 2
- E-0012-1, Shts. 1 – 5
- E-0014-0
- E-0015-0, Shts. 1 – 3
- E-0016-0
- E-0018-1, Shts. 1 – 3
- E-0019-1, Shts. 1 & 2
- E-0020-1, Shts. 1 & 2
- E-0021-1, Shts. 1 – 6
- E-0022-1, Shts. 1 & 2
- E-0023-1, Shts. 1 – 4
- E-1405-1, Shts. 9a, 10a, 11a, 12a

7.2 Commitment Document

- CD-927E, (NRC INFO 87-25)
- CM-HC-2011-0816, HC License Amendment 188, EDG A and B Allowed Outage Time Extension
- CM-HC-2011-0818, HC License Amendment 188, EDG A and B Allowed Outage Time Extension

7.3 Other Documents

- 80054115
- 80058456
- 70038194, Non conservative 4.16 KV 1E bus voltage values Engineering Evaluation H-1-PB- EEE-1832, Revision 3 (Associated with 70038194)
- 70038770, Excessive Voltage on 1E buses
- 70040516, Attachment 2 readings and clarifying notes associated with 10A401 (10A402, 10A403, 10A404) 4KV 1E Buses voltages
- 80075651, Engineering Evaluation H-1-PB-EEE-1832
- 70045071, Enter T/S 3.8.1.1.a versus T/S 3.8.3

7.4 New ABB-SSV-T Relays Installed IAW NUCP 80081967.**7.5 Main Power Transformer 1AX501 and 1BX501 Load Tap Changer (LTC) Setpoints Adjusted IAW 20240642 and 20240460**

HC.OP-ST.ZZ-0001(Q)

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 2 of 3

1.1 Reason for the Test

Initials

For an extended outage on A or B EDG, refer to Step 5.4.1.

J
Initials

Initials

SUBSECTION(S)

1

100

1260

1.3.1. Permission granted to perform this test.

Today-Now
Date-Time

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WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

HC.OP-ST.ZZ-0001(Q)

ATTACHMENT 1

SM/CRS DATA AND SIGNATURE SHEET

POWER DISTRIBUTION LINEUP - WEEKLY

Page 3 of 3

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 T/S ACTION statement has been implemented.

SM/CRS

Date-Time

- 2.1.3. Order No. _____

- 2.1.4. Remarks _____

HC.OP-ST.ZZ-0001(Q)

ATTACHMENT 1
SM/CRS DATA AND SIGNATURE SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 4 of 3

3.1 I have read and understand the steps of this procedure that I am required to perform.
(All Departments)

Hope Creek

**ATTACHMENT 2
INPLANT DATA SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 6 of 33**

1.0 Power Distribution Lineup (Continued)

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
CHANNEL A	4.16KV SWGR 10A401				
40101	ALTERNATE FEEDER BKR TO 10A401	OPEN	O	SAT	R
40103	10A401 FEED TO 10B450	CLOSED	X	SAT	R
40107	EDG AG400 OUTPUT BKR TO 10A401	OPEN	C/T	UNSAT	R
40108	NORMAL FEEDER BKR TO BUS 10A401	CLOSED	X	SAT	R
40110	10A401 FEED TO 10B410	CLOSED	X	SAT	R
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 10A401 Voltage	CIRCLE ONE: CRIDS (A7061) Fluke (Model 45)	4173 - 4370 119.09 - 125.0	4210	SAT	R
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 10A401 Voltage	CIRCLE ONE: CRIDS (A7061) Fluke (Model 45)	4276 - 4370 122.03 - 125.0	N/A		

- * 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 \geq 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 \leq 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
INPLANT DATA SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 9 of 33**

1.0 Power Distribution Lineup (Continued)

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
CHANNEL C	4.16KV SWGR 10A403				
40301	ALTERNATE FEEDER BKR TO 10A403	OPEN	O	SAT	R
40303	10A403 FEED TO 10B470	CLOSED	X	SAT	R
40307	EDG CG400 OUTPUT BKR TO 10A403	OPEN	O	SAT	R
40308	NORMAL FEEDER BKR TO 10A403	CLOSED	X	SAT	R
40310	10A403 FEED TO 10B430	CLOSED	X	SAT	R
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 10A403 Voltage	CIRCLE ONE: CRIDS (A7066) Fluke (Model 45)	4173 - 4370 119.09 - 125.0	4230	SAT	R
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 10A403 Voltage	CIRCLE ONE: CRIDS (A7066) Fluke (Model 45)	4276 - 4370 122.03 - 125.0	N/A		

- * 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
INPLANT DATA SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 12 of 33**

1.0 Power Distribution Lineup (Continued)

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
CHANNEL B	4.16KV SWGR 10A402				
40201	NORMAL FEEDER BKR TO 10A402	CLOSED	X	SAT	R
40203	10A402 FEED TO 10B460	CLOSED	X	SAT	R
40207	EDG BG400 OUTPUT BKR TO 10A402	OPEN	0	SAT	R
40208	ALTERNATE FEEDER BKR TO 10A402	OPEN	0	SAT	R
40210	10A402 FEED TO 10B420	CLOSED	X	SAT	R
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 10A402 Voltage	CIRCLE ONE: CRIDS (A7076) 4173 - 4370 Fluke (Model 45) 119.09 - 125.0		4225	SAT	R
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 10A402 Voltage	CIRCLE ONE: CRIDS (A7076) 4276 - 4370 Fluke (Model 45) 122.03 - 125.0			N/A	

- * 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 \geq 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 \leq 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
INPLANT DATA SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 15 of 33**

1.0 Power Distribution Lineup (Continued)

EQUIPMENT	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
CHANNEL D	4.16KV SWGR 10A404				
40401	NORMAL FEEDER BKR TO 10A404	CLOSED	X	SAT	R
40403	10A404 FEED TO 10B480	CLOSED	X	SAT	R
40407	EDG DG400 OUTPUT BKR TO 10A404	OPEN	0	SAT	R
40408	ALTERNATE FEEDER BKR TO 10A404	OPEN	0	SAT	R
40410	10A404 FEED TO 10B440	CLOSED	X	SAT	R
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 10A404 Voltage	CIRCLE ONE: CRIDS (A7071) Fluke (Model 45)	4173 - 4370 119.09 - 125.0	4235	SAT	R
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 10A404 Voltage	CIRCLE ONE: CRIDS (A7071) Fluke (Model 45)	4276 - 4370 122.03 - 125.0		N/A	

- * 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 \geq 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 \leq 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
INPLANT DATA SHEET
POWER DISTRIBUTION LINEUP - WEEKLY
Page 24 of 33**

1.0 Power Distribution Lineup (Continued)

EQUIP	NOMENCLATURE	REQUIRED	ACTUAL	SAT/ UNSAT	PERF
OFFSITE TO ONSITE DISTRIBUTION					
BS4-5	13KV BUS SECTION 4-5 BKR	CLOSED	X	SAT	R
BS6-7	13KV BUS SECTION 6-7 BKR	CLOSED	X	SAT	R
2T60	STA XFMR T2 CIRCUIT SWITCHER	CLOSED	X	SAT	R
4T60	STA XFMR T4 CIRCUIT SWITCHER	CLOSED	X	SAT	R
BS3-4	500KV BUS SECTION 3-4 BKR	CLOSED	X	SAT	R
BS6-5	500KV BUS SECTION 6-5 BKR	CLOSED	X	SAT	R
BS7-8	13KV BUS SECTION 7-8 BKR	OPEN	O	SAT	R
BS2-3	13KV BUS SECTION 2-3 BKR	OPEN	X	UNSAT	R
BS1-2	13KV BUS SECTION 1-2 BKR	CLOSED	O	UNSAT	R
BS9-0	13KV BUS SECTION 9-10 BKR	CLOSED	X	SAT	R
1T60	STA XFMR T1 CIRCUIT SWITCHER	CLOSED	O	UNSAT	R
3T60	STA XFMR T3 CIRCUIT SWITCHER	CLOSED	O	UNSAT	R
BS1-3	500KV BUS SECTION 1-3 BKR	CLOSED	O	UNSAT	R
BS5-1	500KV BUS SECTION 5-1 BKR	CLOSED	X	SAT	R
BS2-6	500KV BUS SECTION 2-6 BKR	CLOSED	X	SAT	R
BS2-4	500KV BUS SECTION 2-4 BKR	CLOSED	X	SAT	R
Step 5.4.1.B	Salem Unit 3 Gas Turbine Generator	SAT #	N/A	N/A	N/A

+ **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. **REFER** to Step 5.4.1 for a list of required equipment. IF not required, THEN N/A.

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WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK NUMBER: 2992470102

TASK: Ensure Plant Operations are in Compliance with ODCM (Determine Liquid Radwaste Radiation Monitoring System Cooling Tower Blowdown Weir Flow)

JPM NUMBER: 305H-JPM.ZZ050

[SRO A3]

REVISION: 01

SAP BET: NOH05JPZZ50E

K/A NUMBER: 2.3.11

IMPORTANCE FACTOR: RO: 3.8 SRO: 4.3

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☐

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026, Rev. 141

TOOLS, AND EQUIPMENT: HC.OP-DL.ZZ-0026

ESTIMATED COMPLETION TIME: 10 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Administrative

TASK NUMBER: 2992470102

TASK: Ensure Plant Operations are in Compliance with ODCM (Determine Liquid Radwaste Radiation Monitoring System Cooling Tower Blowdown Weir Flow)

INITIAL CONDITONS:

1. The plant is at 100% power.
2. Circulating Water Pump BP501 is tagged for motor replacement.
3. Circulating Water Pumps AP501, CP501, and DP501 are in service.
4. Service Water Pumps AP502, BP502, and DP502 are in service
5. Cooling Tower Blowdown Weir Flow Rate Monitor OSP-RI4861 is reading blank, and is INOPERABLE. TSAS 2015-001 was entered.
6. RM-11 point 9AX327 historical data is NOT available.
7. SSW Loop Flow CRIDS Point values as follows:
 - A2440 SERVICE WATER FLOW RATE DIV A = 13,560 gpm
 - A2441 SERVICE WATER FLOW RATE DIV B = 21,345 gpm

INITIATING CUE:

You are the Control Room Supervisor.

PERFORM the Control Room Supervisor review of the completed HC.OP DL.ZZ-0026, Attachment 1a, ITEM 47, Day Shift reading, AND Attachment 3y for the inoperable RMS Cooling Tower Blowdown Weir Flow Rate Monitor.

JPM NUMBER: ZZ050
REV NUMBER: 01

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue, the completed copy of HC.OP DL.ZZ 0026 (both pages), AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
HC.OP-DL.ZZ-0026, Attachment 1a				
ITEM 47	SURVEILLANCE CHANNEL CHECK: COOLING TOWER BLOWDOWN WEIR FLOW RATE MONITOR OSP-RI4861 ITEM 029 RM-11 (9AX327)	Operator reads ITEM 47. Operator determines the ITEM is applicable is the current Op Condition Operator reads the limits. Operator observes FI (Failed Instrument) is entered for the Day Shift.		
NOTE 45	CHANNEL CHECK SHALL CONSIST OF VERIFYING INDICATION OF FLOW DURING PERIODS OF RELEASE. CHANNEL CHECK SHALL BE ...	Operator reads NOTE 45 and determines that data is not available from the Initial Conditions.		
	INST TRIPPED	Operator observes FI (Failed Instrument) is entered for the Day Shift.		
NOTE 33	TO OBTAIN VALUES 006 OR 002, PRESS MON PB, KEY IN 006 OR 002, THEN ITEM PB.	Operator reads NOTE 33 and determines that data is not available from the Initial Conditions.		
NOTE 35	TO OBTAIN VALUES 028, 029, OR 073, PRESS MON PB, KEY IN 028, 029, OR 073, THEN ITEM PB.	Operator reads NOTE 35 and determines that data is not available from the Initial Conditions.		
NOTE 46	IF INSTRUMENT IS INOP, USE ATTACHMENT 3Y TO ESTIMATE WEIR FLOW. THIS IS REQUIRED REGARDLESS OF WHETHER A RADIOACTIVE LIQUID RELEASE IS IN PROGRESS.	Operator reads NOTE 46 and determines that Attachment 3Y is applicable.		
HC.OP-DL.ZZ-0026 Attachment 3Y				
Examiner Note: Refer to steps below and the Examiner Copy of Attachment 3Y for Standards associated with these steps.				

JPM NUMBER: ZZ050
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	DATE	Operator verifies current date on Attachment 3Y. (Note: "TODAY" is acceptable)		
	METHOD 1	Operator determines data for Method 1 completion is not available and continues to METHOD 2.		
	TIME	Operator verifies current time on Attachment 3Y under Method 2 (Note: "Now" is acceptable for current time.)		
	SSW LOOP A FLOW #	Operator reads # Footnote		
	# READ FROM FIT-2218A/B OR FR-2218-1/2 OR CRIDS A2440/A2441. (B SSW LOOP FLOW (FIT-2218B) IS OBTAINED LOCALLY AT PANAMETRICS MONITOR. FLOW VALUE IS THE AVERAGE VOLUMETRIC FLOW RATE WHICH IS DISPLAYED AS "AVG VOLUMETRIC GAL/MIN" ON THE MONITOR DISPLAY.	Operator determines A SSW Loop Flow is 13,560 gpm from CRIDS point A2440 in the Initial Conditions, and that it is recorded correctly on Attachment 3Y under 'SSW LOOP A FLOW #'.		
	SSW LOOP B FLOW #	Operator reads # Footnote		
	# READ FROM FIT-2218A/B OR FR-2218-1/2 OR CRIDS A2440/A2441. (B SSW LOOP FLOW (FIT-2218B) IS OBTAINED LOCALLY AT PANAMETRICS MONITOR. FLOW VALUE IS THE AVERAGE VOLUMETRIC FLOW RATE WHICH IS DISPLAYED AS "AVG VOLUMETRIC GAL/MIN" ON THE MONITOR DISPLAY.	Operator determines B SSW Loop Flow is 21,345 gpm from CRIDS point A2441 in the Initial Conditions and that it is recorded correctly on Attachment 3Y under 'SSW LOOP B FLOW #'.		
	TOTAL SSW FLOW	Operator verifies calculation of Total SSW Flow at 34,905 gpm by summing Loop A and Loop B flows.		
	EVAPORATIVE LOSSES*.	Operator reads * Footnote		

JPM NUMBER: ZZ050
 REV NUMBER: 01

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	* REFERENCE PRINT 10855-M15-181-1 FOR EVAPORATIVE LOSS ESTIMATES. USE 16,700 GPM FOR DEFAULT VALUE(MIN. DILUTION FLOW), FOR EVAPORATIVE LOSS ESTIMATES IF 4 CIRCULATING WATER PUMPS ARE IN SERVICE, OR 12,500 GPM IF ONLY 3 CIRCULATING WATER PUMPS ARE IN SERVICE. THIS BLOCK IS N/A IF THE COOLING TOWER IS OUT OF SERVICE.	Operator determines Evaporative Losses from * Footnote at bottom of page for 3 Circ Water Pump operations is INCORRECTLY recorded as 16,700gpm. *Operator determines correct value of Evaporative Losses to be 12,500gpm (3 CW pumps in service) and enters the value 12,500 under EVAPORATIVE LOSSES* on ATT 3Y.		
CUE:	If applicant asks, inform applicant that he/she is to correct any identified incorrect values.			
	TOTAL WEIR FLOW	Operator determines that recorded TOTAL WEIR FLOW of 18,205 gpm is incorrect. Operator determines that recorded TOTAL WEIR FLOW should be 22,405gpm by subtracting Evaporative Losses (12,500 gpm) from Total SSW Loop Flow (34,905 gpm). *Operator enters the correct value of 22,405 under TOTAL WEIR FLOW on ATT 3Y		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator performs the Control Room Supervisor review, and correction, of Surveillance Log.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: ZZ050
REV NUMBER: 01

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

JPM NUMBER: ZZ050

REVISION HISTORY

Rev #	Date	Description	Validation Required?
01	10/31/2014	Revised format. Updated procedure reference. Validated with 2 SROs. Validation Time 10 minutes.	Y

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
VALIDATION CHECKLIST

JPM NUMBER: ZZ050

REV#: 01

TASK: Ensure Plant Operations are in Compliance with ODCM (Determine Liquid Radwaste Radiation Monitoring System Cooling Tower Blowdown Weir Flow)

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

VALIDATED BY:

Qualification Level Required: SRO

<u> M. CHARLES </u>	<u> SRO </u>	<u> ON FILE </u>	<u> 10/31/2014 </u>
Name	Qual	Signature	Date
<u> L. MYERS </u>	<u> SRO </u>	<u> ON FILE </u>	<u> 10/31/2014 </u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. Circulating Water Pump BP501 is tagged for motor replacement.
3. Circulating Water Pumps AP501, CP501, and DP501 are in service.
4. Service Water Pumps AP502, BP502, and DP502 are in service
5. Cooling Tower Blowdown Weir Flow Rate Monitor OSP-RI4861 is reading blank, and is INOPERABLE. TSAS 2015-001 was entered.
6. RM-11 point 9AX327 historical data is NOT available.
7. SSW Loop Flow CRIDS Point values as follows:
 - A2440 SERVICE WATER FLOW RATE DIV A = 13,560 gpm
 - A2441 SERVICE WATER FLOW RATE DIV B = 21,345 gpm

INITIATING CUE:

You are the Control Room Supervisor.

PERFORM the Control Room Supervisor review of the completed HC.OP DL.ZZ-0026, Attachment 1a, ITEM 47, Day Shift reading, AND Attachment 3y for the inoperable RMS Cooling Tower Blowdown Weir Flow Rate Monitor.

TRAINING ONLY

ATTACHMENT 1a
Surveillance Log - Control Room

Page 10 of 18

Operational Condition 1

Date TODAY

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN NORM MAX			INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
47	CHANNEL CHECK: COOLING TOWER BLOWDOWN WEIR FLOW RATE MONITOR	AT ALL TIMES	ITEM 002	< 40K	70K	DSP-R14861 (10C804) ITEM 029 RM-11 (9AX327) (NOTE 45.)	FI ^①			① TSAS 2015-001 See Attachment 3Y
			—	NO	—	INST TRIPPED	FI ^①			(NOTE 33., 35., 46., 47.)
48	CHANNEL CHECK: COOLING TOWER BLOWDOWN RADIATION MONITOR	AT ALL TIMES	—	—	ITEM 009	SP-R18817 (10C804)	N/A	N/A		(NOTE 30., 41.)
	SAMPLE FLOW		1.0	—	14.0	SP-R18817 (10C804) ITEM 029	N/A	N/A		(NOTE 35.)
	SAMPLE LOW FLOW ALARM		1.0	—	1.0	SP-R18817 (10C804) ITEM 002	N/A	N/A		(NOTE 33.)
			—	0000	—	SP-R18817 (10C804) ITEM 044	N/A	N/A		(NOTE 40.)
	ANY OF ITEM 48		—	NO	—	INST TRIPPED	N/A	N/A		
49	CHANNEL CHECK: TBCW RADIATION MONITOR	AT ALL TIMES	—	—	2.4E ⁻⁸	SP-R14557 OR RM-11 (9RX505)	1.1E-6	N/A	N/A	(NOTE 30.)
50	CHANNEL CHECK: RACS RADIATION MONITOR	AT ALL TIMES	—	—	9E ⁻⁵	SP-R12534 OR RM-11 (9RX500)	7.7E-7			(NOTE 30.)
51	CHANNEL CHECK: SACS LOOP A RADIATION MONITOR	AT ALL TIMES	—	—	6E ⁻⁵	SP-R14850A1 OR (1EC267) RM-11 (9RX501)	3.2E-7			(NOTE 30.)

- NOTES:
- 30. IF NORMAL INSTRUMENT IS INOP AND CRIDS IS USED (FOLLOWING EQUIVALENCY REVIEW), THEN ONLY OBTAIN CRIDS VALUE FROM 'RM-11 DATA' SCREEN OF THE 'GROUP 2 MENU' OF GROUP DISPLAYS. [70134816]
 - 33. TO OBTAIN VALUES 006 OR 002, PRESS MON PB, KEY IN 006 OR 002, THEN ITEM PB.
 - 35. TO OBTAIN VALUES 028, 029, OR 073, PRESS MON PB, KEY IN 028, 029, OR 073, THEN ITEM PB.
 - 40. TO OBTAIN VALUE 044, PRESS MON PB, KEY IN 044, THEN ITEM PB. IF VALUE IS NOT AT 0000 HAVE I&C/RAD PRO INVESTIGATE OPERABILITY.
 - 41. TO OBTAIN VALUE 009, PRESS LIQ PB, KEY IN 009, THEN ITEM PB.
 - 45. CHANNEL CHECK SHALL CONSIST OF VERIFYING INDICATION OF FLOW DURING PERIODS OF RELEASE. CHANNEL CHECK SHALL BE MADE AT LEAST ONCE PER 24 HOURS ON DAYS ON WHICH CONTINUOUS, PERIODIC, OR BATCH RELEASES ARE MADE. WHEN THREE SWS PUMPS ARE IN-SERVICE, AND, THE RM-11 IS AVAILABLE, RECORD THE LOWEST OF THE LAST 12 (HOURLY) AVERAGES FOR 9AX327 (CTB FLOW) AS FOLLOWS:
CLICK ON 9AX327, THEN CLICK ON 60 MIN AVG BUTTON. [70026506]
OR FROM THE TOP LEVEL MENU THAT CAN BE ARRIVED AT BY DEPRESSING THE "ESC" KEY, CLICK THE "LOGS/REPORTS" BUTTON, THEN THE "DAILY LOG SETUP" BUTTON, (F2) OR TYPE "ARCHIVE" IN THE YELLOW FUNCTION FIELD; CHANGE DATE AND TIME UNDER "ENTER START TIME" TO AT LEAST 12 HOURS AGO (ONLY THE BACKSPACE KEY FUNCTIONS TO ERASE EXISTING TEXT); IN THE FIELD UNDER "OR ENTER PIDS (COMMA DELIMITED)" ENTER "TR804861-4". THIS IS THE 60 MINUTE AVERAGE TREND FOR THE DESIRED POINT; SELECT F3 OR CLICK THE "F3-VIEW PID" BUTTON AT THE SCREEN BOTTOM TO DISPLAY THE DATA. [70026506]
 - 46. IF INSTRUMENT IS INOP, USE ATTACHMENT 3Y TO ESTIMATE WEIR FLOW. THIS IS REQUIRED REGARDLESS OF WHETHER A RADIOACTIVE LIQUID RELEASE IS IN PROGRESS.
 - 47. REFER TO HC.OP-SO.SP-0001(Q), RADIATION MONITORING SYSTEM OPERATION, FOR NOTES ON OPERABILITY.

Page 1 of 1

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

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

[illegible]

Page 12 of 12

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

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

JPM NUMBER: 305H-JPM.ECG007

[SRO A4]

REVISION: 09

SAP BET: NOH05JPCL07E

K/A NUMBER: 2.4.38

IMPORTANCE FACTOR: RO: 2.4 SRO: 4.4

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☐

STA ☒

SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: EP-HC-111-100 Rev. 12

EP-HC-111-101 Rev. 0

EAL Flowcharts and EAL Wallcharts HCGS ECG – EAL Technical Basis

TOOLS, AND EQUIPMENT: EP-HC-111-F*[1-5,24]; EP-HC-111-101; EAL Flowcharts and EAL Wallcharts; HCGS ECG – EAL Technical Basis; Phone and EP Aid-031, Simulator Only

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: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

SYSTEM: Emergency Procedures/Plan

TASK NUMBER: 2000500302/2000020505

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

INITIAL CONDIITONS:

1. The plant is in OPERATIONAL CONDITION 4 and has been in COLD SHUTDOWN for 10 days.
2. 'B' RHR was in Shutdown Cooling at 10,000 gpm with an RCS temperature of 120 degF.
3. Then, Hope Creek experiences an earthquake which indicates a magnitude of $> 0.1g$.
4. Control Room Annunciator C6-C4 is in.
5. 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
6. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
7. A LOCA results. RPV level dropped to $-250''$, then stabilizes between $-225''$ and $-205''$, being maintained using all available ECCS (2 LPCI Loops).
8. Secondary Containment integrity is intact with FRVS in service.
9. The current 33 ft. elevation wind direction is from 332° at 21 mph.
10. Plant Effluents:
 - $1.17E+1 \mu\text{Ci/sec}$ Noble Gas
 - $1.17E-2 \mu\text{Ci/sec}$ 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 the event is **NOW**.

JPM NUMBER: ECG007
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	EP-HC-111-101			
8.4	Classification	N/A	N/A	N/A
NOTE	Comparison of redundant instrumentation, indications, and/or alarms should be used to confirm actual plant conditions.	Operator reads Note.		
	The primary tools for determining the emergency classification level are the EAL flowcharts or EAL wallcharts. The user of the EAL flowcharts or wallcharts may (but is not required to) consult the EAL Technical Basis in order to obtain additional information concerning the EALs under classification consideration. To use the EAL flowcharts or wallcharts, follow this sequence:	Operator reads text.		
	1. ASSESS the event and/or plant conditions and DETERMINE which ECG - EAL Group/Section is most appropriate.	Operator assesses the initial conditions, and determines that EALs that are applicable under all plant Operational Conditions (OPCONs), AND EALs applicable only under cold OPCONs apply to this classification.		
	2. REVIEW EAL categories and subcategories on the appropriate flowcharts/wallcharts.	Operator assesses the initial conditions, and determines that R, H, and C are appropriate ECG categories; and R1, H1, and C3, are appropriate subcategories.		

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<p>3. If using the ECG – EAL flowcharts, for each applicable subcategory, REVIEW EALs in the subcategory beginning with the lowest emergency classification level to the highest classification level (left to right). ENSURE all pages of a particular subcategory being considered are reviewed.</p> <p>4. If using the ECG – EAL Wallcharts, for each applicable subcategory, REVIEW EALs in the subcategory beginning with the highest emergency classification level to the lowest classification level (left to right).</p>	<p>Operator refers to Flowchart Diagrams and/or Wallcharts and reviews EALs in R1, H1, and C3.</p> <p>Operator determines that HA1.1, CS3.1 and apply to the event.</p>		
	<p>5. If in OPCON 1, 2 or 3, also REVIEW the Fission Product Barrier (FPB) Table:</p> <p>a. EXAMINE the FPB categories in the left column of the table.</p> <p>b. SELECT the category that most likely coincides with event conditions.</p> <p>c. REVIEW all thresholds in this category for each fission product barrier.</p> <p>d. For each threshold that is exceeded, IDENTIFY its point value and DETERMINE the classification level in accordance with the instructions on the Fission Product Barrier Table (or in EAL Technical Bases, Attachment 1).</p>	<p>Operator refers to FPB Table and identifies that the Initial Conditions (Operational Condition 4) are not applicable.</p>		

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<p>6. REVIEW the associated EALs as compared to the event and SELECT the highest appropriate emergency. If identification of an EAL is questionable refer to paragraph 8.1 above.</p> <p>If there is any doubt with regard to assessment of a particular EAL, the <u>ECG EAL Technical Bases Document</u> should be reviewed. Words contained in an EAL that appear in uppercase and bold print (e.g., VALID) are defined at the end of the bases for the particular EAL or in ECG – EAL Technical Basis Document, Attachment 3, EP-HC-111-232, EAL Definitions. Words or numbers contained in an EAL that are in bold print but not uppercase are EAL threshold values (e.g., ≥ 15 minutes).</p>	Operator reviews the EALs identified in Step 8.4.3 and 4, and selects EAL CS3.1 as the highest emergency action level met or exceeded (SITE AREA EMERGENCY).		
	<p>7. If an EAL has been exceeded, equal level EALs or lower level EALs are not required to be separately reported as long as the applicable information is communicated to the NRC using ECG Attachment 5, EP-HC-111-F5, NRC Data Sheet & Completion Reference.</p>	Examiner Note: Filling out the NRC Data Sheet is beyond the scope of this JPM.	N/A	

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

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	2. IF a Security Event is in progress, THEN, IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10 , prior to classification.	Operator determines Step is N/A and marks N/A.		
	3. As time allows, OBTAIN Classification Independent Verification (ensure verifier understands the EAL assessment clock is running); <ul style="list-style-type: none"> • STA or designee performs Independent Verification for SM • SM or designee performs Independent Verification for EDO • EDO or designee performs Independent Verification for ERM 	Operator requests STA/IA verification of classification and initials Step. Examiner Note: Due to time spent assessing and/or nature of JPM administration, Operator may not request a verification.		
CUE:	IF the Operator requests the STA/IA to independently verify the EAL Classification, THEN INFORM the Operator the STA/IA is not available.			
	4. While classification verification is in progress and if time allows, COMMENCE filling out the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	Operator commences filling out ICMF and initials Step.		
	5. After classification verification and before 15 minute EAL assessment clock expires, DECLARE a SITE AREA EMERGENCY at Hope Creek. EAL #(s) _____ Declared at _____ time _____ hrs on _____ date	*Operator declares a Site Area Emergency, places the EAL # CS3.1, time and date in the appropriate spots in Attachment 3, and initials the step as the EC. Examiners Note: ENTER the declaration time that the operator entered on Att. 3. The difference between the START TIME and the "DECLARED AT" TIME is the first critical time (15 min).		

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	B. NOTIFICATIONS			
	1. ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation": (Commitment #EP96-003)	Operator activates the ERO per posted instructions titled Training Use Emergency Callout Activation and initials Step. Examiner Note: <u>ENSURE</u> the operator is using the Simulator Training Activation instructions.		
	2. COMPLETE/APPROVE the ICMF (last page of this attachment).	*Operator Completes the ICMF and initials Step. Examiners Note: See the attached ICMF for an example of what the form should look like when filled out properly. Note that the exact words do not have to be in the "DESCRIPTION OF EVENT", but the description must convey the sense of the Initiating Condition for EAL CS3.1. The operator may place the Examiner's name as the Communicator, or tell the Examiner to place his/her name as the Communicator.		
	3. IF time allows, OBTAIN an accuracy peer check of the completed ICMF.	Operator requests a Peer Check of the completed ICMF and initials Step.		
CUE:	IF the Operator requests a peer check to verify the EAL Classification, THEN INFORM the Operator that no one is available.			
	4. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement ECG Attachment 6 .	*Operator provides the ICMF to CM1 and directs implementation of Att.6 and initials Step. Examiner Note: LOG the time the ICMF is provided to CM1. The difference between the "DECLARED AT" TIME and this LOG TIME is the second critical time (13 min.). TIME: _____		
CUE:	Role-play as CM1 and repeat back the directions given.			

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	5. DIRECT the Secondary Communicator to implement ECG Attachment 8 for an SITE AREA EMERGENCY.	*Operator directs CM2 to implement Att. 8 for a SITE AREA EMERGENCY and initials Step.		
CUE:	Role-play as CM2 and repeat back the directions given. Provide Terminating Cue.			
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator declares a Site Area Emergency [ECG CS3.1], and makes notifications within identified Critical Times in accordance with EP-HC-111-101.</p>				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: ECG007
REV NUMBER: 09

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: ECG007

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	8/26/08	Updated Estimated Completion Time with historical average performance time. No change in actions, validation not required. Updated Reference procedure revision number. No change in operator actions. This change is editorial, validation not required. Converted JPM ECG007 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.	N
03	10/6/09	Updated procedure revision number. No change in operator actions. Validation not required.	N
04	8/12/10	Updated Reference procedure revision numbers. Updated ICMF key to reflect words of "Hope Creek Emergency Classification Description Table". No changes to operator actions. No validation required.	N
05	9/12/11	Updated Reference procedure revision numbers. Revised procedure steps due to editorial changes of the procedure. Modified wind direction and speed. No changes to operator actions. No validation required.	N
06	9/26/12	Complete re-written to stay SAE under new ECG-EAL changes. Added Task Standard to JPM. Editorial change only. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only. Validated with 2 SROs from E Shift.	Y
07	3/27/13	Updated procedure revision number. No change in operator actions. Validation not required.	N
07	9/17/13	Validated correct reference procedure revision. NO changes.	N
08	9/9/2014	Revised format. Updated steps due to procedure revisions. Revised Standards' terminology. All changes are editorial.	N
09	10/31/2014	Revised Typographical Errors. Validated with 2 SROs.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: ECG007

REV#: 09

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

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

VALIDATED BY:Qualification Level Required: SRO

<u>M. CHARLES</u>	<u>SRO</u>	<u>ON FILE</u>	<u>10/31/2014</u>
Name	Qual	Signature	Date
 <u>L. MYERS</u>	 <u>SRO</u>	 <u>ON FILE</u>	 <u>10/31/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

EXAMINER'S
COPY

EP-HC-111-F3
ATT 3
Page 3 of 3

INITIAL CONTACT MESSAGE FORM

I. THIS IS NOT REQUIRED COMMUNICATOR IN THE ☒ CONTROL ROOM
(NAME) ☐ TSC
☐ EOF

AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II. ☒ THIS IS NOTIFICATION OF A SITE AREA EMERGENCY WHICH WAS
DECLARED AT TODAY'S TIME ON TODAY'S DATE
(TIME - 24 HOUR CLOCK) (DATE)
EAL #(s) CS3.1
DESCRIPTION OF EVENT: LOSS OF RPV INVENTORY AFFECTING CORE DECAY HEAT REMOVAL CAPABILITY

III.

NOTE:

Radiological Release is defined as: Plant Effluent > Tech Spec Limit of $1.20\text{E}+04$ $\mu\text{Ci/sec}$
Noble Gas or $1.70\text{E}+01$ $\mu\text{Ci/sec}$ 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): 332 WIND SPEED: 21
(From MET Computer /SPDS) (DEGREES) (MPH)

V. ☒ NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EXAMINER'S
COPY

INITIALS
EC Initials
(Approval to Transmit ICMF)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is in OPERATIONAL CONDITION 4 and has been in COLD SHUTDOWN for 10 days.
2. 'B' RHR was in Shutdown Cooling at 10,000 gpm with an RCS temperature of 120 degF.
3. Then, Hope Creek experiences an earthquake which indicates a magnitude of $> 0.1g$.
4. Control Room Annunciator C6-C4 is in.
5. 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
6. Numerous amber lights and 3 red lights are lit on the response spectrum analyzer.
7. A LOCA results. RPV level dropped to $-250''$, then stabilizes between $-225''$ and $-205''$, being maintained using all available ECCS (2 LPCI Loops).
8. Secondary Containment integrity is intact with FRVS in service.
9. The current 33 ft. elevation wind direction is from 332° at 21 mph.
10. Plant Effluents:
 - $1.17E+1 \mu\text{Ci/sec}$ Noble Gas
 - $1.17E-2 \mu\text{Ci/sec}$ 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 the event is **NOW**.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Protection System

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

JPM NUMBER: 305H-JPM.SB013

[JPM A]

REVISION: 05

SAP BET: NOH05JPSB13E

K/A NUMBER: 212000 A4.14

IMPORTANCE FACTOR: RO: 3.8 SRO: 3.8

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 11 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Reactor Protection System

TASK NUMBER: 2120030101

TASK: Reset A Reactor Scram

INITIAL CONDITONS:

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

INITIATING CUE:

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

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STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue, a marked-up copy of HC.OP-SO.SB-0001, AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.			
	Operator reviews prerequisites.	Operator ensures all prerequisites are met, and completes Attachment 1, Section 2.0.		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.3.1.		
5.3.1	ENSURE all prerequisites of Section 2.3 are satisfied.	Operator ensures that all prerequisites of Section 2.3 are satisfied, including completing Attachment 1, Section 2.0, and initials Step.		
5.3.2	<u>IF</u> a Half Scram condition exists...	Operator determines and marks this Step N/A.		
5.3.3	<u>IF</u> a Full Scram has occurred, THEN PERFORM the following: A. <u>IF</u> initiated, THEN RESET ARI prior to resetting the scram.	Operator determines ARI is reset, and initials or N/As Step.		
	B. ENSURE the RPS MODE SWITCH is in SHUT-DOWN <u>OR</u> REFUEL.	Operator observes that the Mode Switch is in SHUT-DOWN, and initials Step.		
	C. INSERT Key AND PLACE HI LEVEL SCRAM BYPASS in BYPASS AND OBSERVE the DISCH VOL HI WTR LVL TRIP BYP annunciator is illuminated.	*#Operator places SCRAM DISCHARGE VOLUME HIGH LEVEL SCRAM BYPASS switch (10C651C) in BYPASS, observes and acknowledges annunciator C5-C4, DISCH VOL HI WTR LVL TRIP BYP, and initials Step		

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 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	D. PERFORM the following to reset the Scram Reset Switches: 1. INSERT Key AND TURN RPS TRIP SYSTEM A TRIP LOGIC A1 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM A, TRIP LOGIC A1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	2. INSERT Key AND TURN RPS TRIP SYSTEM A TRIP LOGIC A2 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM A, TRIP LOGIC A2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	3. INSERT Key AND TURN RPS TRIP SYSTEM B TRIP LOGIC B1 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM B, TRIP LOGIC B1 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	4. INSERT Key AND TURN RPS TRIP SYSTEM B TRIP LOGIC B2 to RESET AND RETURN to NORM. INITIAL Attachment 1.	*Operator places RPS TRIP SYSTEM B, TRIP LOGIC B2 RESET SWITCH to RESET; then releases switch (Spring Return to NORM), initials Attachment 1 and Step.		
	E. ENSURE the TRIP LOGIC A1, A2, B1, AND B2 NORMAL/RESET lights are illuminated.	Operator verifies the TRIP LOGIC A1, A2, B1, and B2 NORMAL/RESET indicators illuminated, and initials Step.		
	F. ENSURE the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS A NORMAL AND B NORMAL lights are illuminated (Four Control Rod Groups).	Operator verifies the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS "LOGIC A NORMAL" and "LOGIC B NORMAL" indicators are illuminated for group 1, 2, 3, and 4 solenoids, and initials Step.		
NOTE	The ROD DRIFT alarm is reset to detect rods moving beyond notch position "00" once the reactor scram is reset.	Operator reads and initials Note.		

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 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	G. RESET the ROD DRIFT alarm.	Operator depresses the Rod Drift Alarm reset push-button, verifies the Rod Drift overhead alarm is clear, and initials Step. Examiner Note: The Rod Drift alarm may not clear at this time.		
	H. ENSURE HV-F010/HV-F180 SCRAM DISCHARGE VOLUME PIPING INBD/OUTBD VENT VALVE AND HV-F011/HV-F181 INBD/OUTBD DRAIN VALVE OPEN indication is illuminated.	Operator verifies SCRAM DISCHARGE VOLUME INBD/OUTBD VENT VALVES HVF010/HVF180 and INBD/OUTBD DRAIN VALVES HVF011/HVF181 OPEN indicators are illuminated and initials Step.		
	I. ENSURE blue SCRAM lights are extinguished for all 185 Control Rods on FULL CORE DISPLAY. (10C650C)	Operator verifies blue SCRAM lights on the FULL CORE DISPLAY (10C650C) ARE EXTINGUISHED (185 CONTROL RODS) and initials Step.		
	J. ENSURE the following annunciators are de-energized: <ul style="list-style-type: none"> • REACTOR SCRAM TRIP LOGIC A1 • REACTOR SCRAM TRIP LOGIC A2 • REACTOR SCRAM TRIP LOGIC B1 • REACTOR SCRAM TRIP LOGIC B2 	Operator verifies the following annunciators are not in alarm: <ul style="list-style-type: none"> • REACTOR SCRAM TRIP LOGIC A1 • REACTOR SCRAM TRIP LOGIC A2 • REACTOR SCRAM TRIP LOGIC B1 • REACTOR SCRAM TRIP LOGIC B2 and initials Steps.		
NOTE	The Reactor Protection System is now reset.	Operator reads and initials Note.		

JPM NUMBER: SB013
 REV NUMBER: 05

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	K. <u>WHEN</u> CRD SCRAM DISCH VOL LVL HI annunciator is de-energized, <u>THEN INSERT</u> Key <u>AND PLACE</u> HI LEVEL SCRAM BYPASS in NORMAL (DISCH VOL HI WTR LVL TRIP BYP annunciator is de-energized) <u>AND INITIAL</u> Attachment 1.	Operator observes that the CRD SCRAM DISCH VOL LVL HI annunciator is de-energized, and places CRD DISCH VOLUME BYP in NORMAL, observes that the DISCH VOL HI WTR LEVEL TRIP BYP annunciator is de-energized, initials Attachment 1, and the Step. Examiner Note: May have the simulator operator reduce the SDV level such that the time until draining is complete is shortened.		
	L. <u>AFTER</u> resetting the Scram <u>THEN PERFORM</u> the following as soon as possible: 1. VERIFY all control rods have settled into notch position "00" using one of the following: <ul style="list-style-type: none"> FOUR ROD DISPLAY Process Plant Computer (PPC) RWM Shutdown Confirmation Screen. SPDS ALL RODS INSERTED reads "YES" 	*Operator attempts to verify all control rods have settled into notch "00", and identifies that all rods have NOT resealed, and informs the CRS that rod 38-47 is at position 02.		
CUE:	Acknowledge the report from the operator, and direct the operator to reseat the Control Rod.			
<u>NOTE</u>	IF Control Rods at overtravel in position DO NOT re-seat after applying an insert signal, then a single notch withdrawal may be applied.	Operator reads and initials Note.		
	2. RE-SEAT Control Rods to "00" by applying a rod insert signal.	*Operator applies an insert signal to Control Rod 38-47, Observes that it seats to position "00", informs the CRS that all rods are seated, and initials Step.		
CUE:	Acknowledge the report from the operator.			

JPM NUMBER: SB013
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NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	3. <u>IF</u> seating at "00" is NOT possible, <u>THEN</u> ISOLATE the affected HCU IAW HC.OP-SO.BF-0002(Q), to prevent inadvertent rod motion.	Operator determines Step is not applicable and initials or marks Step N/A.		
	4. Following the resetting of a Full Scram, NOTIFY Radiation Protection to survey the Scram Discharge Volumes.	Operator notifies Radiation Protection to survey the Scram Discharge Volumes.		
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state " This JPM is complete ". STOP TIME: _____			
Task Standard: Operator resets RPS, identifies rod 38-47 is at position 02, and reseats rod 38-47, in accordance with HC.OP-SO.SB-0001.				

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: SB013
REV NUMBER: 05

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: SB013

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	9/14/11	Converted JPM SB013 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. JPM validation times needed. Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. Validated with 2 operators from "C" Shift. Avg completion time 27 minutes.	Y
03	9/20/12	Added Task Standard to JPM. Updated Reference procedure revision only. Editorial change only. No validation required. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only.	N
04	9/11/2014	Updated Reference procedure revisions. Revised format and standards. Added to provide marked-up copy of procedure. Added the last two non-critical Steps to complete task as stated. Editorial change only. No validation required.	N
05	11/7/2014	Modified to have different Control Rod settle to 02 vice the overtravel position. Validated with 2 ROs. Validation time 11 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: SB013

REV#: 05

TASK: Reset A Reactor Scram

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

VALIDATED BY:Qualification Level Required: RO

<u>T. HENDRICKS</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date
<u>J. NERE</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: SB013

REV#: 05

INITIAL CONDITIONS:

TC:

Initial

INITIALIZE the simulator to 100% power, MOL.

SCRAM the reactor AND TAKE Immediate Operator Actions.

ENSURE associated Schedule file open and running.

ENSURE associated Events file open.

ENSURE Control Rod 38-47 is selected.

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

Initial

Description

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

EVENT FILE

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

MALFUNCTION SCHEDULE

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

REMOTE SCHEDULE:

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

OVERRIDE SCHEDULE:

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

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

JOB PERFORMANCE MEASURE**STATION:** Hope Creek**SYSTEM:** Reactor Water Cleanup System**TASK NUMBER:** 4000760401**TASK:** Respond To A Containment Isolation**JPM NUMBER:** BG003**[JPM B]****REVISION:** 00**SAP BET:** NOH05JPBG03E**K/A NUMBER:** 204000 A2.13**IMPORTANCE FACTOR:** RO: 3.4 SRO: 3.4**ALTERNATE PATH:** ☐**APPLICABILITY:** EO ☐RO ☒STA ☐SRO ☒**EVALUATION SETTING/METHOD:** Simulator/Perform**REFERENCES:** HC.OP-AB.CONT-0002 Rev. 12**TOOLS, EQUIPMENT:** None**ESTIMATED COMPLETION TIME:** 10 Minutes**TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:** N/A Minutes**JPM PERFORMED BY:** _____**GRADE:** SAT ☐ UNSAT ☐**ACTUAL COMPLETION TIME:** _____ Minutes**ACTUAL TIME CRITICAL COMPLETION TIME:** N/A Minutes**REASON IF UNSATISFACTORY:****EVALUATOR:** _____
Signature**DATE:** _____**DEVELOPED BY:** _____
S. DENNIS/SIGNATURE ON FILE
Instructor**DATE:** 12-9-2014**REVIEWED BY:** _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative**DATE:** 12-11-2014**APPROVED BY:** _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department**DATE:** 12-9-2014

JOB PERFORMANCE MEASURE

SYSTEM: Reactor Water Cleanup System

TASK NUMBER: 4000760401

TASK: Respond To A Containment Isolation

INITIAL CONDITONS:

1. RPS Bus B power was lost.
2. Power to RPS Bus B was restored IAW HC.OP-AB.IC-0003, Actions A.1-A.4.
3. It has been decided that for the RWCU isolation, HC.OP-AB.CONT-0002(Q), Condition B may be used for a faster restoration instead of the SOP.

INITIATING CUE:

PERFORM Action B.1 of HC.OP-AB.CONT-0002.

JPM NUMBER: **BG003**

NAME: _____

REV NUMBER: **0**

DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains and locates procedure HC.OP-AB.CONT-0002.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be B.1.		
B.1	<u>IF</u> RWCU isolated, <u>THEN</u> RESTORE RWCU IAW Attachment 3.	Operator proceeds to Attachment 3.		
ATT 3 1.	<u>IF</u> necessary, RESET NSSSS as follows: a. ENSURE conditions causing the Isolation have been corrected.	Operator determines that the cause of the isolation has been corrected.		
	b. PRESS the following PBs to reset NSSSS: • NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC A RESET.	Operator depresses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC A RESET push button.		
	• NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC B RESET.	Operator depresses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC B RESET push button.		
	• NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC C RESET.	Operator depresses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC C RESET push button.		
	• NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC D RESET.	Operator depresses the NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM TRIP LOGIC D RESET push button.		
	c. OPEN HV-F001 and HV-F004, RWCU suction valves.	*#Operator opens HV-F004. Operator ensures HV-F001 is already open.		

JPM NUMBER: **BG003**

NAME: _____

REV NUMBER: **0**

DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
2.	ENSURE HV-F044, Filter Demin Bypass valve is CLOSED.	Operator ensures HV-F044, Filter Demin Bypass valve is CLOSED.		
3.	ENSURE HV-F104 HX Bypass valve is CLOSED.	Operator ensures HV-F104 HX Bypass valve is CLOSED.		
4.	ENSURE at least one RACS Pump is in service.	Operator ensures at least one RACS Pump is in service.		
5.	START A(B) P221, RWCU pump.	*#Operator starts AP221, <u>OR</u> BP221, RWCU pump. Examiner Note: Operator must press STOP before START.		
6.	THROTTLE OPEN HV-F044, Filter Demin Bypass valve until computer point A2856, RWCU Outlet Flow indicates approximately 150 gpm.	*Operator throttles HV-F044, Filter Demin Bypass valve until computer point A2856, RWCU Outlet Flow indicates approximately 150 gpm. Examiner's Note: Critical to establish flow greater than 70 gpm.		
7.	START B(A) P221, RWCU pump.	*Operator starts BP221, <u>OR</u> AP221, RWCU pump. Examiner Note: Operator must press STOP before START		
8.	THROTTLE OPEN HV-F044, Filter Demin Bypass valve until computer point A2856, RWCU Outlet Flow indicates approximately 300 gpm.	*Operator throttles HV-F044, Filter Demin Bypass valve until computer point A2856, RWCU Outlet Flow, indicates approximately 300 gpm. Examiner's Note: Critical to establish flow greater than 70 gpm.		
CUE:	WHEN operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete". STOP TIME: _____			
Task Standard: Operator responds to a containment isolation and restores RWCU IAW HC.OP-AB.CONT-0002.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

QUESTION:

RESPONSE:

RESULT:

SAT

☐

UNSAT

☐

QUESTION:

RESPONSE:

RESULT:

SAT

☐

UNSAT

☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BG003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
0	11/7/2014	New JPM. Validated with 2 ROs. Validation time 10 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: BG003

REV#: 00

TASK: Respond To A Containment Isolation

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

VALIDATED BY:

Qualification Level Required:

RO

T. HENDRICKS
Name

RO
Qual

ON FILE
Signature

11/7/2014
Date

J. NERE
Name

RO
Qual

ON FILE
Signature

11/7/2014
Date

JOB PERFORMANCE MEASURE SIMULATOR SETUP INSTRUCTIONS (OPTIONAL)

JPM NUMBER: BG003

REV#: 0

INITIAL CONDITIONS:

IC	
Initial	Description
	INITIALIZE to any 100% power IC.
	PLACE RPS MG SET TRANSFER SWITCH B to the Alternate position.
	ALLOW conditions to stabilize.
	PERFORM Actions A.1, A.2, A.3, and A.4 of HC.OP-AB.IC-0003.

PREPARATION FOR TRAINING (E.G., PROCEDURES, BEZEL COVERS)

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

MALFUNCTION SUMMARY:

Initial	Malfunction Description	Event	Delay	Ramp	Initial Value	Final Value

REMOTE SUMMARY:

Initial	Remote Description	Event	Delay	Ramp	Initial Value	Final Value

I/O OVERRIDE SUMMARY:

Initial	Override Description	Event	Delay	Ramp	Initial Value	Final Value

EVENT SUMMARY:

Initial	Event	
		Override Description:
		Event Code:

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. RPS Bus B power was lost.
2. Power to RPS Bus B was restored IAW HC.OP-AB.IC-0003, Actions A.1-A.4.
3. It has been decided that for the RWCU isolation, HC.OP-AB.CONT-0002(Q), Condition B may be used for a faster restoration instead of the SOP.

INITIATING CUE:

PERFORM Action B.1 of HC.OP-AB.CONT-0002.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod Drive

TASK NUMBER: 4000060401

TASK: Respond to a Loss of CRD Regulating Function

JPM NUMBER: 305H-JPM.BF012

[JPM C]

REVISION: 08

SAP BET: NOH05JPBF12E

K/A NUMBER: 295022 AA1.02

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.6

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.IC-0001, Rev. 16; HC.OP-IO.ZZ-0003, Rev 104; HC.OP-AR.ZZ-0020, Rev. 19;

HC.OP-SO.SF-0001, Rev. 32; HC.OP-AR.ZZ-0011, Rev. 59

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 11 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Control Rod Drive

TASK NUMBER: 4000060401

TASK: Respond to a Loss of CRD Regulating Function

INITIAL CONDIITONS:

1. Reactor pressure is approximately 500 psig.
2. A Reactor startup is in progress in accordance with HC.OP-IO.ZZ-0003. Completed up to step 5.3.34.C.
3. Currently completed Step 320 of the Rod Pull Listing (Rod 10-19 @ 04).

INITIATING CUE:

WITHDRAW control rods to in preparation to place the first RFP in service.

JPM NUMBER: BF012
 REV NUMBER: 08

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains procedure HC.OP-SO.SF-0001.	Operator obtains 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 5.3.1.		
5.3.1	ENSURE that all prerequisites have been satisfied IAW Section 2.3.	Operator reviews prerequisites and initials each prerequisite in the space provided in the procedure.		
NOTE	For a specified control rod, Reactor Engineering may request a range for Drive Water Differential Pressure below the normal range of 260-270 psid to compensate for double-notching pending Corrective Maintenance. A lower differential pressure will slow down the control rod.	Operator reads and initials NOTE.		
5.3.2	IF desired, LOWER Drive Water Differential Pressure to the desired range.	Operator determines that this Step is N/A and marks Step as N/A.		
5.3.3	To select the desired control rod, PRESS the desired Control Rod Select PB on the ROD SELECT MODULE AND OBSERVE the following: A. Selected rod PB comes ON (bright white).	*#Operator presses the PB for rod 26-35 and observes rod 26-35 PB illuminates AND initials Step.		
	B. CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C).	Operator observes the CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (04) AND initials Step.		

JPM NUMBER: BF012
 REV NUMBER: 08

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	C. The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).	Operator observes rod 26-35 Full Core Display (white) numbered rod identification light is ON AND initials Step.		
	D. Approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on CRID's point B2117. [70044199]	Operator determines that approximately 6 gpm total flow through both the Insert AND Withdraw Stabilizing valves is indicated on CRID's point B2117 AND initials Step.		
NOTE	<p><u>WHEN</u> a single notch motion is required, the WITHDRAW PB must be held until the INSERT lamp illuminates. This is to ensure the Rod Motion Timer cycle is sealed in. [80013510]</p> <p>The leading indicator of excessive channel distortion is slow settle times. A normal settle time is about 2 seconds from the time that the settle light illuminates until the even notch appears on the Four Rod Display. Settle times should be monitored and Reactor Engineering promptly notified of slow times.</p>	Operator reads and initials NOTE.		
5.3.4	At the ROD SELECT MODULE, momentarily PRESS the WITHDRAW PB AND OBSERVE the following:	*#The operator momentarily presses the WITHDRAW PB AND initials Step.		
	A. The INSERT (white) light comes ON momentarily.	Operator observes the INSERT (white) light comes ON momentarily AND initials Step.		
	B. The WITHDRAW (white) light comes ON for ≈ 1 second.	Operator observes the WITHDRAW (white) light comes ON for ≈ 1 second AND initials Step.		
	C. CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement.	Operator observes CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement AND initials Step.		
	D. The Full Core Display FULL IN (green) light goes OUT, as applicable.	Operator determines that this Step is N/A and marks Step N/A.		

JPM NUMBER: BF012
 REV NUMBER: 08

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	E. The WITHDRAW (white) light goes OUT.	Operator observes the WITHDRAW (white) light goes OUT AND initials Step.		
	F. The SETTLE (white) light comes ON for \approx 6 seconds, THEN goes out.	Operator observes the SETTLE (white) light comes ON for \approx 6 seconds, then goes out AND initials Step.		
	G. CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position.	Operator observes CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position(06) AND initials Step.		
	H. For control rods withdrawn to position 48 (full out), the applicable Full Core Display FULL OUT (red) light comes ON.	Operator determines that this Step is N/A and marks Step N/A.		
	I. After the withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position.	Operator ensures that the rod position indicates that the rod is in the correct, even numbered position(06) AND initials Step.		
	<p>Operator observes that the operating CRD Pump has tripped by observing the following alarms and indications:</p> <ul style="list-style-type: none"> Annunciator CRD SYSTEM TROUBLE, C6-F2 is energized. Lowering CRD Drive Water Flow Lowering Charging Water Header Pressure Flashing STOP PB for the operating CRD pump. D2244 CRD WTR PMP A MOT MALF CRIDS in alarm. 	The operator reports the status of the CRD System.		
CUE:	Acknowledge the report of the status of the CRD Pump. State "Start the standby CRD pump in accordance with the Annunciator Response Procedure."			

JPM NUMBER: BF012
 REV NUMBER: 08

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	The operator attempts to place the B CRD pump in service in accordance with D2244, HC.OP-AR.ZZ-0011, and HC.OP-AR.ZZ-0020, HC.OP-AB.ZZ-0001, OR Section 5.2.8 of HC.OP-SO.BF-0001.	Examiner Note: It may be necessary to have the simulator operator support placing the CRD pump in service IAW HC.OP-AB.ZZ-0001.		
	HC.OP-AR.ZZ-0020(Q)	N/A	N/A	N/A
D2244	OPERATOR ACTION: 1. DETERMINE cause of A CRD Pump trip. CAUSE CRD Pump trip due to overcurrent <u>OR</u> undervoltage. (OVLD/PWR FAILURE amber light on (HS4011A)). CORRECTIVE ACTION 1A. PLACE DRIVE WTR FLOW controller in MANUAL <u>AND</u> SET to 0.	Operator determines that Cause 1A is applicable and takes Corrective Actions. *#Operator places DRIVE WTR FLOW controller in MANUAL <u>AND</u> sets it to 0.		
	1B. START B CRD Pump <u>AND</u> RESTORE system flow to 63 gpm.	*#Operator starts B CRD Pump by pressing the START PB, and observes that it trips after start.		
CUE:	Acknowledge the report of the status of the CRD Pump.			
	CAUSE 3. Complete loss of Drive Water Pumps A and B CORRECTIVE ACTION 3A.REFER to HC.OP-AB.IC-0001(Q); Control Rod.	Operator determines that Cause 3 is applicable and takes Corrective Actions. Operator refers to HC.OP-AB.IC-0001(Q); Control Rod.		
CUE:	Acknowledge the report of the status of the CRD system.			
CUE:	Announce "Crew Update" after acknowledged state "Entering HC.OP-AB.IC-0001, Control Rod, end of update."			
	HC.OP-AB.IC-0001(Q)	N/A	N/A	N/A
	Operator responds to CRD Accumulator alarm C6-D4, CRD ACCUM TROUBLE	Operator acknowledges OHA and reports status of accumulators.		

JPM NUMBER: BF012
 REV NUMBER: 08

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	Acknowledge report of CRD Accumulator Trouble alarms.			
CUE:	IF the operator requests that the Reactor Building Equipment Operator report the local Accumulator pressures for the associated rods, THEN REPORT that indicated pressure for all three is approximately 600 psig.			
CUE:	IF the operator requested that the Reactor Building Equipment Operator report the local Accumulator pressures for the associated rods, and that indicated pressure for all three is approximately 600 psig, THEN STATE that the Accumulators for those rods are declared INOPERABLE.			
	<p>Operator determines that the Retainment Override applies.</p> <p>CONDITION</p> <p>I. Reactor Pressure < 900 psig AND Charging Water Header Pressure < 940 psig AND ANY WITHDRAWN Control Rod Scram Accumulator INOPERABLE.</p> <p>ACTION</p> <p>IA. LOCK Mode Switch in SHUTDOWN. [T/S 3.1.3.5.a.3] [CM-HC-1982-108]</p>	<p>*Operator locks the Mode Switch in SHUTDOWN</p> <p>AND implements HC.OP-AB.ZZ-0001, Attachment 1.</p> <p>Examiner Note: If the Mode Switch is in SHUTDOWN, provide the Terminating Cue.</p>		
CUE:	IF the operator requests permission to lock the reactor mode switch in Shutdown, THEN STATE "Lock the Mode Switch in Shutdown."			
	HC.OP-AB.ZZ-0001 Att. 1	N/A	N/A	N/A
1.0	ANNOUNCE "Crew - Standby for Scram Report".	<p>Operator announces "Crew - Standby for Scram Report".</p> <p>Examiner Note: If the Mode Switch is already in SHUTDOWN, provide the Terminating Cue.</p>		
2.0	LOCK the Mode Switch in Shutdown.	<p>Operator locks the Mode Switch in SHUTDOWN.</p> <p>Examiner Note: If the Mode Switch is now in SHUTDOWN, provide the Terminating Cue.</p>		

JPM NUMBER: BF012
REV NUMBER: 08

NAME: _____
DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____			
Task Standard: Operator responds to a loss of CRD regulating function in accordance with HC.OP-AB.IC-0001.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: BF012
REV NUMBER: 08

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BF012

REVISION HISTORY

Rev #	Date	Description	Validation Required?
02	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 numbers. Replaced 3 rod accumulator malfunctions with 3 active malfunctions for rods currently not at 00. Revised pull sheet step to 257 due to change in rod pattern. Revised IO-3 step to 5.3.29.C due to procedure revs. Changed event trigger to lcvposx(137) >=64 to trigger off actual rod movement of rod 26-43 vs. rod selection.	Y
03	9/9/09	Updated procedure revision numbers. Updated referenced procedure step numbers. Changed pump trip trigger from rod number 26-43 position 04 to rod 26-27 position 06 due to changes in rod pattern with new core model. No change in operator actions. No validation required.	N
04	5/6/10	Updated reference procedure revisions. Changed Control rod and position to equivalent step due to core model changes. No validation required.	N
05	9/12/11	Modified Malfunction, Remote, Override, and Event list sections for TREX event syntax. Updated Reference procedure revision numbers only. Rod position changed from notch 08 to 06 due to core model change. No changes to operator actions. No validation required.	N
06	9/4/12	Added Task Standard to JPM. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only. No validation required. Updated Reference procedure revisions only. No changes to operator actions. No validation required.	N
07	3/17/13	Updated Reference procedure revision numbers only. Changed pump trip trigger from rod number 34-11 position 06 to rod 14-35 position 18 due to changes in rod pattern with new core model. Revised pull sheet step to 245 due to change in rod pattern. No changes to operator actions. No validation required.	N
08	11/7/2014	Revised format. Deleted second rod movement steps. Revised K&A to reflect RPS actions. Changed rod movement due to change in Simulator Load. Incorporated comments from validation.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: BF012

REV#: 08

TASK: Respond to a Loss of CRD Regulating Function

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

VALIDATED BY:Qualification Level Required: RO

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: BF012

REV#: 08

INITIAL CONDITIONS:

Initial	
	RESET simulator to an IC snapped during a startup and at approximately 500 psig.
	SELECT the rod associated with the previous step. Initial the Rod Pull Listing up through Step 320.
	INSERT Malfunctions and Event Triggers
	ENSURE associated Schedule and/or Event file(s) is/are open and running (as required).

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

Initial	Description
	MARKUP HC.OP-IO.ZZ-0003 up to and including 5.3.33.A with this step 5.3.33.A circled.
	MARKUP Rod Pull List through Step 320.
	ENSURE REMA for startup prepared.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

FILE:

Initial	ET	
	1	Event code: LCVPOSX(107)>=90 Description: Rod 26-35 at 06
	2	Event code: ZLLCPBSS Description: B CRD Pump START PB Light ON

ACTION SCHEDULE

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction CD10A after 15 on event 1	CRD hydraulic pump A trip
	None	None	Insert malfunction CD054223 after 25 on event 1	Control Rod 18-43 accumulator trouble
	None	None	Insert malfunction CD053059 after 35 on event 1	Control Rod 02-39 accumulator trouble
	None	None	Insert malfunction CD050239 after 45 on event 1	Control Rod 42-23 accumulator trouble
	None	None	Insert malfunction CD10B on event 2	CRD hydraulic pump B trip

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

SCHEDULE

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

SCHEDULE

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

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Reactor pressure is approximately 500 psig.
2. A Reactor startup is in progress in accordance with HC.OP-IO.ZZ-0003. Completed up to step 5.3.34.C.
3. Currently completed Step 320 of the Rod Pull Listing (Rod 10-19 @ 04).

INITIATING CUE:

WITHDRAW control rods in preparation to place the first RFP in service.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Area Ventilation

TASK NUMBER: 4880030101

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

JPM NUMBER: 305H-JPM.GK003

[JPM D]

REVISION: 00

SAP BET: NOH05JPGK03E

K/A NUMBER: 290003 A2.03

IMPORTANCE FACTOR: RO: 3.4

SRO: 3.6

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 15 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Control Area Ventilation

TASK NUMBER: 4880030101

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

INITIAL CONDIITONS:

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

INITIATING CUE:

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

JPM NUMBER: GK003
 REV NUMBER: 00

NAME: _____
 DATE: _____

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

JPM NUMBER: GK003
 REV NUMBER: 00

NAME: _____
 DATE: _____

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

JPM NUMBER: GK003
REV NUMBER: 00

NAME: _____
DATE: _____

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

JPM NUMBER: GK003
 REV NUMBER: 00

NAME: _____
 DATE: _____

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

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: GK003
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: GK003

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	11/3/2014	Initial issue. Validated with RO and SRO. Incorporated comments. Validation time 15 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: GK003

REV#: 00

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

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

VALIDATED BY:

Qualification Level Required: RO

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

JPM NUMBER: GK003

REV#: 00

INITIAL CONDITIONS:

I.C.

Initial

INITIALIZE the simulator to 100% power MOL.

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

Initial

Description

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

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

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

ACKNOWLEDGE Overhead Annunciators.

PLACE tagging bezel covers over AP400 and AK400.

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

EVENT FILE

Initial

ET

Event code:

Description:

MAJORITY SCHEDULE

Initial

@Time

Event

Action

Description

REMOTE SCHEDULE

Initial

@Time

Event

Action

Description

OVERRIDE SCHEDULE

Initial

@Time

Event

Action

Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 4000510401

TASK: Respond To Rising Drywell Pressure

JPM NUMBER: 305H-JPM.GS011

[JPM E]

REVISION: 00

SAP BET: NOH05JPGS11E

K/A NUMBER: 295010 AA1.05

IMPORTANCE FACTOR: RO: 3.1

SRO: 3.4

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0001, Rev. 3

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 10 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-10-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-10-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Containment Atmosphere Control

TASK NUMBER: 4000510401

TASK: Respond To Rising Drywell Pressure

INITIAL CONDIITONS:

1. HV-9531A1, A2, A3, AND A4, LOOP A/B OTBD SPLY/RTN, closed due to a Bailey fault.
2. Efforts are underway to open those valves manually.
3. HC.OP-AB.CONT-0001, Drywell Pressure, is being implemented.
4. There are no indications of elevated Coolant System leakage.

INITIATING CUE:

VENT the Drywell to maintain Drywell Pressure less than 0.75 psig in accordance with Condition C of HC.OP-AB.CONT-0001.

SECURE venting when Drywell Pressure is less than 0.5 psig.

JPM NUMBER: GS011
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains and locates procedure HC.OP-AB.CONT-0002.	Operator obtains the correct procedure.		
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be C.1.		
CONDITION C. Drywell Pressure \geq 0.75psig AND No Evidence of Elevated Coolant System Leakage				
ACTION				
NOTE 3	IF FRVS has NOT initiated, periodic venting of containment is covered by the monthly SPV effluent permit and a separate gaseous effluent permit is not required. (Refer to HC.RP-ST.ZZ-0004(Q))	Operator reads and initials NOTE.		
C.1.	IF necessary, PREPARE a Gaseous Effluent Permit concurrently with Step C.2 and C.3.	Operator determines and marks Step as N/A.		
C.2.	VENT the Drywell to maintain Drywell Pressure < 0.75 psig as follows: a. ENSURE Containment is aligned to vent thru RBVS/FRVS within 4 hours prior to start IAW DL.ZZ-0026.	Operator ensures Containment is aligned to vent thru RBVS/FRVS within 4 hours prior to start IAW DL.ZZ-0026 and initials Step.		
	b. OPEN the following: 1. HD-9372A	*Operator opens HD-9372A, and initials Step.		
	2. HV-4952	*Operator opens HV-4952, and initials Step.		

JPM NUMBER: GS011
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	3. HV-4951	*Operator opens HV-4951, and initials Step.		
C.3.	SECURE Drywell venting as follows: a. CLOSE the following: 1. HV-4951	When Drywell pressure is <0.5 psig *Operator closes HV-4951, and initials Step.		
	2. HV-4952	*Operator closes HV-4952, and initials Step.		
	3. HD-9372A	*Operator closes HD-9372A, and initials Step.		
	b. Visually VERIFY the Blowout Panels in TABLE 1 are intact.	Operator dispatches Equipment Operator to visually verify Blowout Panels in Table 1 are intact and initials Step.		
CUE:	Respond as the Equipment Operator.			
	c. ENSURE the following Back Draft Isolation Dampers are OPEN.(GR) • Dampers in table on CRIDS Page 105	Operator verifies that the following dampers are Open as displayed on CRIDS Page 105: • Dampers in table on CRIDS Page 105 [OPEN] and initials Step.		
	• RB PIPECHASE CH A ISLN DMPR	• RB PIPECHASE CH A ISLN DMPR [TEMP NHI] and initials Step.		
	• RB PIPECHASE CH C ISLN DMPR	• RB PIPECHASE CH C ISLN DMPR [TEMP NHI] and initials Step.		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator vents the Drywell, and secures venting the Drywell when Drywell Pressure is less than 0.5 psig in accordance with HC.OP-AB.CONT-0001.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: GS011
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

JPM NUMBER: GS011

REVISION HISTORY

Rev #	Date	Description	Validation Required?
0	11/7/2014	Initial issue. Validated with 2 ROs. Validation time 10 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: GS011

REV#: 00

TASK: Respond To Rising Drywell Pressure

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

VALIDATED BY:Qualification Level Required: RO

<u>T. HENDRICKS</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date
<u>J. NERE</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: GS011

REV#: 00

INITIAL CONDITIONS:

I.C.

Initial

INITIALIZE to 100% power MOL.

CLOSE HV-9531A1, A2, A3, AND A4

ALLOW Drywell Pressure to rise to >1.00 psig

PLACE the simulator in FREEZE

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

Initial

Description

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

EVENT FILE

Initial

ET

Event code:

Description:

MALFUNCTION SCHEDULE

Initial

@Time

Event

Action

Description

REMOTE SCHEDULE

Initial

@Time

Event

Action

Description

OVERRIDE SCHEDULE

Initial

@Time

Event

Action

Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. HV-9531A1, A2, A3, AND A4, LOOP A/B OTBD SPLY/RTN, closed due to a Bailey fault.
2. Efforts are underway to open those valves manually.
3. HC.OP-AB.CONT-0001, Drywell Pressure, is being implemented.
4. There are no indications of elevated Coolant System leakage.

INITIATING CUE:

VENT the Drywell to maintain Drywell Pressure less than 0.75 psig in accordance with Condition C of HC.OP-AB.CONT-0001.

SECURE venting when Drywell Pressure is less than 0.5 psig.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 4000780401

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

JPM NUMBER: 305H-JPM.EG008

[JPM F]

REVISION: 09

SAP BET: NOH05JPE08E

K/A NUMBER: 295018 AA1.02

IMPORTANCE FACTOR: RO: 3.3

SRO: 3.4

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 4 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-10-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-10-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 4000780401

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

INITIAL CONDIITONS:

1. The plant is operating at 100% power with TACS being supplied by SACS Loop A.
2. EDG DG400 is INOPERABLE and has been placed in service for a loaded maintenance run following work on the governor.
3. EDG DG400 has been loaded to 1000 KW and approximately 500 KVAR in accordance with HC.OP-SO.KJ-0001. Load is being held here while governor stability at low loads is being evaluated.
4. SACS Pump BP210 just tripped and HC.OP-AB.COOL-0002 is being implemented.

INITIATING CUE:

IMPLEMENT Condition A of HC.OP-AB.COOL-0002.

You are responsible for actions contained in HC.OP-AB.COOL-0002 **ONLY**.

The Simulator is in Freeze. Inform the examiner when you are ready to begin.

JPM NUMBER: EG008
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue;			
	Operator obtains procedure HC.OP AB.COOL 0002.	Operator obtains the correct procedure.		
CUE:	WHEN EITHER five minutes has elapsed, OR the Operator has indicated he/she is ready to begin, THEN ENTER START TIME, PLACE the Simulator in RUN, AND INFORM the Operator the JPM has commenced. START TIME: _____			
CONDITION				
A. Trip of SACS pump in the Standby Loop. [T/S 3.7.1.1]				
ACTION A.1	START the unaffected pump as follows: a. VERIFY INOP and OVLD/PWR FAIL are not illuminated.	Operator observes the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D INOP and OVLD/PWR FAIL lights are not illuminated and initials Step.		
	b. PLACE the pump in manual.	*#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D MAN pushbutton and observes the MAN light illuminates and the AUTO light extinguishes, and initials Step.		
	c. START the pump.	*#Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D, DP210 START pushbutton, and observes the PUMP D DP210 START light illuminates and the STOP light extinguishes, and initials Step.		

JPM NUMBER: EG008
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
		<p>After approximately 3 seconds, the 'D' SACS pump trips and the operator observes the following:</p> <ul style="list-style-type: none"> PUMP D AI 6356D amps drop to zero OHA A1 E5 SACS LOOP B TROUBLE reflashes PUMP D DP210 START light extinguishes PUMP D STOP light begins flashing 		
CUE:	IF the Operator questions who is responsible for DG400, DIRECT the Operator to perform Action A.2 of HC.OP-AB.COOL-0002.			
A.2	<p><u>IF</u> flow cannot be restored to the affected loop, <u>THEN PERFORM</u> the following:</p> <ul style="list-style-type: none"> UNLOAD AND SECURE all EDG's aligned to the affected loop as follows: <ol style="list-style-type: none"> PRESS GEN VR LOWER pushbutton until Generator KVAR loading is < 200 KVAR. 	<p>Operator determines flow cannot be restored to the 'B' SACS loop.</p> <p>Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 GEN VR LOWER pushbutton until GEN D VARI 6395D indicates <200 KVAR, and initials Step.</p>		
	<ol style="list-style-type: none"> PRESS DIESEL ENG GOV DECR pushbutton until Generator load < 200 KW. 	<p>*#Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 DIESEL ENG GOV DECR pushbutton until GEN D WI 6394D indicates < 200 KW, and initials Step.</p> <p>Examiner Note: The DG400 output breaker may trip on reverse power.</p>		
	<ol style="list-style-type: none"> TRIP associated EDG GEN BRKR. 	<p>*#Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 GEN BRKR TRIP pushbutton,</p> <p>observes the 40407 TRIP light illuminates and the CLOSE light extinguishes, and initials Step.</p>		

JPM NUMBER: EG008
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	d. STOP the EDG.	<p>*Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 DIESEL ENG STOP pushbutton,</p> <p>observes the DG400 STOP light illuminates and the START light extinguishes BEFORE the EDG catastrophically fails and trips (≈9 minutes with NO operator action), and initials Step.</p> <p>Examiner Note: Successful completion of the JPM is satisfied IF the Operator secures the EDG before it catastrophically fails and trips.</p>		
	<ul style="list-style-type: none">ENSURE Control Room Chilled Water is aligned to the unaffected loop.(GJ)	Operator observes the Control Room Ventilation and Chilled Water Train A is in service, and initials Step.		
	<ul style="list-style-type: none">ENSURE TSC Chilled Water is aligned to the unaffected loop.(GJ)	Operator observes the TSC Ventilation and Chilled Water Train A is in service, and initials Step.		
	<ul style="list-style-type: none">DECLARE the loop inoperable, <u>AND</u> IMPLEMENT Condition K	<p>Operator informs CRS SACS Loop B should be declared inoperable, and Condition K should be implemented, and initials Step.</p> <p>Examiner Note: It is not necessary for the Operator to perform any Condition K actions.</p>		
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN</u> RECORD the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator implements Condition A of HC.OP-AB.COOL-0002, <u>AND</u> DG400 is unloaded, Output Breaker is open, and stopped.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: EG008
REV NUMBER: 09

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: EG008

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	9/4/08	Revised to new JPM format. JPM Initial Cue and Start Time did not change, therefore previously validated time did not change. No re-validation required. Updated reference procedure revision number. Revised power level for EPU. Operator actions did not change.	N
04	12/7/09	Updated reference procedure revision number. Revised power level for EPU. Operator actions did not change. Added "TIME _____" to step A.2.d COMMENTS field to mark time of stopping EDG. Replaced N/A with "9" minutes to "Time Period For Time Critical Steps". This time was already specified in the body of the JPM and is an editorial change.	N
05	5/26/10	Updated reference procedure revision numbers. Split out action steps from observation elements. Deleted Tap changers in manual. No longer needed for EDG operation in test. Operator actions did not change. Validated with 2 RO's. Average validation time did not change.	N
06	12/22/11	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
07	9/17/13	Updated Validation Checklist to current form from TQ-AA-106-0304. Added Task Standard to JPM. Updated Reference procedure revision. Editorial change only.	N
08	3/10/2014	Added Core Work Practice information. Modified Malfunction QQ15 to delay for 3 seconds (consistent with expected response). Revised Critical Steps and Completion Time based on Validation comments.	Y
09	11/7/2014	Revised to new format. Removed Core Work Practice information (redundant to TQ-QQ-203 and TQ-AA-106-0116). Editorial changes. Successfully used during 2014 LOR Annual Exam. Run for verification with RO and SRO 11/7/14. No comments noted.	N

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: EG008

REV#: 09

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

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

VALIDATED BY:Qualification Level Required: RO

<u>T. HENDRICKS</u>	<u>RO</u>	<u>ON FILE</u>	<u>3/13/2014</u>
Name	Qual	Signature	Date
<u>S. KOZINK</u>	<u>SRO</u>	<u>ON FILE</u>	<u>3/13/2014</u>
Name	Qual	Signature	Date

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: EG008

REV#: 09

INITIAL CONDITIONS:

1c.

Initial

INITIALIZE the simulator to 100% power, MOL.

ENSURE TACS is aligned to SACS Loop A.

ENSURE the Control Room Ventilation Train A is in service.

ENSURE TSC Ventilation Train A is in service.

ENSURE EG-HV-2314B is closed. (SACS Loop B to Fuel Pool Cooling Heat Exchanger)

START AND LOAD DG400 to 1000 KW AND 500 KVAR in accordance with HC.OP-SO.KJ-0001.

ACKNOWLEDGE Control Room AND Local Alarms.

INSERT the trip of BP210 as follows:

1. **ENSURE** BP210 is in service and DP210 is in standby.

2. **INSERT** Malfunction QQ13 to SHORT.

3. **ALLOW** the pump to trip AND OHA A1-A5 to alarm, and THEN **FREEZE** the simulator.

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

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

Initial

Description

INITIAL HC.OP-SO.KJ-0001 for DG400 up through Step 5.6.13.A.9.

UPDATE the LAST START AND BAR information for DG400.

PLACE Robust Operational Barriers on DG400 BREAKER AND ENG Controls

FLAG DG400 GOV AND GEN VAR pushbuttons.

COMPLETE the Simulator Ready for Training/Examination Checklist.

EVENT FILE:

Initial

ET

2

Event code: cw_z52pd

Description: DP210 Start to trip DP210 shortly after start

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SCHEDULE				
Initial	@Time	Event	Action	Description
	None	None	Insert malfunction QQ13 to short on event 1	SACS pump BP210 trip
	None	None	Insert malfunction QQ15 to short on event 2 after 3	SACS pump DP210 trip

REMOTE SCHEDULE				
Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE				
Initial	@Time	Event	Action	Description
	None	None	Insert override 5A29_A1_LO to On on event 1	BP210 OVLD/PWR FAIL-LOOP B PUMPS-PUMP B (LO)

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 100% power with TACS being supplied by SACS Loop A.
2. EDG DG400 is INOPERABLE and has been placed in service for a loaded maintenance run following work on the governor.
3. EDG DG400 has been loaded to 1000 KW and approximately 500 KVAR in accordance with HC.OP-SO.KJ-0001. Load is being held here while governor stability at low loads is being evaluated.
4. SACS Pump BP210 just tripped and HC.OP-AB.COOL-0002 is being implemented.

INITIATING CUE:

IMPLEMENT Condition A of HC.OP-AB.COOL-0002.

You are responsible for actions contained in HC.OP-AB.COOL-0002 **ONLY**.

The Simulator is in Freeze. Inform the examiner when you are ready to begin.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Main Turbine

TASK NUMBER: 2450100101

TASK: Roll the Main Turbine to Rated Speed

JPM NUMBER: 305H-JPM.AC007

[JPM G]

REVISION: 03

SAP BET: NOH05JPAC07E

K/A NUMBER: 241000 A3.18

IMPORTANCE FACTOR: RO: 3.0 SRO: 3.0

ALTERNATE PATH: ☒

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AC-0001, Rev. 69

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 10 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-10-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-10-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Main Turbine

TASK NUMBER: 2450100101

TASK: Roll the Main Turbine to Rated Speed

INITIAL CONDIITONS:

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

INITIATING CUE:

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

JPM NUMBER: AC007
 REV NUMBER: 03

NAME: _____
 DATE: _____

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

JPM NUMBER: AC007
 REV NUMBER: 03

NAME: _____
 DATE: _____

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

JPM NUMBER: AC007
 REV NUMBER: 03

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
	<ul style="list-style-type: none">Turbine Speed (RPM) is increasing as the Turbine accelerates.	<ul style="list-style-type: none">SPEED INCREASING is ON as the Turbine accelerates, and initials Step.		
	<ul style="list-style-type: none">Turbine rolls off of turning gear (TURNING GEAR - DISENGAGED).	<ul style="list-style-type: none">Turbine rolls off of turning gear (TURNING GEAR - ENGAGED is OFF), and initials Step.		
CAUTION	The turbine should be maintained at 90-100 rpm as briefly as possible to achieve the desired checks. When turbine speed is maintained below 800 rpm for periods exceeding 5 minutes, turbine damage could result from non-detected rubs.	Operator reads and initials Caution.		
CUE:	If during the following the Operator requests directions, direct the operator to take any necessary actions.			
	F. WHEN Turbine Speed indicates 90-100 rpm at Digital EHC HMI panel, CHECK for any abnormal vibration, expansion, bearing temperatures, etc.	*Operator observes speed continue rapidly above 100 rpm hold point, and immediately (before the automatic trip on overspeed) trips the Main Turbine, (Step 5.3.10.C) and informs the CRS.		
CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete". STOP TIME: _____			
Task Standard: Operator responds to an abnormal Main Turbine response during Main Turbine roll in accordance with HC.OP-SO.AC-0001.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: AC007
REV NUMBER: 03

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: AC007

REVISION HISTORY

Rev #	Date	Description	Validation Required?
03	11/7/2014	Complete re-write. Validated with RO and SRO. Incorporated comments. Validation time 10 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: AC007

REV#: 03

TASK: Roll the Main Turbine to Rated Speed

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

VALIDATED BY:Qualification Level Required: RO

<u>J. NERE</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date
<u>C. MINARICH</u>	<u>SRO</u>	<u>ON FILE</u>	<u>11/7/2014</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

JPM NUMBER: AC007

REV#: 03

INITIAL CONDITIONS:

IC

Initial

RESET to IC ready to roll the Main Turbine.**PERFORM** actions required by HC.OP-SO.AC-0001, Steps 5.3.1 through 5.3.7.**ENSURE** associated Schedule and/or Event file(s) is/are open and running (as required).**PREP FOR TRAINING** (i.e., RM-11 set points, procedures, bezel covers)

Initial

Description

MARKUP HC.OP-SO.AC-0001 through Step 5.3.7.**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".**EVENT FILE**

Initial

ET

1

Event code: tuns >= 40

Description: Main Turbine >40 rpm

MALFUNCTION SCHEDULE

Initial	@Time	Event	Action	Description
	None	None	Insert malfunction TC02-2 from 1.00000 to 2.00000 on event 1	Turbine control valve CV-2 failure
	None	None	Insert malfunction TC02-3 from 1.00000 to 2.00000 on event 1	Turbine control valve CV-3 failure

REMOTE SCHEDULE

Initial	@Time	Event	Action	Description

OVERRIDE SCHEDULE

Initial	@Time	Event	Action	Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: System Name

TASK NUMBER: 4001570401

TASK: Respond to a Reactor Recirculation Pump Runback

JPM NUMBER: 305H-JPM.BB001

[JPM H]

REVISION: 09

SAP BET: NOH05JPBB01E

K/A NUMBER: 202001 A2.12

IMPORTANCE FACTOR: RO: 3.6 SRO: 3.8

ALTERNATE PATH: ☐

APPLICABILITY: EO ☐

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.BB-0002, Rev. 100

HC.OP-AB.RPV-0004, Rev. 10

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 13 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-10-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-11-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-10-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: System Name

TASK NUMBER: 4001570401

TASK: Respond to a Reactor Recirculation Pump Runback

INITIAL CONDIITONS:

1. Plant was operating at 100% power.
2. Secondary Condensate Pump CP137 tripped.
3. HC.OP-AB.RPV-0003, Condition G, Action G.5 is being implemented.

INITIATING CUE:

RESET the Reactor Recirculation Runbacks in accordance with HC.OP-SO.BB-0002.

JPM NUMBER: BB001
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.4.1.		
CAUTION	WHEN a scoop tube is locked up, a recirculation runback may create a large flow mismatch. Timely action must be taken to match loop flows by either resetting the runback, if possible, <u>AND</u> increasing the flow in the runback loop <u>OR</u> by unlocking the scoop tube to lower flow in the locked up loop. IF action cannot be taken in a timely manner, the Recirc Pump in the low flow (unlocked) loop should be tripped.	Operator reads and initials CAUTION.		
5.4.1	ENSURE all Prerequisites have been satisfied IAW Section 2.4.	Operator ensures that all Prerequisites have been satisfied, and initials Step.		
CAUTION	CRIDS update time should be accounted for when changing Reactor Recirc Pump Output and Demand. Observe Reactor Recirc Pump speed. Stop <u>IF</u> actual speed is lowered.	Operator reads and initials CAUTION.		

JPM NUMBER: BB001
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.4.2	<p>ENSURE CRIDS STR086/087, RECIRC: SPEED STATION A(B) OUTPUT, is less than <u>OR</u> equal to the SPEED DEMAND indicated on SIC-R621 A(B) PUMP A(B) SPD CONT by performing the following:</p> <p>A. REDUCE CRIDS STR086/087, RECIRC: SPEED STATION A(B) OUTPUT, by pressing the DECREASE push button on SIC-R621 A(B) PUMP A(B) SPD CONT until the SPEED STATION OUTPUT on CRIDS STR086/087 is less than OR equal to the SPEED DEMAND on SIC-R621 A(B) PUMP A(B) SPD CONT.</p>	<p>Examiner Note: Step 5.4.2 can be completed for both Recirc Pumps concurrently or individually.</p> <p>*#Operator reduces CRIDS STR086(087), RECIRC: SPEED STATION A(B) OUTPUT, by pressing the DECREASE push button on SIC-R621 A(B) PUMP A(B) SPD CONT until the SPEED STATION OUTPUT on CRIDS STR086(087) is less than OR equal to the SPEED DEMAND on SIC-R621 A(B) PUMP A(B) SPD CONT,</p> <p>and initials Step.</p>		
5.4.3	<p>PRESS the following for Reactor Recirc Pump A(B):</p> <p>A. INTMD RUNBACK RESET push button</p>	<p>Examiner Note: Step 5.4.3 can be completed for both Recirc Pumps concurrently if 5.4.2 was performed for both Recirc Pumps, or can be performed individually.</p> <p>*#Operator presses Reactor Recirc Pump A(B) INTMD RUNBACK RESET push button,</p> <p>and initials Step.</p>		
	<p>B. FULL RUNBACK RESET push button</p>	<p>Operator determines, and marks Step as N/A.</p>		

JPM NUMBER: BB001
 REV NUMBER: 09

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.4.2	<p>ENSURE CRIDS STR086/087, RECIRC: SPEED STATION A(B) OUTPUT, is less than <u>OR</u> equal to the SPEED DEMAND indicated on SIC-R621 A(B) PUMP A(B) SPD CONT by performing the following:</p> <p>B. REDUCE CRIDS STR086/087, RECIRC: SPEED STATION A(B) OUTPUT, by pressing the DECREASE push button on SIC-R621 A(B) PUMP A(B) SPD CONT until the SPEED STATION OUTPUT on CRIDS STR086/087 is less than OR equal to the SPEED DEMAND on SIC-R621 A(B) PUMP A(B) SPD CONT.</p>	<p>*#Operator reduces CRIDS STR087(086), RECIRC: SPEED STATION B(A) OUTPUT, by pressing the DECREASE push button on SIC-R621 B(A) PUMP A(B) SPD CONT until the SPEED STATION OUTPUT on CRIDS STR087(086) is less than OR equal to the SPEED DEMAND on SIC-R621 B(A) PUMP B(A) SPD CONT,</p> <p>and initials Step.</p>		
5.4.3	<p>PRESS the following for Reactor Recirc Pump A(B):</p> <p>C. INTMD RUNBACK RESET push button</p>	<p>*#Operator presses Reactor Recirc Pump B(A) INTMD RUNBACK RESET push button,</p> <p>and initials Step.</p>		
	D. FULL RUNBACK RESET push button	Operator determines, and marks Step as 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>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
Task Standard: Operator resets the Reactor Recirculation Runbacks in accordance with HC.OP-SO.BB-0002.				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: BB001
REV NUMBER: 09

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: BB001

REVISION HISTORY

Rev #	Date	Description	Validation Required?
09	11/7/2014	Complete re-write. Validated with RO and SRO. Incorporated comments. Validation time 13 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: BB001

REV#: 09

TASK: Respond to a Reactor Recirculation Pump Runback

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

VALIDATED BY:Qualification Level Required: RO

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390

JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

(OPTIONAL)

JPM NUMBER: BB001

REV#: 09

INITIAL CONDITIONS:

IC

Initial

INITIALIZE the simulator to 100% power MOL.

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

Initial

Description

TRIP Secondary Condensate Pump CP137. Allow conditions to stabilize.

PERFORM AND MARKUP Actions G.1-G.4 of HC.OP-AB.RPV-0003.

ACKNOWLEDGE Overhead Annunciators.

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

EVENT FILE

Initial

ET

Event code:

Description:

MAJORITY SCHEDULE

Initial

@Time

Event

Action

Description

REMOTE SCHEDULE

Initial

@Time

Event

Action

Description

OVERRIDE SCHEDULE

Initial

@Time

Event

Action

Description

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Plant was operating at 100% power.
2. Secondary Condensate Pump CP137 tripped.
3. HC.OP-AB.RPV-0003, Condition G, Action G.5 is being implemented.

INITIATING CUE:

RESET the Reactor Recirculation Runbacks in accordance with HC.OP-SO.BB-0002.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek
SYSTEM: Control Rod Drive Hydraulic
TASK NUMBER: 2010080104
TASK: Shift In-Service CRD Flow Control Valves

JPM NUMBER: 305H-JPM.BF001

[JPM I]

REVISION: 16

SAP BET: NOH05JPBF01E

K/A NUMBER: 201001 A2.07

IMPORTANCE FACTOR: RO: 3.2 SRO: 3.1

ALTERNATE PATH: ☐

APPLICABILITY: EO ☒ RO ☒ STA ☐ SRO ☒

EVALUATION SETTING/METHOD: Plant/Simulate

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 17 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐ UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Control Rod Drive Hydraulic

TASK NUMBER: 2010080104

TASK: Shift In-Service CRD Flow Control Valves

INITIAL CONDIITONS:

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

INITIATING CUE:

ALTERNATE CRDH System Flow Control Valves in accordance with Section 5.2 of HC.OP-SO.BF-0001.

[Evaluator: **DETERMINE** the in service and standbys FCV based on current plant conditions, AND **MODIFY** the STANDARDS appropriately.]

JPM NUMBER: BF001
 REV NUMBER: 16

NAME: _____
 DATE: _____

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

JPM NUMBER: BF001
 REV NUMBER: 16

NAME: _____
 DATE: _____

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

JPM NUMBER: BF001
 REV NUMBER: 16

NAME: _____
 DATE: _____

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

JPM NUMBER: BF001
 REV NUMBER: 16

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<p><u>WHEN</u> operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator alternates CRDH System Flow Control Valves in accordance with Section 5.2 of HC.OP-SO.BF-0001.</p>				

**OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION**

JPM NUMBER: BF001
REV NUMBER: 16

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE**JPM NUMBER:** BF001**REVISION HISTORY**

Rev #	Date	Description	Validation Required?
12	8/28/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change.	Y
13	9/9/09	Revised due to procedure step numbers and added Note from editorial changes to HC.OP-SO.BF-0001. No validation required.	N
14	5/4/11	Updated reference procedure revision number. Operator actions did not change.	N
15	3/19/13	Added Task Standard to JPM. Updated Validation Checklist to current form from TQ-AA-106-0304. Editorial change only. No validation required. Updated reference procedure revision number. Deleted "and initials Attachment 1" from each step. Editorial change only. No validation required. Revised to have the current in service FCV alternated. No validation required.	N
16	12/4/2014	Revised to new JPM format. Minor revisions to CUEs. Editorial changes only. Validated with 2 ROs. Average Validation Time was 17 minutes.	N

JOB PERFORMANCE MEASURE**VALIDATION CHECKLIST****JPM NUMBER:** BF001**REV#:** 16**TASK:** Shift In-Service CRD Flow Control Valves

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

VALIDATED BY:Qualification Level Required: EO

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

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

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

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 4000340401

TASK: Respond To An Instrument Gas Malfunction

JPM NUMBER: 305H-JPM.KL006

[JPM J]

REVISION: 00

SAP BET: NOH05JPKL06

K/A NUMBER: 295020 AA1.01

IMPORTANCE FACTOR: RO: 3.6

SRO: 3.6

ALTERNATE PATH: ☐

APPLICABILITY: EO ☒

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Plant/Simulate

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

TOOLS, AND EQUIPMENT: HC.OP-AB.COMP-0002 Implementation Kit

ESTIMATED COMPLETION TIME: 24 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-9-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 4000340401

TASK: Respond To An Instrument Gas Malfunction

INITIAL CONDIITONS:

1. A sealed in inadvertent isolation of ALL PCIG Primary Containment Valves has occurred.
2. HC.OP-AB.COMP-0002, Condition H is being implemented.
3. SACS is aligned to both PCIG compressors.
4. Technical Specification 3.6.3 and 4.6.1.1.b are being complied with.
5. Currently at Step 5.1 of Attachment 2.

INITIATING CUE:

PERFORM Attachment 3 of HC.OP-AB.COMP-0002 to override the isolation signal to HV-5124A.

JPM NUMBER: KL006
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue <u>AND</u> ENTER START TIME <u>AFTER</u> Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains procedure HC.OP-AB.COMP-0002.	Operator obtains the correct procedure		
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.0 of Attachment 2.		
	Operator ensures that all precautions have been satisfied IAW Section 3.0.	Operator reviews precaution and initials the precaution in the space provided in the procedure.		
4.0	<u>EQUIPMENT REQUIRED</u> AB.COMP-0002 Implementation Kit Containing: (Located in SM Office AB/EOP Locker) <ul style="list-style-type: none"> • 1 Banana plug jumper • 1 Lugged jumper (if banana jacks are unavailable) • 1 Screwdriver • 1 Flashlight • 1 Bag for relay • Key #177 for cabinets in lower relay room 	*#Operator obtains the equipment required.		
CUE:	Once the operator has obtained the equipment required, inform the operator that the equipment is obtained and to return the equipment to its storage location.			
<u>NOTE</u>	The following steps bypass all PCIS isolation signals to HV-5124A A INST GAS HDR SHUTOFF MOV. This will provide Instrument Gas to the Inboard MSIVs. The following steps are performed in the Lower Relay Room, Elev. 102'. Relay group number is in the upper left hand corner of the baseplate. Relay number is to the left of the relay.	Operator reads and initials NOTE. Examiner Note: Relay number is extremely difficult to see due to cabinet configuration.		

JPM NUMBER: KL006
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.0	PROCEDURE 5.1. ENSURE all prerequisites have been satisfied IAW Section 2.0 of this attachment.	Operator ensures all prerequisites have been satisfied IAW Section 2.0 of this attachment.		
	5.2. REMOVE relay 11-14-1 from cabinet 1C-C 652 Bay 11, Front. (Relay group 14, relay 1 - see Figure 1)	*#Operator removes relay 11-14-1 from cabinet 1C-C 652 Bay 11, Front, and initials Step.		
NOTE	Installation of the following jumper will cause HV-5124A, INST GAS HDR SHUTOFF MOV to OPEN.	Operator reads and initials NOTE.		
	5.3. INSTALL jumper from terminal 4-2-1-5 to terminal 4-2-1-4. (Cabinet 1C-C 657 Bay 4, Front, second group of terminal blocks from the top, terminal block 1, terminals 4 and 5 - see Figure 2).	*# Operator installs jumper from terminal 4-2-1-5 to terminal 4-2-1-4, and initials Step.		
	5.4. VERIFY with the Control Room HV-5124A, INST GAS HDR SHUTOFF MOV is OPEN.	Operator contacts the Control Room to verify HV-5124A, INST GAS HDR SHUTOFF MOV is OPEN, and initials Step.		
CUE:	<u>WHEN</u> operator requests status of HV-5124A, <u>OR</u> informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME. REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete" . STOP TIME: _____			
Task Standard: Operator overrides the isolation signal to HV-5124A in accordance with HC.OP-AB.COMP-0002.				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: KL006
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: KL006

REVISION HISTORY

Rev #	Date	Description	Validation Required?
0	11/5/2014	Initial issue. Validated with RO and SRO. Validated time of 24 minutes.	Y

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

JPM NUMBER: KL006

REV#: 00

TASK: Respond To An Instrument Gas Malfunction

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

VALIDATED BY:

Qualification Level Required: EO

<u>J. DOWER</u>	<u>SRO</u>	<u>ON FILE</u>	<u>11/5/2014</u>
Name	Qual	Signature	Date
<u>D. HASSLER</u>	<u>RO</u>	<u>ON FILE</u>	<u>11/5/2014</u>
Name	Qual	Signature	Date

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A sealed in inadvertent isolation of ALL PCIG Primary Containment Valves has occurred.
2. HC.OP-AB.COMP-0002, Condition H is being implemented.
3. SACS is aligned to both PCIG compressors.
4. Technical Specification 3.6.3 and 4.6.1.1.b are being complied with.
5. Currently at Step 5.1 of Attachment 2.

INITIATING CUE:

PERFORM Attachment 3 of HC.OP-AB.COMP-0002 to override the isolation signal to HV-5124A.

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: 120 VAC Electrical Distribution

TASK NUMBER: 2620070104

TASK: Remove A 120 VAC Electrical Distribution System From Service

JPM NUMBER: 305H-JPM.PN004

[JPM K]

REVISION: 00

SAP BET: NOH05JPPN04E

K/A NUMBER: 2.1.30

IMPORTANCE FACTOR: RO: 4.4

SRO: 4.0

ALTERNATE PATH: ☒

APPLICABILITY: EO ☒

RO ☒

STA ☐

SRO ☒

EVALUATION SETTING/METHOD: Auxiliary Building/Simulate

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

TOOLS, AND EQUIPMENT: None

ESTIMATED COMPLETION TIME: 20 Minutes

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

JPM PERFORMED BY: _____

GRADE: SAT ☐

UNSAT ☐

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON IF UNSATISFACTORY:

EVALUATOR: _____
Signature

DATE: _____

DEVELOPED BY: _____
S. DENNIS/SIGNATURE ON FILE
Instructor

DATE: 12-8-2014

REVIEWED BY: _____
L. KOBERLEIN/SIGNATURE ON FILE
Operations Representative

DATE: 12-8-2014

APPROVED BY: _____
M.A. SHAFFER/SIGNATURE ON FILE
Training Department

DATE: 12-9-2014

WITHHOLD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390
JOB PERFORMANCE MEASURE

SYSTEM: 120 VAC Electrical Distribution

TASK NUMBER: 2620070104

TASK: Remove A 120 VAC Electrical Distribution System From Service

INITIAL CONDIITONS:

1. Maintenance is required on Inverter DD481.
2. Plant conditions are satisfactory for this work.

INITIATING CUE:

REMOVE the DD481 Inverter from service in accordance with Section 5.7 of HC.OP-SO.PN-0001.

JPM NUMBER: PN004
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	PROVIDE the operator the initiating cue AND ENTER START TIME AFTER Operator repeats back the Initiating Cue. START TIME: _____			
	Operator obtains a copy of HC.OP-SO.PN-0001.	Operator obtains the correct procedure.		
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.		
CUE:	If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.			
	Operator determines beginning step of the procedure.	Operator determines the correct beginning step to be 5.7.1.		
5.7.1	ENSURE all prerequisites of Section 2.7 are satisfied.	Operator ensures prerequisites have been satisfied and initials each prerequisite in the space provided in the procedure.		
NOTE	The following steps apply only to removing one of the BOP inverters (1AD492/1BD492) from service. These steps ...	Operator reads and initials NOTE.		
5.7.2.	IF one of the BOP inverters (1AD492 / 1BD492) is to be removed from service ...	Operator determines and marks Step as N/A.		
5.7.3.	VERIFY the PREFERRED POSITION light is illuminated.	Operator verifies the PREFERRED POSITION light is illuminated, and following the CUE, proceeds to Step 5.7.4.		
CUE:	"The lamp you indicated is extinguished."			
5.7.4.	IF PREFERRED POSITION light is not illuminated, THEN PRESS the RETRANSFER push-button AND VERIFY the PREFERRED POSITION light is illuminated.	*#Operator presses the RETRANSFER push-button, verifies the PREFERRED POSITION light is illuminated, and initials Step.		
CUE:	"The lamp you indicated is illuminated."			

JPM NUMBER: PN004
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.7.5.	PLACE the MAN. BYPASS Control Switch in the extreme left preferred ISOLATE position.	*#Operator places the MAN. BYPASS Control Switch in the extreme left preferred ISOLATE position, and initials Step.		
CUE:	"The switch you indicated is in the position stated."			
5.7.6.	PLACE the VOLTAGE REGULATOR AC OUTPUT BKR-CB302 in the OFF position.	*Operator places the VOLTAGE REGULATOR AC OUTPUT BKR-CB302 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.7.	PLACE the VOLTAGE REGULATOR AC INPUT BKR-CB301 in the OFF position.	*Operator places the VOLTAGE REGULATOR AC INPUT BKR-CB301 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.8.	PLACE the INVERTER AC OUTPUT BKR-CB10 in the OFF position.	*Operator places the INVERTER AC OUTPUT BKR-CB10 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.9.	PLACE the INVERTER DC INPUT BKR-CB101 in the OFF position.	*Operator places the INVERTER DC INPUT BKR-CB101 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.10.	PLACE the Static Inverter DC FILTER CHARGE SWITCH in the OFF position.	*Operator places the Static Inverter DC FILTER CHARGE SWITCH in the OFF position, and initials Step.		
CUE:	"The switch you indicated is in the position stated."			

JPM NUMBER: PN004
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
5.7.11.	PLACE the following ISOLATE Toggle Switches in the OFF position [left position]: A. ISOLATE UPS OUTPUT	* Operator places the ISOLATE UPS OUTPUT Toggle Switch in the OFF position, and initials Step.		
CUE:	"The switch you indicated is in the position stated."			
	B. ISOLATE INV OUTPUT	* Operator places the ISOLATE INV OUTPUT Toggle Switch in the OFF position, and initials Step.		
CUE:	"The switch you indicated is in the position stated."			
	C. ISOLATE SYNC SOURCE	* Operator places the ISOLATE SYNC SOURCE Toggle Switch in the OFF position, and initials Step.		
CUE:	"The switch you indicated is in the position stated."			
5.7.12.	PLACE the RECTIFIER ALTERNATE DC INPUT BKR-CB20 in the OFF position.	* Operator places the RECTIFIER ALTERNATE DC INPUT BKR-CB20 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.13.	PLACE the RECTIFIER AUCTIONEER DC OUTPUT BKR-CB21 in the OFF position.	* Operator places the RECTIFIER AUCTIONEER DC OUTPUT BKR-CB21 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			
5.7.14.	PLACE the RECTIFIER AC INPUT BKR-CB201 in the OFF position.	* Operator places the RECTIFIER AC INPUT BKR-CB201 in the OFF position, and initials Step.		
CUE:	"The breaker you indicated is in the position stated."			

JPM NUMBER: PN004
 REV NUMBER: 00

NAME: _____
 DATE: _____

STEP NUMBER	ELEMENT	(*Critical Step) (#Sequential Step) STANDARD	SAT/ UNSAT	COMMENTS (Required for UNSAT)
CUE:	<p>WHEN operator informs you the task is complete, <u>OR</u> the JPM has been terminated for other reasons, <u>THEN RECORD</u> the STOP TIME.</p> <p>REPEAT BACK any message from the operator on the status of the JPM, and then state "This JPM is complete".</p> <p>STOP TIME: _____</p>			
<p>Task Standard: Operator removes the DD481 Inverter from service in accordance with Section 5.7 of HC.OP-SO.PN-0001.</p>				

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

JPM NUMBER: PN004
REV NUMBER: 00

NAME: _____
DATE: _____

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

JPM NUMBER: PN004

REVISION HISTORY

Rev #	Date	Description	Validation Required?
00	12/4/2014	Initial issue. Validated with 2 ROs. Average Validation Time was 20 minutes.	Y

JOB PERFORMANCE MEASURE

VALIDATION CHECKLIST

JPM NUMBER: PN004

REV#: 00

TASK: Remove A 120 VAC Electrical Distribution System From Service

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

VALIDATED BY:

Qualification Level Required: EO

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

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Maintenance is required on panel DJ481 and must be deenergized.
2. Plant conditions are satisfactory for this work.

INITIATING CUE:

REMOVE the DD481 Inverter from service in accordance with Section 5.7 of HC.OP-SO.PN-0001.

Facility: Hope Creek Scenario No.: 1Op-Test No.: 2015

Examiners: _____ Operators: _____ (SRO)
 _____ (RO)
 _____ (BOP)

Initial Conditions: 84% power. Power lowered for RFP maintenance.

Turnover:
Place RFP in service. Raise Reactor power to 100%.

New

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) N(SRO)	Place RFP In Service
2		R(ATC) R(SRO)	Raise Reactor Power with Recirculation System
3		C(ATC) TS(SRO)	Recirculation Pump Runaway
4		C(BOP) TS(SRO)	Loss of 1DD482
5		M(ALL)	LOCA
6		C(ATC) C(SRO)	RPS Failure-ATWS/ARI Scram Successful
7		C(BOP) C(SRO)	HPCI Injection Valves' Failure-Loss of Condensate

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

HOPE CREEK 2015 ILOT NRC EXAM SCENARIO SUMMARIES

ESG-1

SCENARIO SUMMARY:

Plant is operating at approximately 84% power following Reactor Feed Pump (RFP) Maintenance. The crew will place the RFP in service and commence power ascension.

A Recirculation Pump will run away during the power ascension. The crew will take actions to lower power to the pre-transient power level and enter Technical Specifications for Recirculation Loop mismatch. Then a failure of a 1E 120VAC Inverter will occur. This will cause an isolation of the Reactor Water Cleanup System and a loss of Reactor Building Ventilation. Technical Specifications will be entered for the loss of a 1E 120VAC source and Secondary Containment. The crew will place Filtration, Recirculation, and Ventilation System (FRVS) in service to restore Secondary Containment integrity. A Loss of Coolant Accident (LOCA) will progressively develop causing the crew to shut down the reactor. The Reactor Protection System (RPS) will fail to initiate a Reactor Scram. The crew will manually initiate the Alternate Rod Insertion (ARI) System to shut down the reactor. A loss of the Condensate System will occur during the scram response. The High Pressure Coolant Injection (HPCI) System Injection Valves will fail on initiation. Manual opening of the HPCI injection valves will be required to maintain vessel water level without requiring emergency depressurization.

CRITICAL TASK SUMMARY:

- * ***After placing the Mode Switch in SHUTDOWN, the Crew manually initiates ARI to shut down the reactor.***

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

EA1.03 ARI/RPT/ATWS RO 4.1 SRO 4.1

This action is prescribed by the Abnormal Procedures. Under the scenario conditions, the Reactor Protection system has failed to respond to a manual scram condition. The operator must take action to mitigate the failure associated with the RPS malfunction by initiating backup scram actions. This action rapidly inserts control rods to shut down the reactor, preventing prolonged power operations without normal level control systems.

- * ***Before Compensated RPV water level drops below -185" AND without Emergency Depressurizing, Crew manually places HPCI in service and injects with HPCI to restore and maintain Compensated Reactor water level above -185".***

K/A 206000 High Pressure Coolant Injection System

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

A3.03 System lineup RO 3.9 SRO 3.8

K/A 295031 Reactor Low Water Level

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

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

The HPCI system has failed to automatically inject into the reactor. HPCI is the only High Pressure injection system available with adequate capacity to maintain RPV water level. If RPV water level is allowed to drop below -185", the fuel will be uncovered sufficiently to challenge the fuel cladding integrity. This would escalate the event to a Site Area Emergency. The rate of level drop in this scenario is very slow and provides more than adequate time to execute the guidance and restore RPV level with HPCI without Emergency Depressurization.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training

SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2015 NRC EXAM SCENARIO**SCENARIO NUMBER:** ESG-1**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 75 Minutes**REVISION NUMBER:** 0**PROGRAM:**
☐ LICENSED OPERATOR REQUALIFICATION
☒ INITIAL LICENSE
☐ OTHER: _____**REVISION SUMMARY:**

- Initial issue.

PREPARED BY: S. DENNIS/SIGNATURE ON FILE 12-9-2014
INSTRUCTOR DATE

APPROVED BY: M.A. SHAFFER/SIGNATURE ON FILE 12-9-2014
LORT GROUP LEAD OR DESIGNEE DATE

APPROVED BY: L. KOBERLEIN/SIGNATURE ON FILE 12-11-2014
SHIFT OPERATIONS SUPERVISOR OR DESIGNEE DATE

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**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. Place RFP In Service
- B. Raise Reactor Power with Recirculation System
- C. Recirculation Pump Runaway
- D. Loss of 1DD482
- E. LOCA
- F. RPS Failure-ATWS/ARI Scram Successful
- G. HPCI Injection Valves' Failure-Loss of Condensate

II. SCENARIO SUMMARY:

Plant is operating at approximately 84% power following Reactor Feed Pump (RFP) Maintenance. The crew will place the RFP in service and commence power ascension. A Recirculation Pump will run away during the power ascension. The crew will take actions to lower power to the pre-transient power level and enter Technical Specifications for Recirculation Loop mismatch. Then a failure of a 1E 120VAC Inverter will occur. This will cause an isolation of the Reactor Water Cleanup System and a loss of Reactor Building Ventilation. Technical Specifications will be entered for the loss of a 1E 120VAC source and Secondary Containment. The crew will place Filtration, Recirculation, and Ventilation System (FRVS) in service to restore Secondary Containment integrity. A Loss of Coolant Accident (LOCA) will progressively develop causing the crew to shut down the reactor. The Reactor Protection System (RPS) will fail to initiate a Reactor Scram. The crew will manually initiate the Alternate Rod Insertion (ARI) System to shut down the reactor. A loss of the Condensate System will occur during the scram response. The High Pressure Coolant Injection (HPCI) System Injection Valves will fail on initiation. Manual opening of the HPCI injection valves will be required to maintain vessel water level without requiring emergency depressurization.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. INITIAL CONDITIONS:**

I.C.	
Initial	
	<p>INITIALIZE to 100% power MOL.</p> <p>INSERT Group 10A Control Rods</p> <p>SET Cross-Flow to Not Applied and Blocked.</p> <p>LOWER power with TCF to approximately 84%.</p> <p>STABILIZE Xenon concentration to simulate steady state conditions following maintenance. Adjust TCF during Xenon stabilization to maintain 84% power.</p> <p>REMOVE RFP C from feeding the vessel, LOWER Demand to approximately 70%, AND make ready to feed in accordance with HC.OP-SO.AE-0001 through Step 5.7.2.E.</p> <p>ENSURE TACS is on SACS Loop A.</p> <p>ENSURE Fuel Pool Cooling Pump A is in service.</p> <p>ENSURE Schedule and/or Event File(s) is(are) open as required.</p>

PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)	
Initial	
	<p>CREATE REMA to support power change to 95% power.</p> <p>MARKUP HC.OP-SO.AE-0001 through Step 5.7.2.E.</p> <p>INITIAL IO-6 up through Step 5.1.3.</p> <p>REVIEW, at a minimum, the Scenario Reference section and CLEAN the bolded EOPs, ABs and SOPs listed. (80091396 0270)</p> <p>COMPLETE "Simulator Ready-for-Training/Examination Checklist".</p>

EVENT FILE:			
Initial	Event		
	1	Event Code: Description:	zarrs621(6) > 0.67 & zdrrs621(6) RR B speed >67% and Raise PB pressed
	4	Event Code: Description:	zcrpsudn >= 1 Reactor Mode Switch in Shutdown
	5	Event Code: Description:	D2015_V Main Turbine Tripped
		Event Code: Description:	

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training

MALFUNCTION SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	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 RZ03A	RRCS Channel A - Logic A Failure to Auto Initiate
	None	None	Insert malfunction RZ03C	RRCS Channel B - Logic A Failure to Auto Initiate
	None	None	Insert malfunction RP04	Failure of RPS to SCRAM (ATWS)
	None	None	Insert malfunction ED09D2 on event 2	Loss of 120 VAC class 1E inst bus 1DD482
	None	None	Insert malfunction RR31A1 to 50.00000 in 600 on event 4	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction FW30A after 5 on event 5	Heater 2A hi level switch failure
	None	None	Insert malfunction FW30B after 10 on event 5	Heater 2B hi level switch failure
	None	None	Insert malfunction FW30C after 3 on event 5	Heater 2C hi level switch failure

REMOTE SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote HV06 to STOP on event 3	HV06 RBVS Supply fan C
	None	None	Insert remote HV05 after 1 to STOP on event 3	HV05 RBVS Supply fan B
	None	None	Insert remote HV04 after 1 to STOP on event 3	HV04 RBVS Supply fan A
	None	None	Insert remote HV03 after 2 to STOP on event 3	HV03 RBVS Exhaust fan C
	None	None	Insert remote HV02 after 2 to STOP on event 3	HV02 RBVS Exhaust fan B
	None	None	Insert remote HV01 after 3 to STOP on event 3	HV01 RBVS Exhaust fan A
	None	None	Insert remote AN24 after 5 to NORM on event 3	AN24 E6-C5 RBVS & Wing Area HVAC Pnl 10C382

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OVERRIDE SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert override 3A46_C_DI to On on event 1	SIC-R621B RAISE-RECIRC PUMP B (DI)
	None	None	Insert override 5A159_C_DI to Off	HV-1625 OPEN-BYPASS HEATERS 1&2 DRN CLEAR (DI)
	None	None	Insert override 5A159_D_DI to Off	HV-1625 RAISE-BYPASS HEATERS 1&2 DRN CLEAR (DI)

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Place RFP in Service

- CRS directs placing 'C' RFPT in service.
- PO places 'C' RFPT in service IAW SO.AE-0001.
 - ⇒ PRESS the INCREASE ↑ or DECREASE ↓ push button on the Pump as necessary, to equalize the "DEMAND" signals, WHILE MONITORING the following:
 - RFPT Discharge Pressure
 - RFPT "DEMAND"
 - RFPT "FLOW"
 - ⇒ WHEN FLOW and SPEED are approximately equal, TRANSFER RFPT C SPEED CTRLR to automatic by pressing the A pushbutton AND observing "A" illuminates.

HPI USED:

- STAR ☐
 PEER CHECK ☐
 FLAGGING ☐
 OP BARRIERS ☐

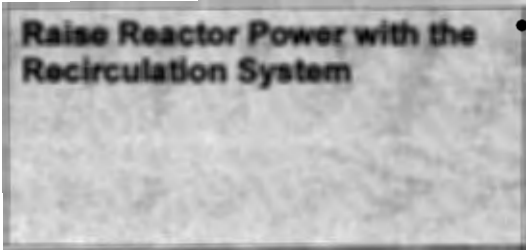
INPO Fundamentals:

- ☐ Monitoring plant conditions and indications closely.
☐ Having a solid understanding of plant design and system interrelationships.

ROLE PLAY as Reactor Engineer for the Reactivity Brief. RE guidance for power ascension is:

- Raise reactor power to 90% RTP with core flow.
 - Withdraw 10A control rods from 00-6. (≈4%)
 - Do not exceed 1% per minute.
- CRS leads Reactivity Brief.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS directs raising reactor power to 90% with reactor recirc pumps not to exceed 1% per minute IAW IO.ZZ-0006 and REMA. CRS informs System Operator of continued power ascension. ROs review applicable sections of SO.BB-0002, noting vibration resonance and oscillation zones. 	
MAINTAIN Recirc MG Oil temps as directed using Monitor Variables rrtol(1) and rrtol(2) as appropriate.	<ul style="list-style-type: none"> RO contacts TBEO and directs maintaining Recirc MG oil temperatures between 110-130 degF. RO raises reactor recirc pump speeds obtaining Peer Checks from PO IAW HU-AA-101. RO observes effect on: <ul style="list-style-type: none"> ⇒ Reactor Power ⇒ Recirc Loop Flow ⇒ Recirc Loop Jet Pump Flow ⇒ Total Core Flow RO monitors reactor power and affected plant parameters. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p> <p>HPI USED:</p> <p>STAR <input type="checkbox"/></p> <p>PEER CHECK <input type="checkbox"/></p> <p>FLAGGING <input type="checkbox"/></p> <p>OP BARRIERS <input type="checkbox"/></p> <p>INPO Fundamentals:</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p> <p><input type="checkbox"/> Having a solid understanding of plant design and system interrelationships.</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • RO ensures Recirculation loop flow mismatch is maintained within: <ul style="list-style-type: none"> ⇒ 5% of rated core flow with effective core flow \geq 70% of rated core flow. • RO ensures recirc pump speed changes do not exceed the rpm limitations of SO.BB-0002. • IF reactor power reaches 90% THEN RO informs CRS reactor power has been raised to 90%. 	<p>IO.ZZ-0006 ST.BB-0001</p> <p>SO.BB-0001: Pump B speed changes should not exceed 10-20 rpm with a wait of 1 to 2 minutes between changes.(3.1.14)</p> <p>SO.BB-0001: In extended steady state two loop operation it is desirable to have Jet Pump Loop Flows approximately the same (within 1 mlbm/hr) (3.2.17)</p>
<p>Recirculation Pump Runaway</p> <p>After Power Change is completed, OR at the discretion of the Lead Evaluator INSERT ET-1.</p>	<ul style="list-style-type: none"> • Crew recognizes Reactor Recirculation Pump A runaway by: <ul style="list-style-type: none"> ⇒ OHA C1-A5 "COMPUTER POINT IN ALARM" ⇒ Reactor power rising ⇒ CRIDS D2900 "RECIRC MG B SPEED CONTROL SIG FAIL" ⇒ CRIDS D29301 "RECIRC MG B DRIVE TUBE LOCK TRBL" ⇒ SIC-R621B SPEED DEMND and SPEED Upscale ⇒ 10C650C Recirc and Jet pump indications 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF called as RE to determine maximum thermal power reached, THEN REPORT thermal power peaked at approximately 90%(check CRIDS to ensure) (3460 MWth).</p>	<ul style="list-style-type: none"> RO performs the following: <ul style="list-style-type: none"> ⇒ Presses SCOOP TUBE TRIP for 'B' Recirc Pump ⇒ Reduces 'A' Recirc Pump speed to reduce power to pre-transient value CRS implements AB.RPV 0001: <ul style="list-style-type: none"> ⇒ Condition F ⇒ Condition B may be referenced CRS may refer to AB.RPV-0003 Crew checks Recirc Loop Flow mismatch IAW ST.BB-0001, Section 5.1. Crew ensures Recirc MG Oil Temperatures are maintained in the normal band. Crew Monitors Offgas Pretreatment AND Main Steam Line Radiation Monitors for indications of Fuel Damage. Crew determines peak thermal power during the transient. 	<p>Immediate Operator Action IAW AB.RPV-0001.</p> <p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS recognize the following Tech Specs/actions apply: <ul style="list-style-type: none"> ⇒ 3.4.1.3 Recirculation Loop Flow CRS contacts Operations Management to initiate Prompt Investigation and ERT callout. 	<p>Must restore recirc loop flow mismatch within two hours or declare the B loop not in operation.</p> <p>INPO Fundamentals: <input type="checkbox"/> KNOWLEDGE</p>
<p>Loss of 1DD482</p> <p>After Technical Specifications have been addressed, OR at the discretion of the Lead Evaluator, INSERT ET-2.</p>	<ul style="list-style-type: none"> Crew recognizes loss of DD482 by observing: <ul style="list-style-type: none"> ⇒ OHA A7-C2, SACS SUPPLY RHR PUMP D TROUBLE, in alarm ⇒ Both RWCU Pumps trip. ⇒ RWCU Loss OHAs C1-C2, -D2, and -F2 ⇒ Loss of 1E DIV 2/Channel D analog instrumentation. ⇒ Loss of control and status indication for Non-ECCS Division 2/Channel B components. ⇒ RCIC, RHR D and Core Spray D will lose status indications. ⇒ CRIDS page 167 CRS enters AB.ZZ-0136 and directs actions IAW AB.ZZ-0136 including Attachment 8: <ul style="list-style-type: none"> ⇒ Assess all plant systems and enter appropriate Abnormal Procedures ⇒ Determine failed inverter 	<p>NOTE: OHA D3 E3 "120VAC UPS TROUBLE" is NOT received on a loss of a 482 inverter. 482 inverter supplies the output to this alarm for its channel.</p> <p>INPO Fundamentals: <input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>WHEN</u> dispatched, <u>THEN</u> REPORT:</p> <ul style="list-style-type: none"> • Inverter main power fuses are blown • CB302 (AC Regulator Output) and CB10 (Inverter AC Output) are tripped • There is an acrid odor coming from the static switch. 	<ul style="list-style-type: none"> • CRS enters/refers to AB.CONT-0002 for loss of RWCU: ⇒ Condition B • Crew informs Chem Tech that RWCU and Recirc Sample have been lost (AB.CONT-0002). • Crew dispatches ABEO and/or 12 Hr Maintenance to investigate loss of inverter. • Crew recognizes Loss of RBVS by: <ul style="list-style-type: none"> ⇒ RB D/P indication on 10C650E ⇒ SPDS RB PARAMETERS D/P indication. ⇒ OHA E1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS B7164 "REACTOR BLDG DIFF PRESS" ⇒ OHA E6-C5 "RBVS & WING AREA HVAC PNL 10C382" ⇒ CRIDS D3960 "RBVS EXH RMT PNL C382 TRBL" ⇒ CRIDS D3961 "RBVS SUPPLY RMT PNL C382 TRBL" • CRS implements AB.CONT-003: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition D 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to secure RBVS, <u>THEN TRIGGER ET-3.</u></p>	<ul style="list-style-type: none"> • Crew dispatches RBEO to 10C382 to investigate. • RO/PO place FRVS in service IAW SO.GU-0001, or AB.ZZ-0001 Attachment 20. • CRS/STA/IA recognize the following Tech Specs apply: <ul style="list-style-type: none"> ⇒ Secondary Containment Integrity ⇒ 3.6.5.1 ⇒ Secondary Containment Automatic Isolation Dampers ⇒ 3.6.5.2 action a or b or c • CRS/STA/IA recognize the following Tech Specs actions apply for the loss of DD482: <ul style="list-style-type: none"> ⇒ Distribution – Operating 3.8.3.1 action a AND d 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p> <p>8 hours to reenergize panel and restore inverter within 24 hours, or Hot SD in 12 hours and Cold SD in following 24.</p>
<p>LOCA</p> <p>After Technical Specifications have been addressed, OR at the discretion of the Lead Evaluator, INSERT ET-4. RPS failure is pre-inserted.</p>	<ul style="list-style-type: none"> • Crew recognizes coolant leak: <ul style="list-style-type: none"> ⇒ 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: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition B ⇒ Condition C 	<p>INPO Fundamentals: <input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
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- CRS implements AB.CONT-0001:
⇒ Condition A
- RO/PO ensures drywell cooling maximized.
- Crew checks:
⇒ Recirc pump seal parameters
⇒ SRV temperatures
- WHEN the Crew determines drywell pressure cannot be maintained below 1.5 psig, THEN CRS directs:
⇒ Reducing recirc pump A to minimum speed
⇒ Locking the Mode Switch in SHUTDOWN
- RO:
⇒ Reduces recirc pump A to minimum speed
⇒ Locks the Mode Switch in SHUTDOWN

INPO Fundamentals:
☐ CONSERVATISM

RPS will NOT cause a scram on ANY signals.

STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION

Reactor Scram Reports

Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OP-AB. ZZ-0001.

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>RPS Failure</p> <p>RPS failure is pre-inserted.</p>	<ul style="list-style-type: none"> RO recognizes RPS failure, announces condition, and initiates ARI IAW AB.ZZ-0001. * <i>After placing the Mode Switch in SHUTDOWN, the Crew manually initiates ARI to shut down the reactor.</i> RO recognizes successful shutdown and continues with scram actions. Crew recognizes RPV Level Below 12.5" EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators CRS enters EOP-101A briefly, then transitions to EOP-101. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> TEAMWORK</p>
<p>Loss of Feedwater:</p> <p>The 1&2 Feedwater heaters will isolate shortly after the Main Turbine Trip. ENSURE ET-5 activates. The bypass around the 1&2 Feedwater heaters is failed shut.</p>	<ul style="list-style-type: none"> Crew recognizes 1&2 FWH trip by: <ul style="list-style-type: none"> ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ Flashing HTR TRIP lights for FWH #2A/B/C ⇒ Condensate Inlet and Outlet valves stroking shut for FWH 1&2A/B/C. PO may attempt to bypass 1&2 FWHs IAW AB.ZZ-0001 Att. 14. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • PO informs CRS of inability to inject with condensate. • CRS implements AB.CONT-0006: ⇒ Condition D • RO: ⇒ Trips reactor recirc pumps within 10 minutes of loss of RACS cooling (1.68 psig DW pressure) IF RPT breakers are not open. • WHEN Drywell Pressure reaches 1.68#, THEN Crew recognizes RFPT trips by: ⇒ OHA B3-E1 "RFP TURBINE TRIP" ⇒ RFPT Control Valve indications on 10C650C ⇒ TRIP status light on RFPT bezels ⇒ RFPT discharge pressure indications on 10C650C ⇒ Feed flow indications • CRS directs level control with any combination of the following IAW EOP 101: ⇒ HPCI ⇒ RCIC • RO/PO ensure isolations occur IAW either: ⇒ SO.SM-0001 OR ⇒ AB.CONT-0002 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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HPCI Injection Valves Fail To Open:

HPCI Injection Valves' failure is pre-inserted.

- PO manually initiates HPCI IAW AB.ZZ-0001 Att. 6.
- PO recognizes failure of HPCI to automatically initiate by:
 - ⇒ OHA B1-E5 HPCI PUMP DISCHARGE FLOW LO
 - ⇒ High Discharge Pressure
 - ⇒ High Turbine Speed
 - ⇒ No injection flow
- PO manually aligns HPCI for injection IAW AB.ZZ 0001 Att. 6 and informs CRS of injection valve failures
- * **Before Compensated RPV water level drops below -185" AND without Emergency Depressurizing, Crew manually places HPCI in service and injects with HPCI to restore and maintain Compensated Reactor water level above -185".**
- Crew recognizes 1.68 psig Drywell Pressure EOP entry condition by:
 - ⇒ OHA A7 D4 "DRYWELL PRESSURE HI/HI"
 - ⇒ OHA C5 B5 "DRYWELL PRESSURE HI"
 - ⇒ Various system initiations and isolations
- CRS enters EOP-102.

INPO Fundamentals:

☐ Monitoring plant conditions and indications closely.

INPO Fundamentals:

☐ CONTROL

INPO Fundamentals:

☐ TEAMWORK

RECORD time that drywell pressure exceeds 1.68#

TIME: _____

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Note: An Alert is required to be declared IAW ECG RB2.L (Drywell Pressure >1.68 psig due to RCS leakage), OR ECG SA3.1 (An automatic scram failed to shutdown the reactor as indicated by reactor power > 4% AND Manual scram actions taken at the reactor control console (mode switch, manual scram pushbuttons, manual ARI actuation) DO shutdown the reactor as indicated by reactor power ≤ 4%.)</p>	<ul style="list-style-type: none"> • Crew reports Torus Water temperature if it reaches 95 degrees. • CRS re-enters EOP-102 if applicable. • CRS directs placing A and/or B RHR pumps in Suppression Pool Cooling & Suppression Chamber Spray. • RO/PO place A and/or B RHR pumps in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>
	<ul style="list-style-type: none"> • CRS directs restoring: <ul style="list-style-type: none"> ⇒ 1E Breakers ⇒ CRD ⇒ PCIG to SRVs ⇒ Instrument Air • IF directed, THEN RO/PO restore 1E breakers IAW AB.ZZ-0001 Attachment 12. • IF directed, THEN RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- IF directed,
THEN RO/PO restore a CRD
pump to service IAW either:
⇒ SO.BF-0001 Sect 5.2
OR
⇒ AR.ZZ-0011 Attachment
F2

HPI USED:
STAR ☐
HARD CARD ☐

Termination Requirement:

The scenario may be terminated
at the discretion of the Lead
Examiner when:

- RPV level is being maintained
above -161"

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- A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Hope Creek Event Classification Guide (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-106-101-1001 Event Response Guidelines
- N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- O. OP-HC-108-106-1001 Equipment Operational Control
- P. **HC.OP-SO.AE-0001 Feedwater System Operation**
- Q. **HC.OP-SO.BJ-0001 High Pressure Coolant Injection System Operation**
- R. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- S. **HC.OP-AB.ZZ-0136 Loss Of 120 VAC Inverter**
- T. **HC.OP-AB.CONT-0001 Drywell Pressure**
- U. **HC.OP-AB.CONT-0002 Primary Containment**
- V. **HC.OP-AB.CONT-0006 Drywell Leakage**
- W. **HC.OP-AB.RPV-0001, Reactor Power**
- X. **HC.OP-AB.RPV-0003, Recirculation System/Power Oscillations**
- Y. **HC.OP-EO.ZZ-0101 RPV Control**
- Z. **HC.OP-EO.ZZ-0101A, ATWS-RPV Control**
- AA. **HC.OP-EO.ZZ-0102 Primary Containment Control**

VII. ESG CRITICAL TASK RATIONAL**ESG-1 / 0**

1.

- * ***After placing the Mode Switch in SHUTDOWN, the Crew manually initiates ARI to shut down the reactor.***

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

EA1.03 ARI/RPT/ATWS RO 4.1 SRO 4.1

This action is prescribed by the Abnormal Procedures. Under the scenario conditions, the Reactor Protection system has failed to respond to a manual scram condition. The operator must take action to mitigate the failure associated with the RPS malfunction by initiating backup scram actions. This action rapidly inserts control rods to shut down the reactor, preventing prolonged power operations without normal level control systems.

2.

- * ***Before Compensated RPV water level drops below -185" AND without Emergency Depressurizing, Crew manually places HPCI in service and injects with HPCI to restore and maintain Compensated Reactor water level above -185".***

K/A 206000 High Pressure Coolant Injection System

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

A3.03 System lineup RO 3.9 SRO 3.8

K/A 295031 Reactor Low Water Level

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

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

The HPCI system has failed to automatically inject into the reactor. HPCI is the only High Pressure injection system available with adequate capacity to maintain RPV water level. If RPV water level is allowed to drop below -185", the fuel will be uncovered sufficiently to challenge the fuel cladding integrity. This would escalate the event to a Site Area Emergency. The rate of level drop in this scenario is very slow and provides more than adequate time to execute the guidance and restore RPV level with HPCI without Emergency Depressurization.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**ESG-1 / 0****HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM****INITIATING EVENTS THAT LEAD TO CORE DAMAGE**

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

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY**

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VIII. TURNOVER SHEET:****ONLINE RISK: GREEN****WORK WEEK CHANNEL: B****PROTECTED EQUIPMENT**

None
EOOS is out of service

REACTIVITY / Plant Status

Commenced power ascension. Power is approximately 84%. Place RFP C in service, then raise reactor power in accordance with IO-6 and REMA. Currently at IO-6 up through Step 5.1.3.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

RFP startup in progress in accordance with HC.OP-SO.AE-0001, through Step 5.7.2.E.

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

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IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST:

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

ESG-1

SELF-CHECK

- _____ 1. Total malfunctions inserted: 5-8
- _____ 2. Malfunctions that occur after EOP entry: 1-4
- _____ 3. Abnormal Events: 2-3
- _____ 4. Major Transients: 1-2
- _____ 5. EOPs used beyond primary scram response EOP: 1-3
- _____ 6. EOP Contingency Procedures used: 0-3
- _____ 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- _____ 8. EOP run time: 40-70% of scenario run time
- _____ 9. Crew Critical Tasks: 2-5
- _____ 10. Technical Specifications are exercised during the test: >1

Comments:

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)**

<u>Crew Validation</u>	Rev.: <u>0</u>	Date Validated: <u>10/30/2014</u>
Validated with operators from Crew A.		
Validation Comments	Disposition	
1. Minor changes to REMA and Turnover.	1. Changes made.	
2. Add SA3.1 to ECG.	2. Changes made.	
3. Add actions for RFPT to service.	3. Changes made.	
4. Add references to additional Abs.	4. Changes made.	

<u>Crew Validation</u>	Rev.: _____	Date Validated: _____
Validated with operators from Crew .		
Validation Comments	Disposition	
1.	1.	

Facility: Hope Creek Scenario No.: 2 Op-Test No.: 2015

Examiners: _____ Operators: _____ (SRO)
 _____ (RO)
 _____ (BOP)

Initial Conditions: 95% Power. Power reduction in progress for a rod pattern adjustment.

Turnover:
Swap RACS pumps. Reduce power to 90%. Hold for Reactor Engineer review of plant conditions.

ESG-073 modified.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) N(SRO)	EHC Pump Swap
2		R(ATC, SRO) N(BOP, SRO)	Lower Power With Control Rods and Recirculation Flow
3		I(ATC,SRO) TS(SRO)	Flow Unit Failure
4		C(ALL)	EHC System Leak
5		M(ALL)	ATWS-Main Turbine Trip-Bypass Valve Failure
6		C(BOP) C(SRO)	Failure of SBLC to Automatically Initiate
7		C(ATC) C(SRO)	CRD Pump trip- EOP Implementation Failure

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

ESG-2

SCENARIO SUMMARY:

The scenario begins with the plant at approximately 95% power reduction for a rod pattern adjustment in progress. EHC pumps will be swapped to support pump maintenance. The Crew will continue the power reduction by inserting control rods and lowering Reactor Recirc flow. The A Flow Unit will fail upscale causing a half scram and rod block. After the Flow Unit is bypassed, the Half Scram is reset, and Tech Specs have been referenced, a leak in the EHC System will occur. The Crew will be unable to isolate the leak and a manual scram will be inserted, or an automatic scram (approximately 8 minutes from leak insertion) on a Main Turbine trip will occur. The scram will be unsuccessful and result in a 1/2 core ATWS. Both SLC pump will fail to automatically start, but can be started by the Crew. Both SLC pumps will trip 10 minutes after start. The Turbine Bypass valves will fail to open, resulting in SRV actuation being necessary to control reactor pressure. Shortly after the ATWS the running CRD pump will trip. This will require the standby pump be placed in service in order to manually insert control rods and charge accumulators. Improper implementation of an Emergency Operating Procedure in the field will require re-performance/correction of the EOP, or rods to be manually inserted to shut down the reactor. The scenario ends when the Crew is inserting control rods with RMCS, or all rods are inserted using EOP-320.

CRITICAL TASK SUMMARY:

- * **Crew starts AP208 and/or BP208 SLC pump before Suppression Pool temperature reaches 110 degrees.**

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:

EA1.04 SBLC RO 4.5 SRO 4.5

EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA2.04 Suppression Pool Temperature RO 4.0 SRO 4.1

The Boron Initiation Injection Temperature above about 9% power is 110°F. The post scram power level in this scenario is greater than 9%. 110°F is also one of the conditions that may require intentional lowering of RPV water level to as low as -129" to control power. Lowering RPV water level to -129" jeopardizes main condenser and RFPT availability, which could significantly complicate mitigation of the ATWS. Initiating SLC before 110°F will help reduce power and may prevent the need to lower level to below -129".

- * **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

K/A 295031 Reactor Low Water Level

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

EA.06 Automatic depressurization RO 4.4 SRO 4.4

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 700 psig.

CRITICAL TASK SUMMARY:

- * ***Crew ensures adequate core cooling by maintaining, or restoring, RPV level above -185" 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

Lowering level RPV level during an ATWS with reactor power >4% is a key strategy for controlling reactor power. 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. 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.

- * ***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.

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SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2015 NRC EXAM SCENARIO**SCENARIO NUMBER:** ESG-2**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 75 Minutes**REVISION NUMBER:** 0**PROGRAM:**
☐ LICENSED OPERATOR REQUALIFICATION
☒ INITIAL LICENSE
☐ OTHER: _____**REVISION SUMMARY:**

- Initial issue.

PREPARED BY:	<u>S. DENNIS/SIGNATURE ON FILE</u> INSTRUCTOR	<u>12-9-2014</u> DATE
APPROVED BY:	<u>M.A. SHAFFER/SIGNATURE ON FILE</u> LORT GROUP LEAD OR DESIGNEE	<u>12-9-2014</u> DATE
APPROVED BY:	<u>L. KOBERLEIN/SIGNATURE ON FILE</u> SHIFT OPERATIONS SUPERVISOR OR DESIGNEE	<u>12-11-2014</u> DATE

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**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. EHC Pump Swap
- B. Lower Power With Control Rods and Recirculation Flow
- C. Flow Unit Failure
- D. EHC System Leak
- E. ATWS-Main Turbine Trip-Bypass Valve Failure
- F. Failure of SBLC to Automatically Initiate
- G. CRD Pump Trip
- H. EOP Implementation Failure

II. SCENARIO SUMMARY:

The scenario begins with the plant at approximately 95% power reduction for a rod pattern adjustment in progress. EHC pumps will be swapped to support pump maintenance. The Crew will continue the power reduction by inserting control rods and lowering Reactor Recirc flow. The A Flow Unit will fail upscale causing a half scram and rod block. After the Flow Unit is bypassed, the Half Scram is reset, and Tech Specs have been referenced, a leak in the EHC System will occur. The Crew will be unable to isolate the leak and a manual scram will be inserted, or an automatic scram (approximately 8 minutes from leak insertion) on a Main Turbine trip will occur. The scram will be unsuccessful and result in a 1/2 core ATWS. Both SLC pump will fail to automatically start, but can be started by the Crew. Both SLC pumps will trip 10 minutes after start. The Turbine Bypass valves will fail to open, resulting in SRV actuation being necessary to control reactor pressure. Shortly after the ATWS the running CRD pump will trip. This will require the standby pump be placed in service in order to manually insert control rods and charge accumulators. Improper implementation of an Emergency Operating Procedure in the field will require re-performance/correction of the EOP, or rods to be manually inserted to shut down the reactor. The scenario ends when the Crew is inserting control rods with RMCS, or all rods are inserted using EOP-320.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. INITIAL CONDITIONS:**

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

- _____ **INITIALIZE** the simulator to 100% power MOL.
- _____ **ENSURE** Control Area Ventilation loop B is in service.
- _____ **ENSURE** EHC Pump BP116 is in service.
- _____ **ENSURE** CRD Pump A is in service
- _____ **LOWER** reactor power to 95% using Recirculation Pumps
- _____ **SET** Cross Flow to NOT APPLIED AND BLOCKED.
- _____ **ENSURE** Schedule and/or Event File(s) is(are) open as required.

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

- _____ **INITIAL** IO-6 up through Step 5.2.9.
- _____ **ENSURE** REMA is provided to support power reduction.
- _____ **REVIEW**, at a minimum, the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)
- _____ **COMPLETE** "Simulator Ready-for-Training/Examination Checklist".

EVENT FILE:			
<i>Initial</i>	<i>Event</i>		
	3	Event Code: Description:	Lcvposx(1) <= nnn (See note* below) Rod 18-03 position // Initiates ATWS and sets initial rod position
	4	Event Code: Description:	sl_pmarn sl_pmbrn SLC Pump A or B Start // Triggers Failure of both SLC pumps
		Event Code: Description:	
		Event Code: Description:	

* **nnn** = 604 if rod insertion is NOT being observed, and nnn=700 if Group 10B rods will be inserted to 00.

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MALFUNCTION SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction TC01-10	All turbine bypass valves fail closed
	None	None	Insert malfunction SL04A	SBLC pump A failure of auto start signal
	None	None	Insert malfunction SL04B	SBLC pump B failure of auto start signal
	None	None	Insert malfunction NM12D to 0 on event 1	Flow summer K607D failure
	None	None	Insert malfunction TC10-1 to 100 in 180 on event 2	EHC fluid leak-Stop Valve 2
	None	None	Insert malfunction RP06 after 1on event 3	Half-core ATWS - left side
	None	None	Insert malfunction CD10A after 300 on event 3	CRD hydraulic pump A trip
	None	None	Insert malfunction SL01A after 600 on event 4	SBLC injection pump AP208 failure
	None	None	Insert malfunction SL01B after 600 on event 4	SBLC injection pump BP208 failure

REMOTE SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	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 9	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 to INSTALLED on event 8	EP12 EOP-320 (step 5.2.4), RPS division 2 jumper

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REMOTE SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote EP14 to INSTALLED on event 9	EP14 EOP-320 (step 5.2.5), RPS division 4 jumper
	None	None	Insert remote EP35 after 180 to FAIL_CLOSE on event 10	EP35 EOP-322 HV-F006 HPCI to CS

OVERRIDE SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Swap EHC Pumps:

- CRS directs EHC pump swap IAW HC.OP-SO.CH-0001.
- RO swaps EHC pumps by:
 - ⇒ PRESS HYDR FLUID PUMP AP116 MAN push-button
 - ⇒ PRESS HYDR FLUID PUMP AP116 START push-button
 - ⇒ PRESS HYDR FLUID PUMP BP116 STOP push-button
 - ⇒ PRESS HYDR FLUID PUMP BP116 AUTO push-button

HPI USED:

STAR ☐
 PEER CHECK ☐
 FLAGGING ☐
 OP BARRIERS ☐

Power Reduction:

- CRS directs power reduction IAW IO-6 and REMA.
- CRS directs inserting control rods and lowering Reactor Recirc IAW REMA guidance.

As RE, **PROVIDE** the following guidance:

- Power reduction guidance is to insert Group 10B Control Rods, then reduce reactor power to 85% using Reactor Recirc flow IAW ReMA guidance.
- When reactor power is 85%, RE's will assess Core performance for rod pattern adjustment.
- Emergency Load reductions will be performed using Standard Power Reduction Instructions.

- RO inserts Group 10B Control Rods, and then lowers reactor power to 85% with Reactor Recirc.

HPI USED:

STAR ☐
 PEER CHECK ☐
 FLAGGING ☐
 OP BARRIERS ☐

INPO Fundamentals:

☐ CONTROL

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Flow summer K607D failure:
After the Crew lowers power,
OR
at the discretion of the Lead
Examiner, **TRIGGER ET-1.**

- Crew monitors Reactor power, pressure, and level and ensure plant conditions are stable.
- Crew recognizes RPS ½ scram by:
 - ⇒ OHA C3-A4/A5
"REACTOR SCRAM TRIP LOGIC B1/B2"
 - ⇒ RPS Trip Logic B1 and B2
NORMAL/RESET status lights extinguished
 - ⇒ Pilot Scram Valve Solenoid LOGIC B NORMAL status lights for all four groups extinguished.
 - ⇒ CRIDS D2126 "NEUTRON MONITOR SYSTEM SCRAM X"
 - ⇒ CRIDS D2128 "NEUTRON MONITOR SYSTEM SCRAM Z"
 - ⇒ CRIDS C022 "ANY APRM UPSCALE"
 - ⇒ CRIDS C049 "RECIRC FLOW COMPAR OUT LIMITS "

INPO Fundamentals:

☐ Monitoring plant conditions and indications closely.

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>If panels are opened, state that indications on 10C608 indicate N678D is downscale.</p>	<ul style="list-style-type: none"> • Crew recognizes K607D failure Upscale by: <ul style="list-style-type: none"> ⇒ 1/2 Scram on 'B' RPS. ⇒ [C5-A1] "NEUTRON MONITORING SYSTEM". ⇒ [C3-C5] "APRM SYS B UPSCALE TRIP/INOP". ⇒ B, D, F APRM "UPSC ALARM" and "UPSC TR OR INOP" status lights. ⇒ [C6-D1] "APRM/RBM FLOW REF OFF NORMAL". ⇒ Flow Units C & D "COMPAR" status lights. ⇒ CRIDS C049 "RECIRC FLOW COMPAR". 	
	<ul style="list-style-type: none"> • RO refers to HC.OP-AR.ZZ-0020, CRIDS C049: <ul style="list-style-type: none"> ⇒ CHECK flow unit readings AND under the direction of the SM/CRS BYPASS the unit having an off normal reading. 	
	<ul style="list-style-type: none"> • Crew re-enters OP-AB.IC-004 <ul style="list-style-type: none"> ⇒ Condition F <ul style="list-style-type: none"> ⇒ Crew bypasses the affected Flow Unit. ⇒ Crew refers to DD.ZZ-0020 for a failed PPC Sensor. ⇒ Crew directs Reactor Engineering to evaluate the flow unit failure on the PPC. 	<p>INPO Fundamentals</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p> <p><input type="checkbox"/> Controlling plant evolutions precisely.</p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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NOTE:

WHEN directed by the crew to place the flow unit mode switch to the "unlabeled" position, THEN **MODIFY** NM12D to 100%.

⇒ Crew directs I&C to PLACE the MODE Switch, on the D flow unit, to the "UNLABELED" position between STANDBY and ZERO.

INPO Fundamentals

- ☐ Working effectively as a team.
- ☐ Having a solid understanding of plant design and system interrelationships.

⇒ Crew verifies RPS Trip clear.

⇒ Crew resets RPS Trip as follows:

⇒ Turns the affected RPS Trip Logic key to RESET, AND RETURN to the NORMAL position.

⇒ Verifies that RPS is reset.

If panels are opened, state that indications on 10C608 indicate N678D is upscale.

- PO checks indications on 10C609 and 10C611 and reports N678D is now upscale.
- Crew contacts Maintenance to troubleshoot K607D failure.
- Crew contacts Operations Management.
- CRS enters tracking LCO for Tech Spec 3.3.1, 3.3.6, and 3.1.4.3.

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>EHC System Leak: After the Crew references Tech Specs for the K807D failure, <u>OR</u>, at the discretion of the Lead Examiner, TRIGGER ET-2.</p> <p>NOTE: EHC loss in approximately 8 minutes.</p>	<ul style="list-style-type: none"> • Crew recognizes EHC Leak by: <ul style="list-style-type: none"> ⇒ CRIDS D2133 "TB STOP VALVE CLOSURE SCRAM W" ⇒ CRIDS D2136 "TB STOP VALVE CLOSURE SCRAM Y" ⇒ CRIDS D2574 "MAIN STOP VALVE 2 CLSD" ⇒ OHA D3-E5 "TURB HYDR RESERVOIR TROUBLE" ⇒ CRIDS D33355 "TURBINE EHC RESERVOIR LEVEL LO" ⇒ Lowering EHC pressure displayed on CRIDS 	<p>INPO Fundamentals</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p>
<p>NOTE: AP116 Motor Amps will rise to >65 amps in 2 minutes.</p>	<ul style="list-style-type: none"> • CRS implements AB.BOP-0003: <ul style="list-style-type: none"> ⇒ Condition B and C ⇒ Monitors Leakage ⇒ Add EHC oil ⇒ Informs Radwaste ⇒ Determines if leak is isolable ⇒ Evaluates effect of leak ⇒ Determines leak rate 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> TEAMWORK</p>
<p>NOTE: Actions may not be observed if scram ordered first.</p>	<ul style="list-style-type: none"> • RO observes and reports that AP116 Motor Amps indicate >50 amps and rising. • CRS orders EHC Pump swap IAW C.3 	<p>INPO Fundamentals</p> <p><input type="checkbox"/> Monitoring plant conditions and indications closely.</p>

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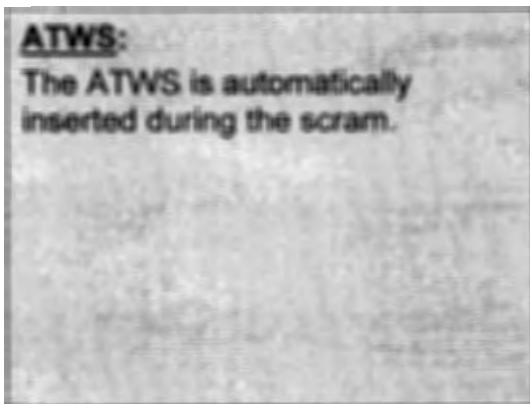
V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>WHEN</u> dispatched to EHC, <u>THEN REPORT</u> indicated EHC level indicates greater than 6 inches LOW (bottom of indication). No indication of where EHC fluid is leaking.</p>	<ul style="list-style-type: none"> RO performs EHC Pump swap. 	
	<ul style="list-style-type: none"> Crew dispatches TBEO to EHC. 	
	<ul style="list-style-type: none"> <u>WHEN</u> AP116 amps are >60, <u>THEN</u> CRS enters Condition C and directs: <ul style="list-style-type: none"> ⇒ Monitoring Turbine Valve Positions ⇒ Reducing recirc pump speed to minimum ⇒ Locking the Mode Switch in SHUTDOWN ⇒ Tripping the Main Turbine 	<p>IAW the SPRI, Recirc Pumps are considered to be at minimum if below 30% speed. Crew may not lower recirc pump speeds before scrambling.</p>
	<ul style="list-style-type: none"> CRS determines unable to maintain EHC level, <u>THEN</u> IAW B.7 directs: <ul style="list-style-type: none"> ⇒ Reducing RR Pump Speed to minimum ⇒ Lock the MS in SD 	<p>INPO Fundamentals: <input type="checkbox"/> CONSERVATISM</p>
	<ul style="list-style-type: none"> <u>WHEN</u> directed, <u>THEN</u> the RO: <ul style="list-style-type: none"> ⇒ Reduces recirc pump speeds to minimum ⇒ Locks the Mode Switch in SHUTDOWN 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION

Reactor Scram Reports

Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.

- Crew recognizes Scram Condition and Reactor Power Above 4% EOP entry condition:
 - ⇒ APRM indications
 - ⇒ Absence of rod FULL IN lights on the right side of Full Core Display
 - ⇒ Rod position indications
- RO performs scram actions IAW AB.ZZ-0001 Att. 1.

RECORD time of Mode Switch to SHUTDOWN for 15 min ECG Classification.

Time: _____

HPI USED:

STAR ☐

HARD CARD ☐

Due to ATWS, CRS may not direct tripping Main Turbine IAW AB.BOP-0002.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</p> <ul style="list-style-type: none"> • Prioritize the Power Leg to establish SLC injection as soon as possible. • Terminating and Preventing HPCI in a timely manner is critical in order to reduce reactor power by establishing and maintaining a -50" to -100" RPV level band. • Maximize steam loads IAW with the post scram pressure control hard card actions when reactor power exceeds bypass valve capability. • Although Abnormal Operating Procedure HC.OPAB. BOP-0002 guidance for tripping the turbine should still be followed, the impact of tripping the turbine on RPV pressure control should be evaluated and actions taken ahead of time to minimize the impact of the loss of the turbine (e.g., all other steam demands are maximized, turbine parameters are closely monitored to provide the longest time possible for other reactor shutdown actions to be implemented prior to tripping the turbine). If reactor power is within the capability of the turbine bypass valves, the turbine should be tripped without any additional delay. • After Terminating and Preventing low pressure ECCS, place RHR in suppression pool cooling in order to mitigate reaching 110 degrees F in the Torus with SRVs cycling. • With limited injection sources, if RPV level stabilizes below -185", the decision on whether reactor level can be restored above -185" will be based on the time required to insert sufficient negative reactivity to allow reactor level to be stabilized above -185". • As control rods are inserted, reduce injection flow to maintain reactor level low in the assigned band to reduce reactor power. 	<ul style="list-style-type: none"> • CRS implements EOP-101A. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> TEAMWORK</p>

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>For ATWS conditions where reactor power remains >4% RTP, the CRS should direct the PO to remain at feedwater to stabilize RPV level. Under these conditions, the Recirc pumps are already tripped and RWCU has already isolated and the PO should be assigned the action to initiate SLC. The RO, following completion of the post scram hard card ATWS mitigation actions (manual scram and ARI initiation), should be directed to Terminate and Prevent HPCI injection prior to implementing any other EOP-101A actions such as inhibiting ADS or inserting control rods. The basis for this direction is; 1) to facilitate PO control of RPV level; 2) mitigate the reactor power excursion due to the cold water HPCI injection inside the shroud; and 3) ensure that the main turbine remains available to facilitate RPV pressure control.</p>	<ul style="list-style-type: none"> PO stabilizes and maintains RPV level as directed by CRS. 	<p>HPI USED:</p> <p>STAR <input type="checkbox"/></p> <p>HARD CARD <input type="checkbox"/></p>
	<ul style="list-style-type: none"> CRS directs: <ul style="list-style-type: none"> ⇒ Initiating SLC ⇒ Verifying RWCU Isolates 	
	<ul style="list-style-type: none"> RO/PO initiate SLC. 	<p>HPI USED:</p> <p>STAR <input type="checkbox"/></p> <p>PEER CHECK <input type="checkbox"/></p>
	<ul style="list-style-type: none"> * <i>Crew starts AP208 and/or BP208 SLC pumps before Suppression Pool temperature reaches 110 degrees.</i> 	<p>ENTER Supp Pool temp when A/BP208 SLC pump is started:</p> <p>Temp: _____</p>
	<ul style="list-style-type: none"> CRS directs tripping reactor recirc pumps. 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- RO/PO trip reactor recirc pumps.

HPI USED:

STAR ☐

PEER CHECK ☐

May already be tripped on EOC-RPT.

Note: A SAE is required to be declared IAW ECG Section **SS3.1** (An automatic scram failed to shut down the reactor as indicated by reactor power >4% AND Manual scram actions taken at the reactor control console (mode switch, manual scram pushbuttons, manual ARI actuation) DO NOT shutdown the reactor as indicated by reactor power >4%)

INPO Fundamentals:

☐ KNOWLEDGE

- CRS directs inhibiting ADS.

- RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.

HPI USED:

STAR ☐

HARD CARD ☐

INPO Fundamentals:

☐ CONTROL

- * ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.***

This Critical Task only applies if conditions for automatic ADS initiation are met. See justification for failure criteria.

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • Crew recognizes bypass valves are not opening to control pressure by: <ul style="list-style-type: none"> ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ DEHC "BYPASS VALVE POSITIONING ERROR" alarms ⇒ Bypass valve position indication ⇒ Rising reactor pressure 	<p>Turbine Bypass valves are failed shut.</p>
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>Pressure Leg</p> <p>Direct initial pressure control as Stabilize pressure 800 psig to 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and will prevent an unwanted cooldown. The upper limit of 1000 psig is a round number below 1047 psig.</p>	<ul style="list-style-type: none"> • CRS directs stabilizing pressure below 1037 psig with: <ul style="list-style-type: none"> ⇒ Main Steam Line Drains ⇒ SRVs ⇒ RPFT 	
	<ul style="list-style-type: none"> • RO/PO control pressure as directed by CRS with: <ul style="list-style-type: none"> ⇒ Main Steam Line Drains IAW AB.ZZ-0001 Att. 15 ⇒ SRVs IAW AB.ZZ-0001 Att. 13 ⇒ RFPTs 	<p>HPI USED:</p> <p>STAR <input type="checkbox"/></p> <p>HARD CARD <input type="checkbox"/></p> <p>INPO Fundamentals:</p> <p><input type="checkbox"/> CONTROL</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Trip of SLC Pump:

The AP208 AND BP208 SLC pumps(will trip 10 minutes after starting).

- Crew recognizes trip of AP208 SLC pump by:
 - ⇒ OHA C1-B1 "SLC PUMP/VALVE O/PF"
 - ⇒ OHA C1-F1 "SLC/RRCS INITIATION FAILURE"
 - ⇒ CRIDS D3022 "SLC INJ PMP AP208 TROUBLE TRBL"
 - ⇒ CRIDS D3023 "SLC INJ PMP BP208 TROUBLE TRBL"
 - ⇒ Flashing STOP light for AP208 and BP208

IF dispatched to investigate trip of AP208 and BP208,
THEN REPORT unable to determine cause of the trips.

- Crew dispatches NEO and Maintenance to investigate trip of SLC pumps.

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>REFER to the appropriate EOP and SUPPORT Crew requests for EOPs IAW with the following. Validated execution time delays are built-in:</p> <p>EOP-301: ET-5 EOP-311: ET-6 EOP-319: ET-7 EOP-320: ET-8 EOP-322: ET-10</p> <p>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION</p> <p>Promptly initiate actions IAW the 300 series EOPs to shut down the reactor. Timely actions will reduce the potential continued challenges to containment. In addition, once the post scram hard card actions have been completed and RPV level has stabilized in the required band, an NCO should be assigned the responsibility to insert control rods IAW the post ATWS CRD operation hard card and CRAM move sheets. When control room portions of EOP-320 have been completed and the NCO is ready to re-insert a manual scram, the NCO should perform a crew update and utilize the post scram hard card to implement the applicable post scram actions following the manual scram attempt.</p>	<p>CRS directs performance of the following EOPs:</p> <ul style="list-style-type: none"> ⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks" ⇒ EO.ZZ-0301 "Bypassing MSIV Isolation Interlocks" ⇒ EO.ZZ-0311 "Bypassing Primary Containment Instrument Gas Isolation Interlocks" ⇒ EO.ZZ-0319 "Restoring Instrument Air in an Emergency" ⇒ EO.ZZ-0322 "Core Spray Injection Valve Override" <ul style="list-style-type: none"> • CRS directs terminating and preventing injection to the RPV with the exception of: <ul style="list-style-type: none"> ⇒ SLC ⇒ CRD ⇒ RCIC 	<p>The timing, order, and priority of the EOP performance may vary.</p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> RO/PO terminate and prevent injection from HPCI, RHR and feedwater/condensate IAW AB.ZZ-0001: <ul style="list-style-type: none"> ⇒ Att. 16 for 10C650 ⇒ Att. 17 for 10C651 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>
	<ul style="list-style-type: none"> CRS directs maintaining RPV water level between -50" and -185". 	Typically, the lower end of the level band is set above -129".
	<ul style="list-style-type: none"> RO/PO control level as directed by CRS with: <ul style="list-style-type: none"> ⇒ Feedwater IAW AB.ZZ-0001 Att. 14 ⇒ RCIC IAW AB.ZZ-0001 Att. 6 ⇒ HPCI IAW EOP-322 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>
	<ul style="list-style-type: none"> * <i>Crew ensures adequate core cooling by maintaining, or restoring, RPV level above -185" without Emergency Depressurizing.</i> 	
	<ul style="list-style-type: none"> CRS directs bypassing the RWM and commencing manual rod insertion. 	
	<ul style="list-style-type: none"> RO/PO establishes drive water d/p IAW AB.ZZ-0001 Att. 18. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- RO/PO bypasses RWM and inserts control rods IAW RE.AB.ZZ-0001 Att. 1.

HPI USED:
STAR ☐

Trip of CRD Pump:

The AP207 CRD pump will trip 5 minute after ATWS.

- Crew recognizes trip of AP207 CRD pump by:
 - ⇒ Flashing STOP light for AP207
 - ⇒ OVLD/PWR FAIL light for AP207

IF dispatched to investigate trip of AP207,
THEN REPORT the motor is hot to the touch and the breaker (52-437011) is tripped. Report that the breaker will not reset (if required).

- Crew dispatches NEO and Maintenance to investigate trip of AP207 CRD pump.

- CRS directs start of CRD Pump BP207.
- RO starts CRD pump BP207 IAW Attachment 18 of HC.OP-AB.ZZ-0001, or HC.OP-AR.ZZ-0020 point D2244.

Turbine Trip:

The turbine will trip 8 minutes after the EHC leak if not previously tripped.

- Crew recognizes Turbine Trip by:
 - ⇒ OHA A1-D3 "TURBINE GENERATOR TRIP"
 - ⇒ OHA C5-A2 "TCV FAST CLOSURE"
 - ⇒ OHA C5-B2 "MAIN STOP VALVE CLOSURE"
 - ⇒ TRIPPED indication on TBWD panel
 - ⇒ Turbine Stop, Control, and Intermediate valve closed indications on 10C651D

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833/834 alarm ⇒ Various Suppression Pool temperature indicators 	
<p>Strategies For Successful Transient Mitigation</p> <p>Torus Temperature Leg</p> <p>Start all available Torus cooling as soon as possible to remove heat from containment.</p>	<ul style="list-style-type: none"> CRS implements EOP-102. STA/IA monitors EOP-102 implementation. CRS directs placing RHR in Suppression Pool Cooling. RO/PO place RHR in Supp Pool Cooling IAW AB.ZZ-0001 Att. 3. RO/PO aligns SACS to support second RHR Hx IAW SO.EG-0001 Section 5.9. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> TEAMWORK</p> <p>HPI USED:</p> <p>STAR <input type="checkbox"/></p> <p>HARD CARD <input type="checkbox"/></p> <p>PEER CHECK <input type="checkbox"/></p> <p>Depending on resource management, this may not occur until the reactor is shutdown under all conditions without boron.</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • <u>IF</u> Suppression Pool temperature is >110 degrees, <u>AND</u> Reactor power is >4%, <u>AND</u> SRVs are open or cycling, <u>THEN</u> Crew terminates and prevents injection to the RPV with the exception of SLC, CRD, and RCIC, <u>UNTIL</u> Reactor power is <4%, <u>OR</u> RPV level reaches -129", <u>OR</u> SRVs remain closed. • <u>IF</u> RPV level reaches -129", <u>THEN</u> Crew terminates and prevents injection from Core Spray. • <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. • RO observes and reports improper implementation of EOP-320 by: <ul style="list-style-type: none"> ⇒ OHA C3-A2-A5 fail to clear ⇒ RPS A and B Fail to reset ⇒ 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>
<p><u>WHEN</u> the Crew has requested EOP-320 re-performed, <u>THEN INSERT TRIGGER-9.</u></p>	<ul style="list-style-type: none"> • CRS directs maintenance to re-implement of EOP-320. 	
<p><u>WHEN</u> the Crew has reset RPS, <u>THEN DELETE</u> Malfunctions RP06 to allow full rod insertion on the next scram.</p>	<ul style="list-style-type: none"> • <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. 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
At the Lead Examiners discretion, MODIFY Variable lclsdv to accelerate draining of the SDV.	<ul style="list-style-type: none"> • <u>WHEN</u> OHA C6-E4 clears, <u>THEN</u> the Crew initiates a manual scram IAW EOP-320 Section 5.3. * <i>CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.</i> • Crew recognizes the reactor is shut down by: <ul style="list-style-type: none"> ⇒ SPDS ALL RODS IN ⇒ RWM Confirm Shutdown ⇒ CRIDS Rod positions 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
<p>Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when:</p> <ul style="list-style-type: none"> • RPV Level is being maintained above -185" <p>AND</p> <ul style="list-style-type: none"> • All rods are fully inserted, OR manual rod insertion is in progress. 	<ul style="list-style-type: none"> • CRS exits EOP-101A, enters EOP-101. 	

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- A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Hope Creek Event Classification Guide (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-106-101-1001 Event Response Guidelines
- N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- O. OP-HC-108-106-1001 Equipment Operational Control
- P. **HC.OP-SO.BF-0001 CRD Hydraulic System Operation**
- Q. **HC.OP-SO.CH-0001 Main Turbine Control Oil (EHC) System Operation**
- R. **HC.OP-SO.SF-0001 Reactor Manual Control**
- S. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- T. **HC.RE-IO.ZZ-0006 Power Changes During Operation**
- U. **HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS**
- V. **HC.OP-AB.BOP-0002 Main Turbine**
- W. **HC.OP-AB.BOP-0003 Turbine Hydraulic Pressure**
- X. **HC.OP-AB.ZZ-000 Reactor Scram**
- Y. **HC.OP-EO.ZZ-0101 RPV Control**
- Z. **HC.OP-EO.ZZ-0101A ATWS-RPV Control**
- AA. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- BB. **HC.OP-EO.ZZ-0301 Bypassing MSIV Isolation Interlocks**
- CC. **HC.OP-EO.ZZ-0311 Bypassing Primary Containment Instrument Gas Isolation Interlocks**
- DD. **HC.OP-EO.ZZ-0319 Restoring Instrument Air in an Emergency**
- EE. **HC.OP-EO.ZZ-0320 Defeating ARI and RPS Interlocks**
- FF. **HC.OP-EO.ZZ-0322 Core Spray Injection Valve Override**

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VII. ESG CRITICAL TASK RATIONAL****ESG-2 / 0**

1.

- * **Crew starts AP208 and/or BP208 SLC pump before Suppression Pool temperature reaches 110 degrees.**

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:

EA1.04 SBLC RO 4.5 SRO 4.5

EA2 Ability to determine and/or interpret the following as they apply to SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown:

EA2.04 Suppression Pool Temperature RO 4.0 SRO 4.1

The Boron Initiation Injection Temperature above about 9% power is 110°F. The post scram power level in this scenario is greater than 9%. 110°F is also one of the conditions that may require intentional lowering of RPV water level to as low as -129" to control power. Lowering RPV water level to -129" jeopardizes main condenser and RFPT availability, which could significantly complicate mitigation of the ATWS. Initiating SLC before 110°F will help reduce power and may prevent the need to lower level to below -129".

2.

- * ***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

K/A 295031 Reactor Low Water Level

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

EA.06 Automatic depressurization RO 4.4 SRO 4.4

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 700 psig.

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3.

- * ***Crew ensures adequate core cooling by maintaining, or restoring, RPV level above -185" 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

Lowering level RPV level during an ATWS with reactor power >4% is a key strategy for controlling reactor power. 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. 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.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**ESG-2 / 0****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>
_____	Loss Of Offsite Power/SBO	_____	Internal Flooding
_____	LOCA		
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<u>Y</u> _____	Turbine Trip	_____	Loss of SSW
_____	Loss of Condenser Vacuum	_____	Loss of SACS
_____	Loss of Feedwater		
_____	Manual Scram		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY**

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

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VIII. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL: C

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

Currently at 95% power. Power reduction for rod pattern adjustment is in progress. Power is to be reduced to 85% in accordance with HC.OP-IO.ZZ-0006 and the REMA. Currently at Step 5.2.9 of IO-6.

Swap EHC pumps, Insert Group 10B rods, and reduce power to 85% with TCF.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

Swap EHC pumps to support routine maintenance on BP116.

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

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IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST:

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

ESG-2

SELF-CHECK

- _____ 1. Total malfunctions inserted: 5-8
- _____ 2. Malfunctions that occur after EOP entry: 1-4
- _____ 3. Abnormal Events: 2-3
- _____ 4. Major Transients: 1-2
- _____ 5. EOPs used beyond primary scram response EOP: 1-3
- _____ 6. EOP Contingency Procedures used: 0-3
- _____ 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- _____ 8. EOP run time: 40-70% of scenario run time
- _____ 9. Crew Critical Tasks: 2-5
- _____ 10. Technical Specifications are exercised during the test: >1

Comments:

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)**Crew ValidationRev.: 0Date Validated: 11-5-2014

Validated with operators (1 SRO, 2 ROs).

Validation Comments	Disposition
1. Incorporated changes and comments from validation on 10/13/2014 2. Revise times for malfunction insertions. Add cue for local observation of Flow Unit. Revise Trigger numbers. Insert expected power change in %.	1. Comments incorporated. 2. Changes made.

Crew Validation

Rev.: _____

Date Validated: _____

Validated with operators from Crew .

Validation Comments	Disposition
1.	1.

Facility: <u>Hope Creek</u>	Scenario No.: <u>3</u>	Op-Test No.: <u>2015</u>
Examiners: _____	Operators: _____	(SRO)
_____	_____	(RO)
_____	_____	(BOP)
Initial Conditions: <u>100% Power.</u>		
Turnover:		
<u>Maintain 100% power.</u>		
ESG-002 Modified		

Event No.	Malfunction No.	Event Type*	Event Description
1		R(ATC,SRO) C(BOP) C(SRO)	FWH Leak
2		C(ATC) C(SRO)	Inadvertent SBLC System Actuation
3		TS(SRO)	Loss of 10D410
4		M(ALL)	Loss of Offsite Power
5		C(BOP) C(SRO)	Auto Start Failure of EDGs
6		C(BOP) C(SRO)	RCIC Overspeed Trip
7		C(ATC) C(SRO)	SACS Pump Trip

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

ESG-3

SCENARIO SUMMARY:

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

CRITICAL TASK SUMMARY:

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

K/A 295001 Reactor Feedwater System

A2 Ability to (a) predict the impacts of the following on the Reactor Feedwater System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:

A2.04 Loss of Extraction Steam RO 3.3 SRO 3.4

K/A 2.2 Equipment Control

2.2.22 Knowledge of limiting conditions for operations and safety limits RO.3.4 SRO 4.1

The loss of Feedwater heating due to the trip of the 4B FWH will drive reactor power to above the licensed limit. Peak power in this transient with no operator action is just over 102% power. This would constitute a violation of our Operating License. HC.OP-IO.ZZ-0006 defines a 5 minute average of 3848 MWth as exceeding the Licensed Power Limit. Taking the Immediate Operator Actions IAW either AB.BOP-0001 or AB.RPV-0001 will prevent this violation.

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

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

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

AA1.02 Emergency generators RO 4.2 SRO 4.3

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

Due to the loss of 10D410, the 'A' EDG and 'A' Channel ECCS components are unavailable. This leaves the 'B' RHR pump as the only immediately available means of removing decay heat from the containment. Initiation of RHR for decay heat removal is one of the operator actions important to preventing core damage in our PRA.

- * **CREW starts "B" SACS Pump to provide cooling to "B" EDG, OR cross-connects to SACS Loop A, to prevent a "B" EDG emergency trip from cooling related problems.**

K/A 295003

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

The continued availability of the "B" diesel generator is required to maintain the capability to place the plant in a cold shutdown condition. If the "B" diesel becomes inoperable (with the "A" diesel currently inoperable), both loops of shutdown cooling will be inoperable and will prevent placing and maintaining the plant in a cold shutdown condition.

CRITICAL TASK SUMMARY:

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

K/A 295031 Reactor Low Water Level

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

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

EA1.06 Automatic depressurization system RO 4.4 SRO 4.4

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

EA2.04 Adequate core cooling RO 4.6 SRO 4.8

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

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SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2015 NRC EXAM SCENARIO**SCENARIO NUMBER:** ESG-3**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 75 Minutes**REVISION NUMBER:** 0**PROGRAM:**
☐ LICENSED OPERATOR REQUALIFICATION
☒ INITIAL LICENSE
☐ OTHER: _____**REVISION SUMMARY:**

- Initial issue.

PREPARED BY: S. DENNIS/SIGNATURE ON FILE 12-9-2014
INSTRUCTOR DATE

APPROVED BY: M.A. SHAFFER/SIGNATURE ON FILE 12-9-2014
LORT GROUP LEAD OR DESIGNEE DATE

APPROVED BY: L. KOBERLEIN/SIGNATURE ON FILE 12-11-2014
SHIFT OPERATIONS SUPERVISOR OR DESIGNEE DATE

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**I. OBJECTIVE(S):****Enabling Objectives:**

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

II. MAJOR EVENTS:

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

II. SCENARIO SUMMARY:

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

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. INITIAL CONDITIONS:****I.C.***Initial***INITIALIZE** the simulator to 100% power.**ENSURE** CRD F002A is in service.**ENSURE** TACS is being supplied by SACS Loop B**ENSURE** associated Schedule file is open and running IF required.**ENSURE** associated Events file is open IF required.**PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)***Initial***PREPARE** a Fire Alarm for LOPAt a minimum review the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".**EVENT FILE:**

<i>Initial</i>	<i>Event</i>		
	6	Event Code: Description:	et_array(4) & zlcwzpbs LOP Inserted AND SACS Pump D Running
	7	Event Code: Description:	rrlnr <= -129 RPV Water Level < Level 1-Initiate CRD Filter Clogging

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MALFUNCTION SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction DG07B	Diesel Generator B emergency start signal failure
	None	None	Insert malfunction DG03B	LOCA sequencer chan B failure
	None	None	Insert malfunction DG04B	LOP sequencer chan B failure
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	None	None	Insert malfunction RC01	RCIC turbine overspeed
	None	None	Insert malfunction FW12B to 80.00000 in 240 on event 1	High pressure heater BE106 tube leak
	None	None	Insert malfunction SL03A on event 2 delete in 3	Inadvertent SBLC system A initiation
	None	None	Insert malfunction ED11A on event 3	LOSS OF 125 VDC CLASS 1E BUS 10D410
	None	None	Insert malfunction EG12 on event 4	Loss of all off site power
	None	None	Insert malfunction QQ15 after 10 to SEIZE on event 6	SACS pump DP210 trip
	None	None	Insert malfunction CD09A to 0 on event 7	Drive water flow control valve F002A failure
	None	None	Insert malfunction CD08A on event 7	CRD suction filter AF201 clogging
	None	None	Insert malfunction CD08B on event 7	CRD suction filter BF201 clogging
	None	None	Insert malfunction AN-A2A5 after 10 on event 4	CRYWOLF ANN A2A5-FIRE PROT PANEL 10C671

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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>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>6B FWH Tube Rupture: After the Crew assumes the shift, OR, at the discretion of the Lead Examiner, TRIGGER ET-1 (6B FWH Tube Rupture).</p>	<ul style="list-style-type: none"> • Crew recognizes trip of 6B FWH and loss of Feedwater heating by: <ul style="list-style-type: none"> ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ 6B FWH Flashing HTR TRIP light ⇒ CRIDS D2997 "Feedwater Heater BE106" ⇒ 6B FWH Extraction Steam valve HV-1365B closing ⇒ Lowering feed water line temperatures 	<p>The 6B FWH dump valve will not open until after the Feedwater heater trip setpoint is reached.</p> <p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
<p>Insight Items:</p> <ul style="list-style-type: none"> • FW Line Temp A c91a1744 • FW Line Temp B c91a1746 	<ul style="list-style-type: none"> • Crew announces trip of the 6B FWH on the plant page. • Crew recognizes leak in 6B FWH by: <ul style="list-style-type: none"> ⇒ RFPTs speed increasing ⇒ RFP discharge flows rising with lowering feed flow to reactor vessel ⇒ Total Condensate flow rising ⇒ 3/4/5B FWH drain flow rising ⇒ 6B FWH level rising • RO reduces and maintains reactor power to Pre-Feedwater Heater Trip or Isolation Value IAW the SPRI. 	<p>The tube leak will cause a small vessel level transient (≈2 inches).</p>
		<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/> FLAGGING <input type="checkbox"/></p> <p>Immediate Operator Action IAW AB.BOP-0001.</p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF dispatched to BC102, THEN REPORT:</p> <ul style="list-style-type: none"> • 6B FWH level is high on all indicators • There is a 100% air signal on the drain valve • There is a 0% air signal on the dump valve 	<p>* <i>Crew restores/maintains the Core Thermal Power 5 Minute Average to <3848 MWth.</i></p> <ul style="list-style-type: none"> • Crew dispatched TBEO to BC102 panel. • CRS implements AB.BOP-0001: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition B • Crew ensures automatic actions occur: <ul style="list-style-type: none"> ⇒ HV-1365B extraction steam isolation closes ⇒ HV-1366B/1367B/1359B drains open • PO performs the following: <ul style="list-style-type: none"> ⇒ Closes HV-1753B ⇒ Closes HV-1768B ⇒ Ensures extraction steam isolated to 6B FWH IAW SO.AF-0001 Section 5.6 • CRS directs RO to reduce reactor power to IAW AB.BOP-0001 Retainment Override and the SPRI. 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL <input type="checkbox"/> MONITORING</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • IF directed, THEN RO reduces reactor power. • CRS implements AB.RPV-0001: ⇒ Condition B • Crew contacts RE. • IF reactor power was reduced by 15%, THEN CRS/STA/IA recognize the following actions apply: ⇒ T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f) • Crew contacts ESOC and Trading Floor. • Crew contacts Operations Management to initiate Prompt Investigation and ERT callout. 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>
<div> <p>Inadvertent SLC Initiation: After actions for the loss of FW Heating are complete, or at the discretion of the Lead Examiner, TRIGGER ET-2.</p> </div>	<ul style="list-style-type: none"> • Crew recognizes Inadvertent SLC Initiation by: ⇒ OHA C1-C1 SLC SQUIB VLV LOSS OF CONTINUITY ⇒ OHA B3-B5 CORE SPRAY LINE BREAK ⇒ OHA C1-C2 RWCU SYSTEM TROUBLE ⇒ CRIDS D3020 SLC SQUIB XV-F004A CONTINUITY in alarm ⇒ SBLC Pump AP208 indicates running 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>If requested to open breaker, INSERT Remote ET72 to TAGGED and report that the breaker is open.</p>	<ul style="list-style-type: none"> CRS implements AB.RPV-0001: ⇒ Condition G 	<p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>
	<ul style="list-style-type: none"> Crew verifies Reactor Level >-38" and Reactor Pressure remained <1071 psig. 	
	<ul style="list-style-type: none"> RO stops the running A SLC Pump by depressing Standby Liquid Control, Injection Pump A, STOP push button. 	
	<ul style="list-style-type: none"> Crew verifies RWCU isolated. 	
	<ul style="list-style-type: none"> Crew directs opening SLC Pump A breaker 52-212063. 	
	<ul style="list-style-type: none"> CRS determines SLC operability based on SLC Pump AP208 breaker open and Storage Tank level using HC.OP-DL.ZZ-0026, and declares inoperable SLC Pump AP208. 	
	<ul style="list-style-type: none"> Crew determines if SLC solution entered the Reactor. 	
	<ul style="list-style-type: none"> CRS/STA/IA recognize the following Tech Specs actions apply: ⇒ SBLC – Operating 3.1.5, Action A.1 	<p>Need to restore the subsystem in 7 days, or be in Hot S/D in next 12 hours.</p> <p>INPO Fundamentals: <input type="checkbox"/> KNOWLEDGE</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- If SLC entered the Reactor, the CRS initiates action within 15 minutes to reduce power to less than 24% within six hours.
- CRS may refer to AB.CONT-0002 for actions to restore RWCU, Attachment 3.

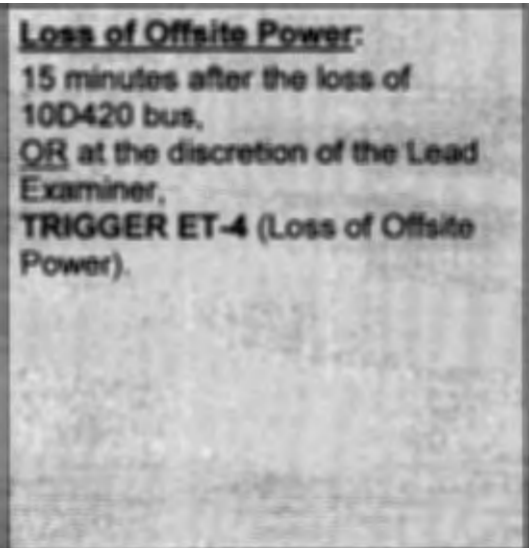
Loss of 10D410:

After the SBLC pump is secured, OR at the discretion of the Lead Examiner, TRIGGER ET-3 (Loss of 10D410 bus).

- Crew monitors Reactor power, pressure, and level and ensures plant conditions are stable.
- Crew recognizes loss of 10D410 by:
 - ⇒ Flashing INOP lights on all 10A401 bus breakers
 - ⇒ 'A' Channel ECCS "LOGIC PWR FAILURE" lights
 - ⇒ Flashing "OVLD/PWR FAIL" lights on HPCI valves w/loss of position indication
 - ⇒ Charger and bus voltage indication on 10C650D
 - ⇒ OHA D3-F2 "125VDC SYSTEM TROUBLE"
 - ⇒ CRIDS Page 166
- CRS implements AB.ZZ-0150.

INPO Fundamentals:
☐ MONITORING

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>IF dispatched to investigate loss of 10D410, THEN REPORT:</p> <ul style="list-style-type: none"> • Bus indicates 0 volts • Both battery charger output breakers are tripped • There is an acrid odor and indication of flash damage at the battery transfer switch • There is no indication of fire 	<ul style="list-style-type: none"> • Crew dispatches ABEO and Maintenance to investigate loss of 10D410 bus. • Crew contacts Operations Management to initiate ERT callout. • CRS/STA/IA recognize the following Tech Specs actions apply: <ul style="list-style-type: none"> ⇒ D.C. Sources - Operating 3.8.2.1 Action a ⇒ Distribution – Operating 3.8.3.1 Action b 	<p>E-0009-1 Sheet 2</p> <p>Need to restore the 1AD411 battery, 10D410 bus, and one charger in two hours, or be in Hot S/D in next 12 hours.</p> <p>INPO Fundamentals: <input type="checkbox"/> KNOWLEDGE</p>
 <p>Loss of Offsite Power: 15 minutes after the loss of 10D420 bus, OR at the discretion of the Lead Examiner, TRIGGER ET-4 (Loss of Offsite Power)</p>	<ul style="list-style-type: none"> • Crew recognizes Loss of Offsite Power by: <ul style="list-style-type: none"> ⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers ⇒ TRIP indication for all 500 KV breakers ⇒ Flashing TRIP lights for all previously closed bus infeeds. ⇒ Numerous OVLD/PWR FAIL lights. 	

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
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WHEN Fire Protection OHA
A2-A5 is received,
THEN ADVANCE Fire Computer
PowerPoint.

WHEN the crew has identified the
fire alarms,
THEN ADVANCE Fire Computer
PowerPoint, AND REMOVE
Malfunction AN-A2A5..

STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION

Reactor Scram Reports

Following a Reactor scram, the
NCO should make an initial scram
report by announcing reactor
status IAW HC.OP-AB.ZZ-0001.
Crew personnel should hold all
other non-essential
communications until after the
initial scram report is complete.
The Control Room Supervisor should
silence alarms during the scram report
and the SM/CRS is not required to make
a statement directing the NCO to check
the overhead alarms, since these
actions are already expected
immediately following the scram.
During the scram report, the NCO
should report reactor level and pressure
and their trends to the Control Room
staff IAW HC.OPAB.ZZ-0001.

- RO performs scram actions
IAW AB.ZZ-0001 Att. 1.

HPI USED:

STAR ☐
HARD CARD ☐

- Crew recognizes RPV Level
Below 12.5" EOP entry
condition by:
 - ⇒ OHA C5-A4 "RPV WATER
LEVEL LO"
 - ⇒ OHA A7-D5 "RPV
LEVEL 3"
 - ⇒ Various water level
indicators

RECORD time LOP
occurred for 15 minute
ECG Classification.

Time: _____

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Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • Crew recognizes Reactor Pressure Above 1037# EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C1-E5 "SRV LO-LO SET ARMED" ⇒ Various RPV pressure indicators 	<p>Due to the loss of both RPS buses, the C5-A5 OHA will not be useful in diagnosing peak pressure during the transient.</p>
<p>STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION EOP 101 RPV Control. Level Leg Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level cannot be maintained above -129", the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185". Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.</p>	<ul style="list-style-type: none"> • CRS implements EOP-101. 	<p>INPO Fundamentals: <input type="checkbox"/> TEAMWORK</p>
	<ul style="list-style-type: none"> • Crew recognizes failure of the 'B' EDG to start and load by: <ul style="list-style-type: none"> ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'B' Channel components 	<p>INPO Fundamentals: MONITORING <input type="checkbox"/></p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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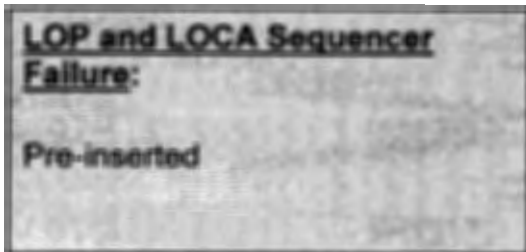
- RO/PO starts the 'B' EDG and ensures it loads auto start.

HPI USED:
STAR ☐

Immediate Operator
Action IAW
AB.ZZ-0135

IF directed to locally start the 'B' EDG,
THEN REMOVE Malfunction
DG07B.

- * ***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.***



- Crew recognizes failure of Channel B loads to automatically start.
- CRS directs the start of Channel B loads.
- RO/PO manually start the following Channel C loads:
⇒ SSW Pump B
⇒ SACS Pump B
- * ***CREW starts "B" SACS Pump to provide cooling to "B" EDG, OR cross-connects to SACS Loop A, to prevent a "B" EDG emergency trip from cooling related problems.***
- PO maintains level and pressure as directed by CRS.

HPI USED:
STAR ☐
HARD CARD ☐

INPO Fundamentals:
☐ CONTROL

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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Note: A UE is required IAW ECG
Section: **SU1.1** Loss of all Offsite
AC power to all 4.16 KV Vital
Buses AND ≥ 15 minutes have
elapsed

- WHEN RPV water level drops below LVL 2,
THEN Crew recognizes RPV LVL 2 by:
 - ⇒ OHA D1-A1 "RRCS POTENTIAL ATWS"
 - ⇒ OHA C1-D3 "REACTOR RECIRC PUMPS TRIP"
 - ⇒ E3-E3 "USS FEEDER BRKR TRBL"
 - ⇒ RPV LVL 2 Load Sheds
 - ⇒ Various RPV level indications

Due to the LOP and loss of power to both RPS buses, the RPV LVL 2 and NSSSS ISLN SIG – RPV LEVEL LO are no longer valid indicators of LVL 2.

WHEN RCIC initiates, it will overspeed.

IF dispatched to RCIC Room,
THEN REPORT the trip of RCIC appears to be an overspeed trip.

- WHEN RCIC initiates,
THEN the Crew recognizes a the RCIC trip by:
 - ⇒ OHA B1-A1 "RCIC TURBINE TRIP"
 - ⇒ CRIDS D2400 in alarm
 - ⇒ RCIC TURB TRIP SOLENOID ENRGZ light illuminated

May be initiated manually before LVL 2 if Crew scrambled promptly on loss of Feedwater.

INPO Fundamentals:
☐ MONITORING

IF dispatched to RCIC Room to reset RCIC, INSERT Remote RC02 to RESET,
THEN REPORT the RCIC overspeed trip is reset.

- RO/PO may direct an equipment operator to reset the overspeed trip of RCIC by:
 - ⇒ Pressing the CLOSE push button for Turbine Trip Throttle Valve HV-4282
 - ⇒ Requesting the equipment operator to reset the overspeed device
 - ⇒ Reopen HV-4282 and attempt to inject with RCIC

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> RO/PO recognizes RCIC trips again on start. CRS directs manual pressure control to maintain RPV pressure below 1037 psig. RO/PO cycle SRVs to maintain pressure as directed by the CRS IAW AB.ZZ-0001 Att. 13. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/> FLAGGING <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>
As ESOC, REPORT it will take at least 10 hours to restore Offsite power to Artificial Island.	<ul style="list-style-type: none"> Crew contacts ESOC for estimated time to restoration of Offsite power. CRS implements AB.ZZ-0135. <u>IF</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833 alarm ⇒ Various Suppression Pool temperature indicators <u>WHEN</u> Suppression Pool temperature reaches 95 degrees, <u>THEN</u> the CRS implements EOP-102. 	Due to RPV water level concerns, may not immediately place 'A' RHR in Supp Pool Clg.

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • <u>WHEN</u> directed by the CRS, <u>THEN</u> RO/PO place 'B' RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3. 	HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/>
	<ul style="list-style-type: none"> • <u>IF</u> Drywell temperature reaches 135 degrees, <u>THEN</u> Crew recognizes Drywell Temp Above 135°F EOP entry condition by: ⇒ Flashing 135 alarm on CRIDS ⇒ Various Drywell temperature indicators 	
	<ul style="list-style-type: none"> • <u>WHEN</u> Drywell temperature reaches 135 degrees, <u>THEN</u> the CRS implements EOP-102. 	
	<ul style="list-style-type: none"> • CRS may direct actions to implement EOP-309 and 310. 	

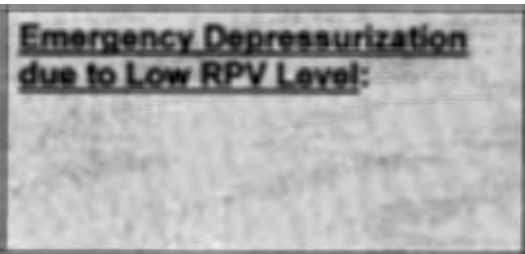
PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to align for two CRD pump injection, <u>THEN PERFORM</u> the following: <u>REFER</u> to SO.BF-0001 Sect 5.4. After 1st pump is running, TRIGGER ET-7 (Suction filter). SET Remote Function for Stby CRD pump discharge valve to 0% (CD01/CD02). REPORT Stby CRD pump ready for start. <u>WHEN</u> Stby CRD is running, <u>THEN RAMP</u> discharge valve to 100% open (CD01/CD02). <u>WHEN</u> directed to locally open the HV-F003, <u>THEN SET</u> Monitor Item lcvp003 = 1.0 <u>AFTER</u> HV-F003 is open, <u>THEN TRIGGER ET-8</u>. <u>WHEN</u> two minutes have elapsed, <u>THEN MODIFY</u> Malfunctions CD09A/B to control injection. Do <u>NOT</u> open valves >75%.</p>	<ul style="list-style-type: none"> • CRS directs injection with two CRD pumps. • RO/PO align CRD for Emergency Two CRD pump injection IAW SO.BF-0001 Sect 5.4. • CRS directs injection with the 'B' SLC pump. • RO/PO start the 'B' SLC pump. 	<p>The HV-F003 Pressure Control Valve has no power.</p> <p style="text-align: right;">HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p> <p>At -129", the CRD Suction filters will clog and shortly thereafter the CRD pumps will trip on Low Suction pressure.</p>
<p>Do <u>NOT</u> restore 10D410 bus.</p>	<ul style="list-style-type: none"> • Crew pursues restoration of 10D410 bus. • Crew recognizes loss of AD481/482 inverters by: <ul style="list-style-type: none"> ⇒ Loss of 'A' Channel PAMS indications ⇒ Loss of power to 'A' Channel electrical indications on 10C650D • As time and resources permit, CRS implements AB.ZZ-0136. 	<p>Inverters are lost during LOP due to loss of 10D410.</p> <p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • Crew recognizes loss of Fuel Pool Cooling by: <ul style="list-style-type: none"> ⇒ OHA D1-D5 "FUEL POOL COOLING SYS TROUBLE" ⇒ Loss of valve position indication on demin isolation valves HV-4676B/4678 ⇒ Pump discharge pressure and flow on CRIDS Page 116 • CRS directs placing the 'B' FPC pump I/S bypassing the filter demins IAW SO.EC-0001. • As time and resources permit, CRS implements AB.ZZ-0171. 	<p>Crew may enter AB.COOL-0004, but no conditions apply.</p> <p>Due to the continuing loss of RPV water level, this action may not be complete by the end of the scenario.</p>
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>Emergency Depressurization Level Response And Control</p> <p>The Control Room Supervisor should ensure that all ECCS is lined up for injection as required prior to initiating an emergency depressurization. Only ECCS required to support RPV reflood needs to be lined up for injection.</p>	<ul style="list-style-type: none"> • Crew ensures available EOP-101 Table 1 systems are running and aligned for injection. • Crew recognizes RPV LVL 1 by: <ul style="list-style-type: none"> ⇒ A7-F5 "RPV LEVEL 1" ⇒ C1-F3 "ADS DRYWELL PRESS BYP TIMER INIT" ⇒ A/C/D ECCS initiations ⇒ Various RPV level indicators 	

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • <u>WHEN</u> RPV level reaches LVL 1, <u>THEN</u> CRS directs inhibiting ADS. • RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13. • RO/PO ensures available ECCS pumps start. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/> 'B' Channel ADS logic has no power.</p>
	<ul style="list-style-type: none"> • <u>WHEN</u> RPV water level is below -129", but before -185", <u>THEN</u> the CRS implements EOP-202 to Emergency Depressurize. • RO/PO opens five ADS valves IAW AB.ZZ-0001 Att. 13. 	<p>INPO Fundamentals: <input type="checkbox"/> TEAMWORK</p> <p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>

Note: WHEN Emergency Depressurization is required, THEN an Alert is required IAW ECG Section:

RB4.L Emergency RPV Depressurization is required (5 pts)

[If the scenario does not run for a full 15 minutes after ADS is required, the Alert Classification may not be declared]

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
-----------------------------	---------------------------------	----------

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

- RO/PO injects with low pressure ECCS IAW AB.ZZ-0001 Att. 4 and/or 5 to restore level as directed by the CRS.

RECORD RPV water level at which five SRVs are opened.

RPV Level: _____

HPI USED:

STAR ☐

HARD CARD ☐

Crew may implement EOP-206, due to only one channel of Fuel Zone level indication, or if indicated level goes below fuel zone.

INPO Fundamentals:

☐ CONTROL

Termination Requirement:

The scenario may be terminated at the discretion of the Lead Examiner after the reactor has been depressurized, and adequate core cooling has been restored.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VI. SCENARIO REFERENCES:**

- A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Hope Creek Event Classification Guide (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-106-101-1001 Event Response Guidelines
- N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- O. OP-HC-108-106-1001 Equipment Operational Control
- P. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- Q. **HC.OP-AB.CONT-0002 Primary Containment**
- R. **HC.OP-AB.COOL-0002 Safety/Turbine Auxiliaries Cooling System**
- S. **HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**
- T. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**
- U. **HC.OP-AB.ZZ-0150 125 VDC Malfunction**
- V. **HC.OP-AB.ZZ-0170 Loss of 4.16 KV Bus 10A401 A Channel**
- W. **HC.OP-AB.ZZ-000 Reactor Scram**
- X. **HC.OP-EO.ZZ-0101 RPV Control**
- Y. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- Z. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
- AA. **HC.OP-SO.BF-0001 CRD Hydraulic System Operation**
- BB. Strategies For Successful Transient Mitigation

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VII. ESG CRITICAL TASK RATIONAL****ESG-3 / 0****1.**

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

K/A 295001 Reactor Feedwater System

A2 Ability to (a) predict the impacts of the following on the Reactor Feedwater System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions of operations:

A2.04 Loss of Extraction Steam RO 3.3 SRO 3.4

K/A 2.2 Equipment Control

2.2.22 Knowledge of limiting conditions for operations and safety limits RO.3.4 SRO 4.1

The loss of Feedwater heating due to the trip of the 4B FWH will drive reactor power to above the licensed limit. Peak power in this transient with no operator action is just over 102% power. This would constitute a violation of our Operating License. HC.OP-IO.ZZ-0006 defines a 5 minute average of 3848 MWth as exceeding the Licensed Power Limit. Taking the Immediate Operator Actions IAW either AB.BOP-0001 or AB.RPV-0001 will prevent this violation.

2.

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

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

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

AA1.02 Emergency generators RO 4.2 SRO 4.3

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

Due to the loss of 10D410, the 'A' EDG and 'A' Channel ECCS components are unavailable. This leaves the 'B' RHR pump as the only immediately available means of removing decay heat from the containment. Initiation of RHR for decay heat removal is one of the operator actions important to preventing core damage in our PRA.

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VII. ESG CRITICAL TASK RATIONAL - Continued

3.

- * **CREW starts "B" SACS Pump to provide cooling to "B" EDG, OR cross-connects to SACS Loop A, to prevent a "B" EDG emergency trip from cooling related problems.**

K/A 295003

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

The continued availability of the "B" diesel generator is required to maintain the capability to place the plant in a cold shutdown condition. If the "B" diesel becomes inoperable (with the "A" diesel currently inoperable), both loops of shutdown cooling will be inoperable and will prevent placing and maintaining the plant in a cold shutdown condition.

4.

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

K/A 295031 Reactor Low Water Level

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

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

EA1.06 Automatic depressurization system RO 4.4 SRO 4.4

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

EA2.04 Adequate core cooling RO 4.6 SRO 4.8

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

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**ESG-3 / 0****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> </u>	LOCA		
<u>TRANSIENTS:</u>		<u>LOSS OF SUPPORT SYSTEMS:</u>	
<u> </u>	Turbine Trip	<u> </u>	Loss of SSW
<u> </u>	Loss of Condenser Vacuum	<u> </u>	Loss of SACS
<u> </u>	Loss of Feedwater		
<u> </u>	Manual Scram		

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY**

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

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VIII. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL: A

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

None

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

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IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST:

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

ESG-3

SELF-CHECK

- _____ 1. Total malfunctions inserted: 5-8
- _____ 2. Malfunctions that occur after EOP entry: 1-4
- _____ 3. Abnormal Events: 2-3
- _____ 4. Major Transients: 1-2
- _____ 5. EOPs used beyond primary scram response EOP: 1-3
- _____ 6. EOP Contingency Procedures used: 0-3
- _____ 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- _____ 8. EOP run time: 40-70% of scenario run time
- _____ 9. Crew Critical Tasks: 2-5
- _____ 10. Technical Specifications are exercised during the test: >1

Comments:

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)**

<u>Crew Validation</u>		Rev.: <u>0</u>	Date Validated: <u>11/5/2014</u>
Validated with operators (1 SRO, 2 ROs).			
Validation Comments		Disposition	
1. Incorporated changes and comments from validation on 10/30/2014		1. Changes made.	
2. Revise Critical Task #4. Add TACS supply to IC. Revise Tech Spec references. Incorporate minor scenario comments.		2. Changes made.	

<u>Crew Validation</u>		Rev.: _____	Date Validated: _____
Validated with operators from Crew .			
Validation Comments		Disposition	
1.		1.	

Facility: <u>Hope Creek</u>	Scenario No.: <u>4</u>	Op-Test No.: <u>2015</u>
Examiners: _____	Operators: _____	(SRO)
_____	_____	(RO)
_____	_____	(BOP)
Initial Conditions: <u>100% Power.</u>		
Turnover:		
<u>Maintain 100% power.</u>		
ESG-082 Modified		

Event No.	Malfunction No.	Event Type*	Event Description
1		N(BOP) N(SRO)	Containment O2 Weekly Surveillance Test
2		C(BOP,SRO) R(ATC,SRO) TS(SRO)	SRV Open/Closes
3		C(BOP) C(SRO)	Earthquake- Service Air Compressor Trip
4		C(ATC) C(SRO)	RWCU Pump Leak-Failure to Automatically Isolate
5		C(ALL)	Air Leak w/Multiple Rod Drift -Scram
6		M(ALL)	LOP-Station Blackout
7		C(BOP) C(SRO)	LOCA Requiring Steam Cooling-RCIC Isolation
8		C(BOP) C(SRO)	RHR Injection Failure

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

ESG-4

SCENARIO SUMMARY:

The scenario begins with the plant at 100% power; 3840 MWt, MOL. The Weekly Containment O2 Surveillance Test must be completed. During the test a Safety Relief Valve will open. Actions taken by the crew to close the SRV will be successful. A seismic event greater than the OBE will occur and the 10K107 Service Air Compressor will trip. This will require the 00K107 to be placed in service. An aftershock will cause a leak in the Reactor Water Cleanup System. RWCU will fail to automatically isolate, but can be isolated from the Control Room. After the RWCU leak is isolated and Technical Specifications are addressed, an air leak will develop on the scram air header. The air leak will cause multiple control rods to drift in, requiring a manual reactor scram. After the scram, another aftershock will occur. The aftershock will cause a loss of offsite power and LOCA. Only the 'A' EDG will start. The HPCI F001 will fail to open, rendering HPCI inoperable. When the 'A' RHR pump starts, the 'A' EDG will trip. During RPV level control RCIC will inadvertently isolate, rendering it inoperable. This will result in a Station Blackout with no available injection. When RPV water level reaches -200", the Crew must emergency depressurize. After the Crew opens five SRVs, the 'C' EDG will be restored to service. RHR Pump C will fail to automatically start and inject, and must be started and aligned for injection by the Crew. After RPV water level is restored to above -185" using the available RHR pump, the 'A' EDG will be restored to service. This will allow containment control to be exercised. The scenario is terminated when the RPV has been depressurized and RPV water level restored.

CRITICAL TASK SUMMARY:

- * **Before more than two minutes has elapsed from SRV opening, CREW closes F013A by cycling EITHER F013A AUTO/OPEN control switches to OPEN and back to AUTO.**

K/A 239002 Safety Relief valves

A2. Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations:

A2.03 Stuck open SRV RO 4.1 SRO 4.2

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

A4.01 SRV's RO 4.4 SRO 4.4

Immediate Operator Actions in AB.RPV-0006 direct cycling the SRV control switch in an attempt to close the SRV. Cycling the control switches cycles the SRV pilot valve, and may result in clearing debris or reseating the pilot valve such that the SRV closes. Failing to perform this action would result in the SRV remaining open for more than two minutes, which would require a manual scram IAW with Tech Specs. This would result in an unnecessary scram transient. Two minutes is adequate time to validate the SRV is open and cycle the appropriate control switch.

- * **Crew initiates closure of RWCU HV-F001 OR HV-F004 when OHA C1-A2 "RWCU DIFF FLOW HI" alarms.**

K/A 223002 Primary Containment Isolation System / Nuclear Steam Supply Shut-Off

A4 Ability to manually operate and/or monitor in the Control Room

A4.01 Valve Closures RO 3.6 SRO 3.5

A4.06 Confirm initiation to completion RO 3.6 SRO 3.7

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

- * **Crew scrams the reactor after multiple rod drifts.**

K/A 201003 Control Rod and Drive Mechanism

A2 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.03 Drifting rod RO: 3.4 SRO 3.7

Having multiple rods inserting into the core out of sequence places the core in an unanalyzed condition. Thermal Limits may be violated resulting in fuel damage and a potential for radiological release. The Neutron Monitoring System is not designed to protect the core under these conditions and operator action is required.

CRITICAL TASK SUMMARY:

- * **Crew opens at least five SRVs after compensated reactor water level reaches -200".**

K/A 295031 Reactor Low Water Level

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

EA.06 Automatic depressurization RO 4.4 SRO 4.4

When Reactor water level cannot be maintained above -200" without injection to the RPV, adequate core cooling cannot be assured (Minimum Zero Injection Reactor Water Level). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there is no injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restores level with low pressure ECCS.

- * **WHEN the 'C' EDG is restored, THEN the Crew injects with the 'C' RHR pump and restores and maintains RPV water level 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 (RHR) RO 4.4 SRO 4.4

The automatic opening of the HV-F017A is failed. 'C' RHR is the only ECCS pump available for injection (although the 'C' Core Spray pump is running, there is no power to the injection valve due to the loss of the 'A' EDG). Operator action will be required to initiate injection and restore/maintain adequate core cooling. The absence of a time limit is due to the potential variance in reactor pressure when the 'C' RHR pump becomes available. The pump may become available before or after the permissible injection pressure for the RHR pump (IAW AB.ZZ-0001) is reached. This action must therefore be complete before the end of the scenario. Inherent to this critical task is the Crew dispatching personnel to investigate the failure of the 'C' EDG to start. If no one is sent to investigate, the EDG will NOT be restored to service.

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SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: 2015 NRC EXAM SCENARIO

SCENARIO NUMBER: ESG-4

EFFECTIVE DATE: Effective When Approved

EXPECTED DURATION: 75 Minutes

REVISION NUMBER: 0

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

REVISION SUMMARY:

- Initial issue.

PREPARED BY:	<u>S. DENNIS/SIGNATURE ON FILE</u> INSTRUCTOR	<u>12-9-2014</u> DATE
APPROVED BY:	<u>M.A. SHAFFER/SIGNATURE ON FILE</u> LORT GROUP LEAD OR DESIGNEE	<u>12-9-2014</u> DATE
APPROVED BY:	<u>L. KOBERLEIN/SIGNATURE ON FILE</u> SHIFT OPERATIONS SUPERVISOR OR DESIGNEE	<u>12-11-2014</u> DATE

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**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. Containment O2 Weekly Surveillance Test
- B. SRV Open/Closes
- C. Earthquake- Trip of Service Air Compressor
- D. RWCU Pump Leak-Failure to Automatically Isolate
- E. Air Leak w/Multiple Rod Drift
- F. LOP/Station Blackout
- G. LOCA w/Steam Cooling-RCIC Isolation
- H. RHR Injection Failure

II. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power, 3840 MWt, MOL. The Weekly Containment O2 Surveillance Test must be completed. During the test a Safety Relief Valve will open. Actions taken by the crew to close the SRV will be successful. A seismic event greater than the OBE will occur and the 10K107 Service Air Compressor will trip. This will require the 00K107 to be placed in service. An aftershock will cause a leak in the Reactor Water Cleanup System. RWCU will fail to automatically isolate, but can be isolated from the Control Room. After the RWCU leak is isolated and Technical Specifications are addressed, an air leak will develop on the scram air header. The air leak will cause multiple control rods to drift in, requiring a manual reactor scram. After the scram, another aftershock will occur. The aftershock will cause a loss of offsite power and LOCA. Only the 'A' EDG will start. The HPCI F001 will fail to open, rendering HPCI inoperable. When the 'A' RHR pump starts, the 'A' EDG will trip. During RPV level control RCIC will inadvertently isolate, rendering it inoperable. This will result in a Station Blackout with no available injection. When RPV water level reaches -200", the Crew must emergency depressurize. After the Crew opens five SRVs, the 'C' EDG will be restored to service. RHR Pump C will fail to automatically start and inject, and must be started and aligned for injection by the Crew. After RPV water level is restored to above -185" using the available RHR pump, the 'A' EDG will be restored to service. This will allow containment control to be exercised. The scenario is terminated when the RPV has been depressurized and RPV water level restored.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. INITIAL CONDITIONS:****I.C.***Initial***INITIALIZE** the simulator to 100% power MOL.**ENSURE** 10K107 Service Air Compressor is in service.**ENSURE** TACS is supplied from SACS B.**ENSURE** Schedule and/or Event File(s) is(are) open as required.**PREP FOR TRAINING (i.e., RM-11 set points, procedures, bezel covers)***Initial***MARKUP** HC.OP-ST.GS-0001, Section 5.1 for approval to commence test.**PREPARE** a Fire Alarm for LOP.**REVIEW**, at a minimum, the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)**COMPLETE** "Simulator Ready-for-Training/Examination Checklist".**EVENT FILE:**

<i>Initial</i>	<i>Event</i>		
	2	Event Code: Description:	zdads1(1) zdads2(1) Either F013A Control Switch to OPEN
	6	Event Code: Description:	iapiarca <= 82 Instrument Air Pressure <=82 psi
	12	Event Code: Description:	rh_bkr(1) RHR Pump A Start

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MALFUNCTION SCHEDULE:				
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction HP04	HPCI system fails to start
	None	None	Insert malfunction DG01C	Diesel generator C failure to start
	None	None	Insert malfunction AD01	Failure of ADS valves to open
	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 DG02B	Diesel generator B failure
	None	None	Insert malfunction DG02D	Diesel generator D failure
	None	None	Insert malfunction RH08C	RHR System C auto injection failed to energized
	None	None	Insert malfunction RC06 after 240 on event 7	RCIC system isolation
	None	None	Insert malfunction AD02AO on event 1	ADS/Relief valve F013A (MS LINE A) sticks open
	None	None	Insert malfunction AD02AO on event 2 delete in 1	ADS/Relief valve F013A (MS LINE A) sticks open
	None	None	Insert malfunction PC07B on event 3	Seismic Event II
	None	None	Insert malfunction IA01A after 20 on event 3	Service air compressor 10K107 failure
	None	None	Insert malfunction CU03 from 10.00000 to 35.00000 in 600 on event 4	RWCU system leak
	None	None	Insert malfunction IA02 to 60.00000 on event 5	Gradual loss of instrument air
	None	None	Insert malfunction EG12 on event 7	Loss of all off site power
	None	None	Insert malfunction RR31A2 after 180 to 3.00000 in 300 on event 7	Recirc loop A large break [V] (10%~6000 gpm, 100%~60000 gpm)
	None	None	Insert malfunction DG02A after 3 on event 12	Diesel generator A failure
	None	None	Insert malfunction PC07A after 1 on event 7	Seismic Event II
	None	None	Insert malfunction DG02A on event 8 delete in 1	Diesel generator A failure

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction CD011427 after 1 on event 6	Control Rod 14-27 drift in
	None	None	Insert malfunction CD011827 after 1 on event 6	Control Rod 18-27 drift in
	None	None	Insert malfunction CD012227 after 1 on event 6	Control Rod 22-27 drift in
	None	None	Insert malfunction CD012627 after 1 on event 6	Control Rod 26-27 drift in

REMOTE SCHEDULE:

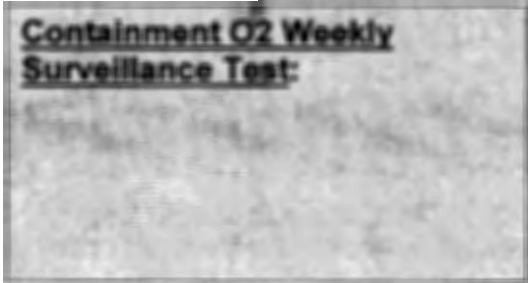
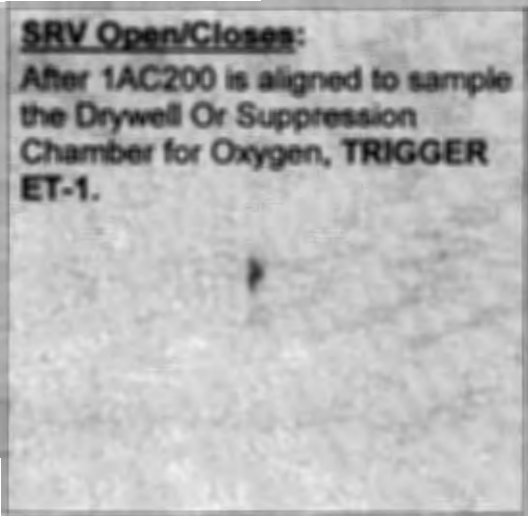
<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote DG05 after 5 to RESET on event 8	DG05 Diesel generator A shutdown relay
	None	None	Insert remote DG01 after 20 to RESET on event 8	DG01 Diesel generator A lockout relay
	None	None	Insert remote HP08 to TAGGED on event 13	HP08 HPCI Aux Oil Pump

OVERRIDE SCHEDULE:

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

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS directs commencing Drywell and Suppression Chamber Oxygen Concentration Verification – Weekly IAW HC.OP-ST.GS-0001. PO aligns containment sampling IAW HC.OP-ST.GS-0001. 	
	<ul style="list-style-type: none"> Crew recognizes open SRV by: <ul style="list-style-type: none"> ⇒ OHA C1-A3 "ADS/SAFETY RELIEF VLV NOT CLOSED" ⇒ Acoustic Monitor indication ⇒ CRIDS D5005 "SAFETY RELIEF VALVE F013A" ⇒ Total steam flow lowering ⇒ Main Gen MWe lowering ⇒ RPV level swell ⇒ Elevated SRV tailpipe temperature CRS implements AB.RPV-0006. RO reduces reactor power to 95% using TCF. PO cycles SRV control switches in attempt to close the SRV. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>Immediate Operator Action IAW AB.RPV-0006.</p> <p>Immediate Operator Action IAW AB.RPV-0006.</p>
<p>F013A InSight Items:</p> <ul style="list-style-type: none"> Valve Position advpos(1) CH B AUTO/OPEN Switch zdads1(1) CH D AUTO/OPEN Switch zdads2(1) 		

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> * <i>Before more than two minutes has elapsed from SRV opening, CREW closes F013A by cycling EITHER F013A AUTO/OPEN control switches to OPEN and back to AUTO.</i> 	<p>RECORD elapsed time SRV was open:</p> <p>TIME: _____</p>
	<ul style="list-style-type: none"> Crew recognizes SRV closed by: <ul style="list-style-type: none"> ⇒ Acoustic Monitor indication ⇒ Total steam flow rising ⇒ Main Gen MWe rising ⇒ RPV level shrink ⇒ Lowering SRV tailpipe temperature 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> MONITORING</p>
	<ul style="list-style-type: none"> CRS recognize the following Tech Spec actions apply: <ul style="list-style-type: none"> ⇒ Suppression Chamber-Drywell Vacuum Breakers 4.6.4.1.b.1 	<p>Must perform functional test of vacuum breakers within 12 hours.</p>
	<ul style="list-style-type: none"> CRS refers to the following Tech Spec statements to determine SRV operability: <ul style="list-style-type: none"> ⇒ 3.4.2.1 ⇒ 3.4.2.2 ⇒ 3.5.1.d 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> KNOWLEDGE</p> <p>Tracking LCOs: 3.4.2.1 and 3.4.2.2</p> <p>Active LCO: 3.5.1.d</p>
	<ul style="list-style-type: none"> CRS refers to AB.RPV-0001 <ul style="list-style-type: none"> ⇒ Condition B 	
	<ul style="list-style-type: none"> SM contacts Operations Management. 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Earthquake: AFTER Technical Specifications for the SRV have been addressed, OR at the discretion of the Lead Examiner:</p> <ul style="list-style-type: none"> • PLAY the Earthquake Sound Effect (if available) at medium volume for about 20 seconds OR ANNOUNCE "You feel motion then it stops", AND TRIGGER ET-3 (Seismic Event) 	<ul style="list-style-type: none"> • Crew recognizes Seismic Event by: <ul style="list-style-type: none"> ⇒ OHA C6-C4 "SEISMIC MON PNL C673" ⇒ CRIDS D3977 "SEISMIC TROUBLE ALARM TRBL" ⇒ Response Spectrum Analyzer indications on 10C650C ⇒ Loud rumbling noise (if available) • Crew monitors critical parameters to determine if plant is stable. • CRS implements AB.MISC-0001: <ul style="list-style-type: none"> ⇒ Condition E ⇒ Condition F • RO/PO implements AR.ZZ-0011 Attachment C4. • Crew dispatches ABEO to 10C673. • Crew recognizes a seismic event >0.1g has occurred 	<p>RECORD time C6-C4 alarms for 15 minute ECG Classification.</p> <p>TIME: _____</p> <p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p> <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>IF Crew calls National Earthquake Center, THEN REPORT a seismic event of 6.0 on Richter scale centered 12 miles east of Wilmington, DE.</p> <p>IF Crew calls Security, THEN REPORT the Security system is intact.</p>		
<p>IF dispatched to 10C673, THEN REPORT:</p> <ul style="list-style-type: none"> • The SM-3 Event Indicator is WHITE. • The SMA-3 Event alarm is extinguished. • The tape machines have advanced but are not running. • The Amber Alarm light on the Seismic Switch Power Supply drawer is lit. 		

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> directed to reset 10C673, <u>THEN DELETE</u> Malfunction PC07B.</p>	<ul style="list-style-type: none"> • RO/PO direct ABEO to reset 10C673 IAW SO.SG-0001. • RO/PO record Seismic Response Spectrum Analyzer lights on AR.ZZ-0011 Att. C4-1. • RO/PO reset Seismic Response Spectrum Analyzer IAW SO.SG-0001. • Crew determines a shutdown IAW IO.ZZ-0004 is required. 	

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Event / Instructor Activity	Expected Plant/Student Response	Comments
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NOTE: An Alert Classification is required IAW ECG Section **HA1.1**:

Actuation of the OBE Seismic Switch (>0.1 g) as indicated by EITHER:

- Annunciator C6-C4 (SEISMIC MON PNL C673) activated
- Amber alarm light on the Seismic Switch Power Supply Drawer Panel 10C673

AND

Earthquake confirmed by ANY of the following:

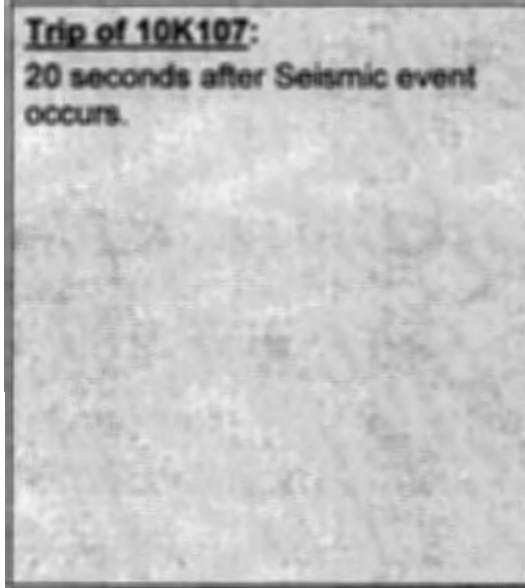
- Earthquake felt in plant by Control Room Operators
- National Earthquake Information Center (NEIC) (Note 4)
- Control Room indication of DEGRADED PERFORMANCE of a Safety System within a Table H-1 structure:

Table H-1

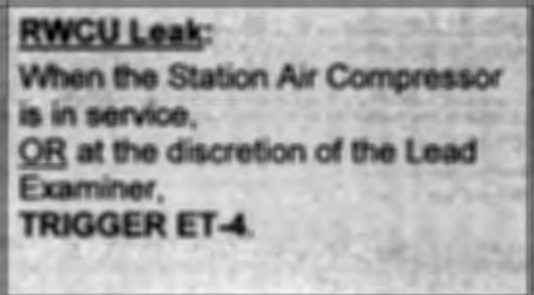
- Reactor Building
Control/Auxiliary Building
- Service Water Intake
Structure Service/
Radwaste Building

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • Crew recognizes loss of 10K107 by: <ul style="list-style-type: none"> ⇒ OHA A2-B2 "COMPRESSED AIR PANEL 00C188" ⇒ OHA A2-A1/A2 "INST AIR HEADER A/B PRESS LO" ⇒ CRIDS D4601 "INSTR AIR SPLY HDR A PRESS LO" ⇒ CRIDS D4602 "INSTR AIR SPLY HDR B PRESS" LO ⇒ OVLD/PWR FAIL light ⇒ Lowering Service and Instrument Air pressures • PO places 00K107 in service IAW AB.ZZ-0001 Attachment 7. <ul style="list-style-type: none"> ⇒ PRESS 00K107 MAN PB. ⇒ ENSURE 00K107 Cooling Water Booster Pumps starts. ⇒ PRESS 00K107 AUX OIL PUMP START PB. ⇒ OBSERVE 00K107 MOP starts following 20 second TD. ⇒ PRESS 00K107 Auxiliary Oil Pump STOP PB. ⇒ VERIFY lube oil pressure is adequate by only MOP RUNNING. ⇒ PRESS 00K107 START PB. • CRS implements AB.COMP-001: <ul style="list-style-type: none"> ⇒ Condition A • STA/IA monitors AB.COMP-0001 implementation. 	<p>The primary purpose of the air malfunctions is to exercise the immediate operator actions for trip of the in-service Service Air compressor.</p> <p>Immediate Operator Action IAW AB.COMP-0001.</p> <p>HPI USED: STAR <input checked="" type="checkbox"/> HARD CARD <input type="checkbox"/></p>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> dispatched to check status of RACS demins, <u>AND</u> the EIAC is running, <u>THEN REPORT</u> the RACS demins are isolated.</p> <p><u>IF</u> dispatched to check status of HV-11416, <u>AND</u> Remote Function IA01 status is ONLINE, <u>THEN REPORT</u> the HV-11416 is open.</p>	<ul style="list-style-type: none"> <u>IF</u> Instrument Air Header Pressure reaches 85 psig, <u>THEN</u> CRS implements AB.COMP-0001: ⇒ Condition C 	
<p><u>IF</u> dispatched to investigate the trip of 10K107, <u>THEN REPORT</u> VIBRATION ALARM and VIBRATION SHUTDOWN alarms were in.</p>	<ul style="list-style-type: none"> Crew dispatches TBEO and Maintenance to investigate trip of 10K107. 	
	<ul style="list-style-type: none"> Crew recognizes RWCU leak by: ⇒ CRIDS indication and alarm 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>InSight Items:</p> <ul style="list-style-type: none"> RWCU Diff Flow cufdelta <p>IF dispatched to look for the leak, <u>THEN</u> REPORT the unable to determine leak location.</p> <p>NOTE: CREW may isolate RWCU before alarm conditions exist.</p>	<ul style="list-style-type: none"> Crew recognizes leak from RWCU by: <ul style="list-style-type: none"> ⇒ Rising differential flows on NUMAC and CRIDS RWCUDF page 61 ⇒ OHA D3-B3 "RWCU STM LK ISLN TIMER INITIATED" ⇒ CRIDS D5871 "RWCU ISLN TIMER INITIATED CH D" ⇒ CRIDS D5873 "RWCU ISLN TIMER INITIATED CH A" ⇒ CRIDS RWCUDF "RWCU DIFFERENTIAL FLOW" in alarm. 	<p>Room temperatures will not provide conclusive evidence of leak.</p> <p>RWCU differential flow will reach the alarm setpoint about 7.5 minutes after leak starts.</p> <p>If RWCU is isolated before differential flow setpoint is reached, alarms will not be received.</p>
<p>InSight Items:</p> <ul style="list-style-type: none"> 'A' Channel Isolation cu_k6a09 'D' Channel Isolation cu_k6d11 	<ul style="list-style-type: none"> Crew recognizes failure of RWCU to isolate by: <ul style="list-style-type: none"> ⇒ OHA C1-A2 "RWCU DIFF FLOW HI" ⇒ CRIDS D5870 "RWCU DIFF FLOW CH D" ⇒ CRIDS D5872 "RWCU DIFF FLOW CH A" 	<p>If RWCU is isolated before differential flow setpoint is reached, isolation will not be received.</p>
<p>InSight Items:</p> <ul style="list-style-type: none"> HV-F001 cuvf001 HV-F004 cuvf004 	<ul style="list-style-type: none"> RO/PO closes RWCU HV-F001 and HV-F004. 	<p>HPI USED: STAR <input type="checkbox"/></p> <p>Immediate Operator action IAW AB.CONT-0002.</p>
	<p>* <i>Crew initiates closure of RWCU HV-F001 OR HV-F004 when OHA C1-A2 "RWCU DIFF FLOW HI" alarms.</i></p>	<p>Closing the RWCU HV-F001 <u>OR</u> HV-F004 prior to receiving OHA C1-A2 satisfies this Critical Task.</p>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew isolates RWCU IAW SO.BG-0001 OR AB.CONT-0004 Condition C 	<p>HPI USED: STAR <input type="checkbox"/></p>
	<ul style="list-style-type: none"> CRS implements AB.CONT-002: <ul style="list-style-type: none"> ⇒ Condition A ⇒ Condition B 	Condition A applies if C1-A2 is received.
	<ul style="list-style-type: none"> Crew validates isolation by trending: <ul style="list-style-type: none"> ⇒ RWCU differential flow 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
	<ul style="list-style-type: none"> <u>IF</u> the leak was not isolated before the isolation signal was received, <u>THEN</u> CRS/STA/IA recognize the following Tech Specs apply: <ul style="list-style-type: none"> ⇒ Primary Containment Isolation Valves 3.6.3 action a ⇒ Primary Containment Integrity 3.6.1.1 	<p>Need to restore valves to OPERABLE or deactivate the HV-F001 or HV-F004 in the next four hours.</p> <p>May also refer to T/S 3.3.2, although both trip systems would already be tripped and the valves already shut.</p>
	<ul style="list-style-type: none"> Crew contacts Operations Management to initiate ERT callout. 	<p>INPO Fundamentals: <input type="checkbox"/> KNOWLEDGE</p>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>Multiple Rod Drifts: WHEN RWCU is isolated, OR at the discretion of the Lead Examiner, TRIGGER ET-5.</p> <p>The multiple rod drift is automatically inserted when instrument air pressure drops to 82 psig.</p>	<ul style="list-style-type: none"> • Crew recognizes multiple rods drifting into the core by: <ul style="list-style-type: none"> ⇒ OHA C6-E3 "ROD DRIFT" ⇒ Multiple "DRIFT", lights on Full Core display ⇒ RWM drifting rods indication ⇒ CRIDS C078 "ROD DRIFT ALARM ALM" ⇒ Lowering reactor power and Main Generator output • RO locks the Mode Switch in SHUTDOWN. * <i>Crew scrams the reactor after multiple rod drifts.</i> • RO performs scram actions IAW AB.ZZ-0001 Att 1. • Crew recognizes RPV Level Below 12.5" EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA C5-A4 "RPV WATER LEVEL LO" ⇒ OHA A7-D5 "RPV LEVEL 3" ⇒ Various water level indicators 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p> <p>RECORD the time between OHA C6-E3 and reactor scrambled.</p> <p>TIME: _____</p> <p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>Pressure Leg</p> <p>Direct initial pressure control as Stabilize pressure 800 psig to 1000 psig. The lower limit of 800 psig will not complicate RPV level maintenance and will prevent an unwanted cooldown. The upper limit of 1000 psig is a round number below 1047 psig. Do NOT allow the use of SRVs to interfere with Bypass valves. Use the main turbine when steam production exceeds the capacity of the Bypass valves should supersede concerns for turbine damage due to vibrations or other concerns.</p>	<ul style="list-style-type: none"> • CRS implements EOP-101. • STA/IA performs the following: <ul style="list-style-type: none"> ⇒ Verifies Rx shutdown ⇒ Trends critical plant parameters ⇒ Monitors EOP implementation • PO controls RPV water level as directed by CRS IAW AB.ZZ-0001 Att 14. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> TEAMWORK</p>
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION</p> <p>Level Leg</p> <p>Direct an initial band of +12.5" to +54" Rx level. This gives a manageable band with level control still in the indicating range. If controlling Reactor Pressure with SRVs and the MSIVs are closed, then the RPV level band assigned should be -30" to +30" to avoid high level trips of injection systems when the reactor is being depressurized and to maintain forced circulation in the RPV. When maintaining RPV level is challenged by a lack of high pressure feed sources, and RPV level can not be maintained above -129", the crew should anticipate the actions that are necessary to implement EOP-202 and emergency depressurize the reactor prior to RPV level reaching -185". Reducing reactor pressure under these conditions in anticipation of implementing EOP-202 is not permitted since RPV level would be further challenged without sufficient high pressure feed sources available to maintain level.</p>		

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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IF called as the ESOC, **THEN REPORT** both the Hope Creek AND Salem switchyards are de-energized. It will take a minimum of 6-10 hours to restore power once the transient has been investigated.

- Crew recognizes Loss of Offsite Power by:
 - ⇒ OHA "STA SERVICE TRANSFORMER TROUBLE" for all transformers
 - ⇒ TRIP indication for all 500 KV breakers
 - ⇒ Flashing TRIP lights for all previously closed bus infeeds.
 - ⇒ Numerous OVLD/PWR FAIL lights.

- Crew recognizes failure of the B/C/D EDGs to start and load by:
 - ⇒ Engine STOP lights
 - ⇒ Output breaker TRIP lights
 - ⇒ OVLD/PWR lights on associated Channel components

- RO/PO attempt to start the B/C/D EDGs.

Only 'A' EDG will start. 'A' EDG will trip when the 'A' RHR pump is started.

HPI USED:
 STAR ☐
 PEER CHECK ☐

Immediate Operator
 Action IAW AB.ZZ-0135

- CRS implements AB.ZZ-0135.

INPO Fundamentals:
☐ TEAMWORK

IF dispatched to investigate the failure of B/D EDGs to start, **THEN REPORT** both EDGs have Lube Oil Low Pressure Shutdown alarms. There is oil on EDG room floors.

- Crew dispatches NEO and/or Maintenance to investigate failure of B/D EDGs to start.

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>IF</u> dispatched to investigate the failure of the 'C' EDG to start, THEN REPORT there is a blown fuse on DC Circuit 3 on the CC421 panel.</p> <p><u>IF</u> directed to start the EDG using either local control switch, THEN REPORT it did not work. (AR.KJ-0005 Att. 37A)</p> <p><u>IF</u> dispatched to check 86, SFR, and SDR relays for 'C' EDG, THEN REPORT:</p> <ul style="list-style-type: none"> • 86 lockout relays are reset (CC422, elev 137') • Blue buttons on SFR and SDR are out (de-energized) (CC421 elev 102') • Maintenance expects to replace the fuse within 30 minutes. 	<ul style="list-style-type: none"> • Crew dispatches NEO and/or Maintenance to investigate failure of 'C' EDG to start. 	
<p><u>IF</u> dispatched to determine status of HPCI, THEN REPORT</p> <ul style="list-style-type: none"> • HPCI is idle • HPCI Aux oil pump is running. • HV-F001 is closed <p><u>IF</u> directed to open the breaker for the HPCI Aux Oil pump, (72-251042) THEN TRIGGER ET-13.</p> <p><u>IF</u> directed to open HV-F001 by hand, REPORT HV-F001 will not move</p>	<ul style="list-style-type: none"> • Crew recognizes HPCI F001 problem by: <ul style="list-style-type: none"> ⇒ HPCI Aux Oil Pump running ⇒ HV- F001 not open ⇒ "HPCI INIT AND SEALED IN" light on • CRS directs injecting with 'A' SLC pump. 	<p>INPO Fundamentals:</p> <p><input type="checkbox"/> MONITORING</p> <p>Only available injection source.</p>

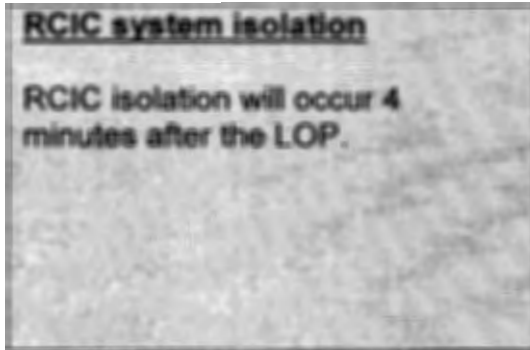
V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
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- RO/PO starts the 'A' SLC pump.

HPI USED:
STAR ☐

INPO Fundamentals:
☐ CONTROL



- RO/PO identifies isolation of RCIC by:
 - ⇒ OHA B1-A1 "RCIC TURBINE TRIP"
 - ⇒ CRIDS D2400 in alarm
 - ⇒ ISLN INIT Status Lights illuminated
 - ⇒ BD-HV-FOO7 AND F008 CLOSING
- Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by:
 - ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH"
 - ⇒ Flashing 95 degree status light on 10C650C
 - ⇒ RM11 9AX833/834 alarm
 - ⇒ Various Suppression Pool temperature indicators
- Crew recognizes Supp Pool Level Above 78.5 In EOP entry condition by:
 - ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO"
 - ⇒ Various Suppression Pool level indicators

Given the lowering RPV water level, and 'A' RHR being the only available RHR pump, the Crew may not place 'A' RHR in Suppression Pool cooling at this time.

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.

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Event / Instructor Activity	Expected Plant/Student Response	Comments
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Station Blackout/Stm Clg:

The 'A' EDG will trip 3 seconds after the 'A' RHR pump starts. This will automatically occur at 1.68#, if the Crew doesn't start it sooner.

IF dispatched to investigate the trip of the 'A' EDG, THEN REPORT you heard the EDG slow down, then speed up and trip. Alarm on local panel is ENGINE OVERSPEED.

- Crew recognizes trip of the 'A' EDG by:
 - ⇒ Diesel engine STOP light
 - ⇒ Flashing generator breaker TRIP light
 - ⇒ OVLD/PWR FAIL lights on associated channel loads

- Crew dispatches NEO and/or Maintenance to investigate trips of the 'A' EDG.

- CRS recognizes **no** pumps are lined up available for injection and Steam Cooling is required.

INPO Fundamentals:
☐ MONITORING

- WHEN RPV water level reaches -129", THEN CRS directs inhibiting ADS.

INPO Fundamentals:
☐ CONTROL

WHEN the 'A' EDG trips, THEN an SAE is required IAW ECG Section **SS1.1** (Loss of all Power (Onsite and Offsite) to all 4.16 KV Vital Buses AND >15 minutes have elapsed)

- RO/PO inhibits ADS IAW AB.ZZ-0001 Att. 13.

HPI USED:

STAR ☐
HARD CARD ☐

May NOT be declared if within 15 minutes: power is restored to a 4.16 KV Vital Bus; or a GE is declared.

- WHEN RPV water level reaches -200", THEN CRS directs opening five ADS SRVs.

INPO Fundamentals:
☐ MONITORING

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- RO/PO opens five ADS SRVs
IAW AB.ZZ-0001 Att. 13.

HPI USED:
STAR ☐
HARD CARD ☐

WHEN at least five SRVs are open,
THEN DELETE Malfunction **DG01C** to restore the 'C' EDG to service,
AND REPORT the 'C' EDG has been successfully started.

- * ***Crew opens at least five SRVs after compensated reactor water level reaches -200".***

Note: WHEN RPV level cannot be restored and maintained above TAF, THEN a GE is required IAW ECG Section **SG1.1**:

ANY of the following:

- Restoration of at least one Vital Bus in <4 hrs is NOT likely
- RPV level CANNOT be restored and maintained above -161 in.
- RPV level CANNOT be determined.

May NOT be declared if scenario does NOT run for 15 minutes after RPV water level drops below TAF.

SUPPORT any requests to place ECCS pumps in PTL using Remote Functions:

- **CS05C** for 'C' Core Spray
- **RH23C** for 'C' RHR

- Crew recognizes start of the 'C' EDG by:
 - ⇒ Diesel engine START light
 - ⇒ Generator breaker CLOSE light
 - ⇒ OVLD/PWR FAIL lights extinguished on associated channel loads

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>RHR INJECTION FAILURE The auto start of the 'C' RHR pump and auto opening of the F017C are failed.</p> <p><u>AFTER</u> the Crew restores RPV water level to above -185", <u>THEN REPORT</u> you are ready to restore the 'A' EDG to service. The governor oil level was low and has been restored to normal.</p> <p>SUPPORT any requests to place ECCS pumps in PTL using Remote Functions:</p> <ul style="list-style-type: none"> • CS05A for 'A' Core Spray • RH23A for 'A' RHR <p><u>IF</u> directed to restore the 'A' EDG to service, <u>AND</u> after level has been restored with 'C' EDG, <u>THEN TRIGGER ET-8 AND REPORT</u> the 'A' EDG has been successfully restarted.</p>	<ul style="list-style-type: none"> • RO/PO starts the 'C' RHR pump, opens the HV-F017C, and restores RPV water level to above -185" IAW AB.ZZ-0001 Att. 4. * <u>WHEN the 'C' EDG is restored, THEN the Crew injects with the 'C' RHR pump and restores and maintains RPV water level above -185"</u> 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> CONTROL</p>
	<ul style="list-style-type: none"> • Crew recognizes start of the 'A' EDG by: <ul style="list-style-type: none"> ⇒ Diesel engine START light ⇒ Generator breaker CLOSE light ⇒ OVLD/PWR FAIL lights extinguished on associated channel loads • CRS directs restoring PCIG to the SRVs. • RO/PO restores PCIG to the SRVs IAW AB.ZZ-0001 Att. 9. • CRS directs placing the 'A' RHR pump in Drywell Spray. 	<p>The restoration of the 'A' EDG makes the 'A' Core Spray Loop available for RPV water level control.</p> <p>The AK202 PCIG compressor became available when the 'C' EDG was restored.</p> <p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>

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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"

- RO/PO places 'A' RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2.

HPI USED:STAR ☐HARD CARD ☐

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VI. SCENARIO REFERENCES:**

- A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Hope Creek Event Classification Guide (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-106-101-1001 Event Response Guidelines
- N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- O. OP-HC-108-106-1001 Equipment Operational Control
- P. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- Q. **HC.OP-AB.CONT-0002 Primary Containment**
- R. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
- S. **HC.OP-AB.COMP-0001 Instrument and/or Service Air**
- T. **HC.OP-AB.MISC-0001 Acts of Nature**
- U. **HC.OP-AB.ZZ-0135 Station Blackout/Loss of Offsite Power/Diesel Generator Malfunction**
- V. **HC.OP-AB.ZZ-000 Reactor Scram**
- W. **HC.OP-EO.ZZ-0101 RPV Control**
- X. **HC.OP-EO.ZZ-0102 Primary Containment Control**
- Y. **HC.OP-EO.ZZ-0103 Reactor Building Control**
- Z. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
- AA. **HC.OP-EO.ZZ-0206 RPV Flooding**
- BB. Strategies For Successful Transient Mitigation

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**VII. ESG CRITICAL TASK RATIONAL****ESG-4 / 0**

1.

- * ***Before more than two minutes has elapsed from SRV opening, CREW closes F013A by cycling EITHER F013A AUTO/OPEN control switches to OPEN and back to AUTO.***

K/A 239002 Safety Relief valves

A2. Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations:

A2.03 Stuck open SRV RO 4.1 SRO 4.2

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

A4.01 SRV's RO 4.4 SRO 4.4

Immediate Operator Actions in AB.RPV-0006 direct cycling the SRV control switch in an attempt to close the SRV. Cycling the control switches cycles the SRV pilot valve, and may result in clearing debris or reseating the pilot valve such that the SRV closes. Failing to perform this action would result in the SRV remaining open for more than two minutes, which would require a manual scram IAW with Tech Specs. This would result in an unnecessary scram transient. Two minutes is adequate time to validate the SRV is open and cycle the appropriate control switch.

2.

- * ***Crew initiates closure of RWCU HV-F001 OR HV-F004 when OHA C1-A2 "RWCU DIFF FLOW HI" alarms.***

K/A 223002 Primary Containment Isolation System / Nuclear Steam Supply Shut-Off

A4 Ability to manually operate and/or monitor in the Control Room

A4.01 Valve Closures RO 3.6 SRO 3.5

A4.06 Confirm initiation to completion RO 3.6 SRO 3.7

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

3.

Crew scrams the reactor after multiple rod drifts.

K/A 201003 Control Rod and Drive Mechanism

A2 Ability to (a) predict the impacts of the following on the CONTROL ROD AND DRIVE MECHANISM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

A2.03 Drifting rod RO: 3.4 SRO 3.7

Having multiple rods inserting into the core out of sequence places the core in an unanalyzed condition. Thermal Limits may be violated resulting in fuel damage and a potential for radiological release. The Neutron Monitoring System is not designed to protect the core under these conditions and operator action is required.

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VII. ESG CRITICAL TASK RATIONAL (CONTINUED)

4.

Crew opens at least five SRVs after compensated reactor water level reaches -200".

K/A 295031 Reactor Low Water Level

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

EA.06 Automatic depressurization RO 4.4 SRO 4.4

When Reactor water level cannot be maintained above -200" without injection to the RPV, adequate core cooling cannot be assured (Minimum Zero Injection Reactor Water Level). EOPs direct action to initiate emergency depressurization when RPV water level reaches this value if there is no injection sources available. To restore adequate core cooling, the Crew must Emergency Depressurize and restores level with low pressure ECCS.

5.

WHEN the 'C' EDG is restored, THEN the Crew injects with the 'C' RHR pump and restores and maintains RPV water level 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 (RHR) RO 4.4 SRO 4.4

The automatic opening of the HV-F017A is failed. 'C' RHR is the only ECCS pump available for injection (although the 'C' Core Spray pump is running, there is no power to the injection valve due to the loss of the 'A' EDG). Operator action will be required to initiate injection and restore/maintain adequate core cooling. The absence of a time limit is due to the potential variance in reactor pressure when the 'C' RHR pump becomes available. The pump may become available before or after the permissible injection pressure for the RHR pump (IAW AB.ZZ-0001) is reached. This action must therefore be complete before the end of the scenario. Inherent to this critical task is the Crew dispatching personnel to investigate the failure of the 'C' EDG to start. If no one is sent to investigate, the EDG will NOT be restored to service.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**ESG-4 / 0****HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM****INITIATING EVENTS THAT LEAD TO CORE DAMAGE**

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

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY**

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

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VIII. TURNOVER SHEET:

ONLINE RISK: GREEN

WORK WEEK CHANNEL: A

PROTECTED EQUIPMENT

None
EOOS is out of service

REACTIVITY / Plant Status

Reactor power 100%.
Perform HC.OP-ST.GS-0001 using 1AC200.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

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IX. SIMULATOR ESG REVIEW/VALIDATION CHECKLIST:

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

ESG-4

SELF-CHECK

- _____ 1. Total malfunctions inserted: 5-8
- _____ 2. Malfunctions that occur after EOP entry: 1-4
- _____ 3. Abnormal Events: 2-3
- _____ 4. Major Transients: 1-2
- _____ 5. EOPs used beyond primary scram response EOP: 1-3
- _____ 6. EOP Contingency Procedures used: 0-3
- _____ 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- _____ 8. EOP run time: 40-70% of scenario run time
- _____ 9. Crew Critical Tasks: 2-5
- _____ 10. Technical Specifications are exercised during the test: >1

Comments:

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)**

Crew Validation Rev.: 0 Date Validated: 11/5/2014

Validated with operators from Crew .

Validation Comments	Disposition
1. Incorporated changes and comments from validation on 10/31/2014	1. Changes made.
2. Revised based on comments during this validation. Added Abnormal actions. Revised Tech Spec references.	2. Changes made.

Crew Validation Rev.: _____ Date Validated: _____

Validated with operators from Crew .

Validation Comments	Disposition
1.	1.

Facility: <u>Hope Creek</u>	Scenario No.: <u>Spare</u>	Op-Test No.: <u>2015</u>
Examiners: _____	Operators: _____	(SRO)
_____	_____	(RO)
_____	_____	(BOP)
Initial Conditions: <u>Reactor Startup is in progress following a forced outage.</u>		
<u>Reactor power is approximately 4%.</u>		
Turnover:		
<u>Commence Containment Inerting.</u>		
<u>Continue with startup. Raise power to 5-9% in accordance with HC.OP-IO.ZZ-0003.</u>		
<u>ESG-075 Modified</u>		

Event No.	Malfunction No.	Event Type*	Event Description
1		N(BOP) N(SRO)	Place Remaining Circulating Water Pumps In-Service
2		R(ATC) R(SRO)	Raise Power with Control Rods
3		C(ATC) C(SRO)	Stuck Control Rod
4		C(BOP) C(SRO) TS(SRO)	Loss of BD481 120 VAC 1E Inverter
5		C(ALL)	Steam Leak in the Steam Tunnel-MSIV Automatic Isolation Failure
6		M(ALL)	LOCA
7		C(BOP) C(SRO)	HPCI Flow Transmitter Failure
8		C(BOP) C(SRO)	Unisolable Suppression Pool Leak

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

ESG-SPARE

SCENARIO SUMMARY:

A Reactor startup is in progress following a forced outage. The crew will place remaining Circulating Water Pumps in-service. Power will then be raised using Control Rods. During rod movement a rod will stick. The crew will take action to unstick the rod and continue with the startup. A loss of a Class 1E 120VAC Inverter will cause a trip of the running Fuel Pool Cooling System (FPCS) pump. The crew will restore FPCS flow and cooling. A steam leak develops in the Steam Tunnel that requires a scram and closure of the Main Steam Isolation Valves (MSIVs). A LOCA will develop during pressure control operations which will raise Drywell Pressure to above the High- High Pressure setpoint. HPCI will fail during initiation, however manual control is available. A break develops on the suction line to RHR Pump D. The crew will be required to isolate the leak to maintain Suppression Pool level without Emergency Depressurizing the Reactor.

CRITICAL TASK SUMMARY:

- * **Crew prevents an uncontrolled leak of steam outside of secondary containment by isolating all Main Steam Isolation Valves and Main Steam Drain valves.**

239001 Main 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: (CFR: 41.5 / 45.6)

A2.11 Steam line break RO 4.1 SRO 4.3

The reactor is scrammed and the main steam lines are isolated to terminate the source of gaseous release via the main steam lines. Termination of this release path is critical to minimizing off-site release rates and preventing an uncontrolled reactor depressurization.

- * **Crew isolates Suppression Pool leak and prevents a required Emergency Depressurization.**

295030 Low Suppression Pool Water Level

EA2.01 Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Suppression pool level. RO 4.1 SRO 4.2

Isolating the Suppression Pool leak prevents further reduction in Suppression Pool water level. An emergency depressurization will be required when level lowers to near the point of exposing the Downcomers. This would put the Reactor Pressure Vessel through an unnecessary thermal transient.

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SIMULATOR

COPY ____ OF ____

EXAMINATION SCENARIO GUIDE**SCENARIO TITLE:** 2015 NRC EXAM SCENARIO**SCENARIO NUMBER:** ESG-5**EFFECTIVE DATE:** Effective When Approved**EXPECTED DURATION:** 60 Minutes**REVISION NUMBER:** 0**PROGRAM:**
☐ LICENSED OPERATOR REQUALIFICATION
☒ INITIAL LICENSE
☐ OTHER: _____**REVISION SUMMARY:**

- Initial issue.

PREPARED BY: _____ **S. DENNIS/SIGNATURE ON FILE** _____ **12-9-2014**
INSTRUCTOR **DATE**

APPROVED BY: _____ **M.A. SHAFFER/SIGNATURE ON FILE** _____ **12-9-2014**
LORT GROUP LEAD OR DESIGNEE **DATE**

APPROVED BY: _____ **L. KOBERLEIN/SIGNATURE ON FILE** _____ **12-11-2014**
SHIFT OPERATIONS SUPERVISOR OR DESIGNEE **DATE**

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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. Place Remaining Circulating Water Pumps In-Service
- B. Raise Power with Control Rods
- C. Stuck Control Rod
- D. Loss of BD481 120 VAC 1E Inverter
- E. Steam Leak in the Steam Tunnel-Scram-MSIV Isolation Failure
- F. LOCA-HPCI Failure
- G. Suppression Pool Leak

II. SCENARIO SUMMARY:

A Reactor startup is in progress following a forced outage. The crew will place remaining Circulating Water Pumps in-service. Power will then be raised using Control Rods. During rod movement a rod will stick. The crew will take action to unstick the rod and continue with the startup. A loss of a Class 1E 120VAC Inverter will cause a trip of the running Fuel Pool Cooling System (FPCS) pump. The crew will restore FPCS flow and cooling. A steam leak develops in the Steam Tunnel that requires a scram and closure of the Main Steam Isolation Valves (MSIVs). A LOCA will develop during pressure control operations which will raise Drywell Pressure to above the High- High Pressure setpoint. HPCI will fail during initiation, however manual control is available. A break develops on the suction line to RHR Pump D. The crew will be required to isolate the leak to maintain Suppression Pool level without Emergency Depressurizing the Reactor.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. INITIAL CONDITIONS:****I.C.***Initial*

_____ **INITIALIZE** to IC at approximately 9% power with Reactor Startup in progress.

_____ **INSERT** Control Rods (Reverse Pull) to stabilize power at approximately 5%.

_____ **DE-INERT** Containment.

_____ **ENSURE** HC.OP-IO.ZZ-0003 complete through Step 5.3.38, and 5.3.39A and G.

_____ **ENSURE** Containment is inerted.

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

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

_____ **MARKUP** HC.OP-IO.ZZ-0003 through Step 5.3.38, and 5.3.39A and G; N/A E and F.

_____ **MARKUP** HC.OP-SO.DA-0001 through Step 5.1.28.

_____ **MARKUP** HC.OP-SO.AC-0001 through Step 5.2.7.R.5.

_____ **MARKUP** HC.OP-SO.CG-0001 through Step 5.9.3 for degraded vacuum.

_____ **MARKUP** Rod Pull List through Step 359, Rod 42-43 @ 06.

_____ **ENSURE** REMA available for Startup

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

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

EVENT FILE:

<i>Initial</i>	<i>Event</i>		
	1	Event Code: Description:	A3015_V >= 300 CRD Drive Pressure >300 psig
	5	Event Code: Description:	hpnt >= 200 HPCI Turbine Speed
	6	Event Code: Description:	rh_bkr(4) RHR Pump D Start
	7	Event Code: Description:	rhv004(4) <= 0 HV-F004D Closed

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**MALFUNCTION SCHEDULE:**

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert malfunction CD031835	Control Rod 18-35 stuck
	None	None	Insert malfunction CD031835 on event 1 delete in 1	Control Rod 18-35 stuck
	None	None	Insert malfunction ED09B1 on event 2	Loss of 120 VAC class 1E inst bus 1BD481
	None	None	Insert malfunction MS04B to 80.00000 in 180 on event 3	Steam line B leak in tunnel
	None	None	Insert malfunction MS19B	MSIV F022B fail to auto isolation
	None	None	Insert malfunction MS20B	MSIV F028B fail to auto isolation
	None	None	Insert malfunction RR31A1 to 20.00000 in 300 on event 4	Recirc loop A small break [V] (10%~60 gpm, 100%~600 gpm)
	None	None	Insert malfunction RH07D after 5 on event 6	RHR Leak via Pump Suction, Loop D
	None	None	Insert malfunction PC06 to 2.00000 on event 6	Suppression pool break
	None	None	Insert malfunction PC06 to 0 on event 7 delete in 1	Suppression pool break
	None	None	Insert malfunction HP08 to 100.00000 on event 5	HPCI flow transmitter failure

REMOTE SCHEDULE:

<i>Initial</i>	<i>@Time</i>	<i>Event</i>	<i>Action</i>	<i>Description</i>
	None	None	Insert remote HV011 to STOP on event 3	HV011 Steam tunnel unit cooler AVH216
	None	None	Insert remote HV006 to STOP on event 9	HV006 RBVS Supply fan C
	None	None	Insert remote HV005 to STOP on event 9	HV005 RBVS Supply fan B
	None	None	Insert remote HV004 to STOP on event 9	HV004 RBVS Supply fan A
	None	None	Insert remote HV003 after 5 to STOP on event 9	HV003 RBVS Exhaust fan C
	None	None	Insert remote HV002 after 6 to STOP on event 9	HV002 RBVS Exhaust fan B
	None	None	Insert remote HV001 after 7 to STOP on event 9	HV001 RBVS Exhaust fan A

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**OVERRIDE SCHEDULE:**

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

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>PLACE REMAINING CIRCULATING WATER PUMPS IN-SERVICE</u>	<ul style="list-style-type: none"> CRS directs placing remaining Circulating Water Pumps in-service IAW HC.OP-SO.D-0001. 	
<p>INSERT Remote AN-06 to NORM when necessary to acknowledge local alarm on pump start.</p>	<ul style="list-style-type: none"> PO places remaining Circulating Water Pumps in-service IAW HC.OP-SO.D-0001: <ul style="list-style-type: none"> ⇒ OBSERVE CIRCULATING WATER PUMP STR ENBL is illuminated ⇒ PRESS Pump START push-button. ⇒ OBSERVE DISCH VALVE OPEN/CLOSE MID illuminates ⇒ PRESS Pump START push-button. ⇒ OBSERVE DISCH VALVE OPEN/CLOSE MID illuminates ⇒ PRESS DISCH VALVE HV-2152A(B,C,D) OPEN FULL push-buttons to open fully each valve. 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>
<u>RAISE POWER WITH CONTROL RODS</u>	<ul style="list-style-type: none"> CRS directs power ascension IAW IO-3 and REMA. 	<p>HPI USED: STAR <input type="checkbox"/> HARD CARD <input type="checkbox"/></p>
	<ul style="list-style-type: none"> CRS directs withdrawing control rods IAW REMA guidance. 	

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • RO withdraws control rods IAW REMA guidance and HC.OP-SO.SF-0001. ⇒ Presses the desired Control Rod Select PB ⇒ Momentarily presses the WITHDRAW PB ⇒ After the withdrawal cycle is completed, ENSURE that the rod position indicates that the rod is in the correct, even numbered position. ⇒ Initials Rod Pull Sheet 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>
<u>STUCK CONTROL ROD</u>	<ul style="list-style-type: none"> • RO determines rod 18-35 is stuck and informs the CRS. 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
	<ul style="list-style-type: none"> • CRS implements AB.IC-0001: ⇒ Condition I 	<p>INPO Fundamentals: <input type="checkbox"/> TEAMWORK</p>
	<ul style="list-style-type: none"> • RO performs actions of Condition I of AB.IC-0001: ⇒ Verifies NO Rod Blocks are present. ⇒ Attempts to operate the drive in both directions to determine the exact condition of the Control Rod. ⇒ Raises the drive water pressure in approximately 50 psid increments, not to exceed 500 psid (to approximately 315 psig by throttling closed HV-F003) 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ Attempts to notch in OR notch out the control rod at each new pressure increment.	
	⇒ RO determines that the control rod is freed and returns the drive water pressure to the normal operating range (260-270 psid on A3015).	
	⇒ RO ensures that rod 18-35 is at the desired position.	HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/>
<u>LOSS OF BD481 120 VAC 1E INVERTER</u> AFTER actions are completed for the stuck control rod, OR at the discretion of the Lead Examiner, TRIGGER ET-2.	<ul style="list-style-type: none"> • Crew identifies the loss of BD481 by: <ul style="list-style-type: none"> ⇒ OHA D3-E3 120VAC UPS TROUBLE ⇒ CRIDS Page 167 ⇒ CRIDS D4971 in alarm 	INPO Fundamentals: <input type="checkbox"/> MONITORING
	<ul style="list-style-type: none"> • CRS enters AB.ZZ-0136 and directs actions IAW AB.ZZ-0136: <ul style="list-style-type: none"> ⇒ Assess all plant systems and enter appropriate Abnormal Procedures ⇒ Determine failed inverter 	
	<ul style="list-style-type: none"> • CRS implements AB.COOL-0004 for the loss of FPC Flow: <ul style="list-style-type: none"> ⇒ Condition I 	INPO Fundamentals: <input type="checkbox"/> TEAMWORK

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE**

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> • PO restores Fuel Pool Cooling System flow IAW AB.COOL-0004 by restarting at least one Fuel Pool Cooling Pump as follows: <ul style="list-style-type: none"> ⇒ Ensures Skimmer Surge Tank > 22". ⇒ Opens 1-EC-HV-4689A(B), FILTER DEMIN BYPASS VALVE. ⇒ Closes 1-EC-HV-4689B(A), FILTER DEMIN BYPASS VALVE. ⇒ Closes either 1-EC-HV-4676A OR 1-EC-HV-4676B, F/D INL ISLN. ⇒ Starts one Fuel Pool Cooling Pump A(B)P211. 	<p style="text-align: right;">HPI USED:</p> <p style="text-align: right;">STAR <input type="checkbox"/></p> <p style="text-align: right;">PEER CHECK <input type="checkbox"/></p>
If sent to investigate Inverter problem, report Blown Main Fuse indicated on the Inverter Section.	<p>⇒ CRS/STA/IA recognize the following Tech Specs actions apply for the loss of BD481:</p> <ul style="list-style-type: none"> ○ Distribution – Operating 3.8.3.1 action a AND d 	<p>8 hours to reenergize panel and restore inverter within 24 hours, or Hot SD in 12 hours and Cold SD in following 24.</p> <p>INPO Fundamentals: <input type="checkbox"/> KNOWLEDGE</p>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p><u>STEAM LEAK IN THE STEAM TUNNEL-SCRAM</u></p> <p><u>AFTER</u> FPCCU System flow has been restored, <u>OR</u> at the discretion of the Lead Examiner, TRIGGER ET-3.</p>	<ul style="list-style-type: none"> Crew recognizes rising temperature in the Steam Tunnel by: <ul style="list-style-type: none"> ⇒ CRIDS A2541 "ST TUNNEL 10 VH216 INLET AIR" ⇒ OHA D3 A3 "MN STM/RWCU AREA LEAK TEMP HI" ⇒ CRIDS D5866 "RWCU/MAIN ST LEAK DET TMP CH W" 	<p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
<p><u>IF</u> dispatched to check the status of Steam Tunnel Unit Coolers, <u>THEN REPORT</u> both Steam Tunnel Unit Coolers are in service (Do NOT actually place the coolers in service).</p>	<ul style="list-style-type: none"> CRS implements AB.BOP 0005: <ul style="list-style-type: none"> ⇒ Condition A 	
<p>At the Lead Examiners discretion, RAISE Steam Tunnel temperature to 165 degrees in 2 degree increments using Insight Item mstunl.</p>	<ul style="list-style-type: none"> <u>WHEN</u> the Crew determines Steam Tunnel temperature cannot be maintained below 145 degrees <u>THEN</u> CRS DIRECTS: <ul style="list-style-type: none"> ⇒ Reduce Recirc pump speed to minimum ⇒ Lock the Mode Switch in Shutdown 	<p>INPO Fundamentals: <input type="checkbox"/> CONSERVATISM</p>

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
<p>STRATEGIES FOR SUCESSFUL TRANSIENT MITIGATION Reactor Scram Reports Following a Reactor scram, the NCO should make an initial scram report by announcing reactor status IAW HC.OP-AB.ZZ-0001. Crew personnel should hold all other non-essential communications until after the initial scram report is complete. The Control Room Supervisor should silence alarms during the scram report and the SM/CRS is not required to make a statement directing the NCO to check the overhead alarms, since these actions are already expected immediately following the scram. During the scram report, the NCO should report reactor level and pressure and their trends to the Control Room staff IAW HC.OPAB.ZZ-0001.</p>	<ul style="list-style-type: none"> RO observes Recirc pump speeds at minimum and locks the Mode Switch in SHUTDOWN and performs scram actions IAW AB.ZZ-0001 Att. 1. 	<p>HPI USED: STAR <input type="checkbox"/> PEER CHECK <input type="checkbox"/></p>
	<ul style="list-style-type: none"> CRS implements AB-000. 	<p>INPO Fundamentals: <input type="checkbox"/> TEAMWORK</p>
	<ul style="list-style-type: none"> CRS may direct placing FRVS in service. 	
<p>IF directed to place all RBV Supply and Exhaust control switches in STOP, TRIGGER ET-9.</p>	<ul style="list-style-type: none"> PO places FRVS in service IAW AB.ZZ-0001. 	
<p><u>MSIV ISOLATION FAILURE</u> MSIV isolation failure is pre-inserted.</p>	<ul style="list-style-type: none"> Crew recognizes isolation signal has been generated by: <ul style="list-style-type: none"> ⇒ OHAs C8-A1-4, NSSSS MSIV LOGIC A(B,C,D) INITIATED ⇒ OHA C8-C4, NSSSS ISLN SIG-STM TNL TEMP HI 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> RO recognizes all MSIVs are NOT closed, closes at least one valve in the failed line, and informs CRS. 	<p>HPI USED: STAR <input type="checkbox"/></p> <p>Immediate Operator Actions AB-CONT-0002.</p>
	<i>*Crew prevents an uncontrolled leak of steam outside of secondary containment by isolating all Main Steam Isolation Valves and Main Steam Drain valves.</i>	
<p><u>LOCA-HPCI FAILURE</u></p> <p>AFTER the MSIVs have been closed, OR at the discretion of the Lead Examiner, TRIGGER ET-4.</p>	<ul style="list-style-type: none"> Crew recognizes LOCA condition: <ul style="list-style-type: none"> ⇒ OHA C6 B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ Rising Drywell Pressure 	
	<ul style="list-style-type: none"> CRS implements AB.CONT-001: <ul style="list-style-type: none"> ⇒ Condition A 	
	<ul style="list-style-type: none"> <u>IF</u> Drywell Inerting is in progress, <u>THEN</u> the Crew terminates inerting. 	<p>HPI USED: STAR <input type="checkbox"/></p> <p>INPO Fundamentals: <input type="checkbox"/> MONITORING</p>
	<ul style="list-style-type: none"> RO/PO ensures drywell cooling maximized. 	
	<ul style="list-style-type: none"> Crew checks <ul style="list-style-type: none"> ⇒ Recirc pump seal parameters ⇒ SRV temperatures 	

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Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> Crew recognizes High Drywell Pressure EOP entry condition: <ul style="list-style-type: none"> ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations 	INPO Fundamentals: <input type="checkbox"/> MONITORING
An Alert Classification may be required IAW ECG Section RB1.P if (RCS Leakage >50 gpm inside the drywell) (4 points) or RB2.L (Drywell pressure >1.68 psig due to RCS leakage) (5 points)	<ul style="list-style-type: none"> CRS enters EOP-102, and EOP-101. 	
	<ul style="list-style-type: none"> PO recognizes HPCI Flow element failure by: <ul style="list-style-type: none"> ⇒ HPCI Aux Oil Pump running ⇒ Minimum Turbine speed ⇒ Control Valve Closed ⇒ Flow indicator indicating maximum 	
	<ul style="list-style-type: none"> PO can take manual control of HPCI to inject by placing the controller in MAN and using the up and down arrows to control discharge pressure and speed. 	
<u>SUPPRESSION POOL LEAK</u>	<ul style="list-style-type: none"> Crew recognizes lowering torus water level. 	INPO Fundamentals: <input type="checkbox"/> MONITORING
	<ul style="list-style-type: none"> Crew recognizes Supp Pool Level Below 74.5 In EOP entry condition by: <ul style="list-style-type: none"> ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO" ⇒ Various Suppression Pool level indicators 	

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V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	<ul style="list-style-type: none"> CRS re-enters EOP-102. 	
NOTE: Entry into EOP-103 may not be made until reports of high water levels or Room Flood Alarm is received.	<ul style="list-style-type: none"> CRS implements EOP 103. 	
IF dispatched to 'D' RHR pump room, THEN REPORT there is about three inches of water on the floor. Water is coming from a cracked weld on an elbow of the 'D' RHR pump suction line.	<ul style="list-style-type: none"> Crew dispatches NEO and Maintenance to 'D' RHR pump room. 	
IF directed to place the DP202 RHR pump breaker in PTL, THEN INSERT REMOTE RH23D TO TAGGED.	<ul style="list-style-type: none"> RO/PO close 'D' RHR suction valve. 	HPI USED: STAR <input type="checkbox"/>
IF directed to implement EOP-315, THEN REPORT operators will be briefed and sent into the field. Do NOT open makeup valves until after leak is isolated.	<ul style="list-style-type: none"> RO/PO coordinates implementation of EOP-315 with NEO. 	INPO Fundamentals: <input type="checkbox"/> TEAMWORK
An Alert declaration may be declared IAW HA1.4 (Flooding in Safety Equipment areas and either: an Industrial Safety Hazard; OR Control Room indication of DEGRADED PERFORMANCE of a Safety System) An Unusual Event is required IAW HU1.4 (Visual observation of flooding in Safety Equipment areas and RB Floor Levels above EOP-103 entry conditions, and Safety Related Equipment is required by TS).	*Crew isolates Suppression Pool leak and prevents a required Emergency Depressurization.	

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Event / Instructor Activity	Expected Plant/Student Response	Comments
<u>TERMINATION REQUIREMENT:</u> The scenario should be terminated at the discretion of the Lead Examiner when: <ul style="list-style-type: none">• RPV Level and Pressure Control is established and• The RHR leak has been isolated		

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- A. TQ-AA-106-0304 Licensed Operator Requalification Training Exam Development Job Aid
- B. NUREG 1021 Examiner Standards
- C. JTA Listing
- D. Probabilistic Risk Assessment
- E. Technical Specifications
- F. Hope Creek Event Classification Guide (ECG)
- G. Alarm Response Procedures (Various)
- H. HU-AA-101 Performance Tools and Verification Practices
- I. HU-AA-104-101 Procedure Use and Adherence
- J. HU-AA-1081 Fundamentals Toolkit
- K. HU-AA-1211 Briefing
- L. OP-AA-101-111-1004 Operations Standards
- M. OP-AA-106-101-1001 Event Response Guidelines
- N. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
- O. OP-HC-108-106-1001 Equipment Operational Control
- P. **OP-HC-103-105 Administrative Control of Containment Atmosphere Control Valve Open Time**
- Q. **HC.OP-IO.ZZ-0003 Startup from Cold Shutdown to Rated Power**
- R. **HC.OP-SO.AE-0001 Feedwater System Operation**
- S. **HC.OP-SO.GS-0001 Containment Atmosphere Control System Operation**
- T. **HC.OP-SO.GS-0002 Hydrogen/Oxygen Analyzer System Operation**
- U. **HC.OP-SO.GU-0001 Filtration, Recirculation, and Ventilation System Operation**
- V. **HC.OP-SO.GK-0001 Control Area Ventilation System Operation**
- W. **HC.OP-SO.SF-0001 Reactor Manual Control**
- X. **HC.OP-SO.SF-0003 Rod Worth Minimizer Operation**
- Y. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
- Z. **HC.OP-AB.IC-0001 Control Rod**
- AA. **HC.OP-AB.CONT-0001 Drywell Pressure**
- BB. **HC.OP-AB.CONT-0002 Primary Containment**
- CC. **HC.OP-AB.CONT-0003 Reactor Building**
- DD. **HC.OP-SO.SM-0001 Isolation Systems Operation**
- EE. **HC.OP-AB.BOP-0005 Main Steam Tunnel Temperature**
- FF. **HC.OP-AB.COOL-0003 Reactor Auxiliary Cooling**
- GG. **HC.OP-AB.ZZ-0136 Loss of 120 VAC Inverter**
- HH. **HC.OP-EO.ZZ-0315 Suppression Chamber Make-Up from Core Spray**
- II. **HC.OP-AB.ZZ-0000 Reactor Scram**
- JJ. **HC.OP-EO.ZZ-0101 RPV Control**

VII. ESG CRITICAL TASK RATIONAL

ESG-5 / 0

1.

- * **Crew prevents an uncontrolled leak of steam outside of secondary containment by isolating all Main Steam Isolation Valves and Main Steam Drain valves.**

239001 Main 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: (CFR: 41.5 / 45.6)

A2.11 Steam line break RO 4.1 SRO 4.3

The reactor is scrammed and the main steam lines are isolated to terminate the source of gaseous release via the main steam lines. Termination of this release path is critical to minimizing off-site release rates and preventing an uncontrolled reactor depressurization.

2.

- * **Crew isolates Suppression Pool leak and prevents a required Emergency Depressurization.**

295030 Low Suppression Pool Water Level

EA2.01 Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Suppression pool level. RO 4.1 SRO 4.2

Isolating the Suppression Pool leak prevents further reduction in Suppression Pool water level. An emergency depressurization will be required when level lowers to near the point of exposing the Downcomers. This would put the Reactor Pressure Vessel through an unnecessary thermal transient.

PSEG CONFIDENTIAL - Possession Requires Specific Permission From Nuclear Training**ESG-5 / 0****HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM****INITIATING EVENTS THAT LEAD TO CORE DAMAGE**

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

**COMPONENT/TRAIN/SYSTEM UNAVAILABILITY
THAT INCREASES CORE DAMAGE FREQUENCY**

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

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

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

Complete this evaluation form for each ESG

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None
EOOS is out of service

REACTIVITY / Plant Status

Startup in progress IAW HC.OP-IO.ZZ-0003, through Step 5.3.38. Preparations for containment inerting are in progress in accordance with HC.OP-SO.GS-0001 through step 5.1.7 and will be completed on the next shift.

Objectives for this Shift:

- Place the remaining Circulating Water Pumps in service IAW HC.OP-SO.DA-0001. Currently at Step 5.1.28 of HC.OP-SO.DA-0001.
- Continue with Reactor Startup.

ESF/SAFETY SYSTEMS

None

COOLING WATER

None

BOP

None

ELECTRICAL

None

ADVERSE CONDITION MONITORING

None

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

ESG-5**SELF-CHECK**

- _____ 1. Total malfunctions inserted: 5-8
- _____ 2. Malfunctions that occur after EOP entry: 1-4
- _____ 3. Abnormal Events: 2-3
- _____ 4. Major Transients: 1-2
- _____ 5. EOPs used beyond primary scram response EOP: 1-3
- _____ 6. EOP Contingency Procedures used: 0-3
- _____ 7. Approximate scenario run time: 45-60 minutes (one scenario may approach 90 minutes)
- _____ 8. EOP run time: 40-70% of scenario run time
- _____ 9. Crew Critical Tasks: 2-5
- _____ 10. Technical Specifications are exercised during the test: >1

Comments:

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SIMULATOR ESG REVIEW/VALIDATION CHECKLIST: (continued)

<u>Crew Validation</u>		Rev.: <u>0</u>	Date Validated: _____
Validated with operators from Crew .			
Validation Comments		Disposition	
1. Attempted validation 11/7/2014. Error in parameter capture prevented SBT completion. Scenario was run successfully. Minor comments made. (1 SRO, 2 ROs). 2.		1. Comments incorporated.	

<u>Crew Validation</u>		Rev.: _____	Date Validated: _____
Validated with operators from Crew .			
Validation Comments		Disposition	
1.		1.	