JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Perform Core Thermal Limits Surveillance

TASK NUMBER: 4010010201

JPM NUMBER: 305H-JPM.ZZ040 **REV #:** 00
*** NRC ADMIN JPM RO A1***

SAP BET: NOH05JPZZ40E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/30/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ040 **REV:** 00

SYSTEM: Conduct of Operations

TASK NUMBER: 4010010201

TASK: Perform Core Thermal Limits Surveillance

ALTERNATE PATH: [X] **K/A NUMBER:** 2.1.18

IMPORTANCE FACTOR: 3.6 (RO) 3.8 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0026 Rev. 121
HC.RE-ST.ZZ-0001 Rev. 19

TOOLS, EQUIPMENT AND PROCEDURES: Prepared copies of HC.RE-ST.ZZ-0001 Blank copies of HC.OP-DL.ZZ-0026 Att 1b page 4, HC.RE-ST.ZZ-0001 Att 2, ALTERNATE P1 Report.

ESTIMATED COMPLETION TIME: 12 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Perform Core Thermal Limits Surveillance

TASK NUMBER: 4010010201

INITIAL CONDITIONS:

1. The plant is operating at 99.8 percent core thermal power following a startup.
2. HC.OP-DL.ZZ-0026(Q) Surveillance Log Attachment 1a is being performed for Midnight Shift.
3. The normal P1 Report is not available.

INITIATING CUE:

PERFORM DL-26 Attachment 1a – Surveillance Log Items 20, 21, and 22 with materials provided below:

- DL-26 Attachment 1a – Surveillance Log page 22.
- ALTERNATE P1 REPORT.
- HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE procedure without EXHIBITS, completed up to and including Step 5.3.
- HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE Attachment 2.

WHEN FINISHED, RETURN ALL PAPERWORK TO THE PROCTOR.

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND a prepared copy of: • DL-26 Attachment 1a – Surveillance Log page 22. • ALTERNATE P1 REPORT. • HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE procedure without EXHIBITS, completed up to and including Step 5.3. • HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE Attachment 2.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.5	IF using the Alternate P1 Report, THEN **OBTAIN** AND **RECORD** the below required data from the Alternate P1 Report.				
	• Date and Time of the Monitor case ("Calculated" date and time)	Operator fills in date and time from ALTERNATE P1 Calculation time. **23 – AUG – 2010 23:31**			
	• MFLCPR (First MFLCPR value listed under "Most Limiting Locations")	Operator fills in MFLCPR value from Alternate P1 Sheet on Attachment 2 Form. **0.945**	*		
	• MFLPD (First MFLPD value listed under "Most Limiting Locations")	Operator fills in MFLPD value from Alternate P1 Sheet on Attachment 2 Form. **1.002**	*		
	• MAPRAT (First MAPRAT value listed under "Most Limiting Locations")	Operator fills in MAPRAT value from Alternate P1 Sheet on Attachment 2 Form. **1.001**	*		

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.6	**DETERMINE** whether the Acceptance Criteria have been met.	Operator determines Acceptance Criteria is not met.			
		Operator marks UNSATISFACTORY Check Box.	*		
NOTE	Failure to meet the Acceptance Criteria for a core thermal limit **requires** entry into the T/S Action Statement for that core thermal limit if Core Thermal Power is ≥ 24% RTP. With respect to T/S required actions, violation of an administrative limit is treated identically to a violation of a T/S Limit.	Operator reads NOTE.			
5.7	IF any of the core thermal limits fails to meet its Acceptance Criteria, THEN immediately **NOTIFY** the SM/CRS.	Operator notifies CRS of UNSATISFACTORY surveillance.			
CUE	**ACKNOWLEDGE report from operator that Thermal Limits MFLPD and MAPRAT are above Maximum Acceptable Limits.**	N/A			

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.8	**DETERMINE** whether the core is in a Limiting Control Rod Pattern.	Operator determines Limiting Control Rod Pattern criteria is not met.			
NOTE	The definition of a Limiting Control Rod Pattern **includes** any administrative limits on core thermal limits. With respect to T/S required actions, a core thermal limit exactly at the administrative limit (i.e. Limiting Control Rod Pattern) is treated identically to a core thermal limit on a T/S limit.	Operator reads NOTE. **Examiner Note:** The definition of a Limiting Control Rod Pattern is only met if all 3 limits are exactly 1.000.			
		Operator marks NOT LIMITING Check Box.			
5.9	IF the core is in a Limiting Control Rod Pattern, THEN immediately **NOTIFY** the SM/CRS.	Operator determines Limiting Control Rod Pattern criteria is not met.			

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.10	**RECORD** any comments concerning the procedure performance on Attachment 1.	Not required for RO's.			
5.11	**SIGN** AND **DATE** as the Performer.	Operator signs and fills in date/time in "Performed By" line on Attachment 2.			

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	HC.OP-DL.ZZ-0026 Attachment 1a				
ITEM 20	MFLCPR	Operator fills in MFLCPR value. **0.945.**	*		
ITEM 21	MFLPD	Operator fills in MFLPD value. **1.002.**	*		
	Examiner Note: It is not critical to circle Out Of Spec reading.	Operator circles Out Of Spec reading.			
ITEM 22	MAPRAT	Operator fills in MAPRAT value. **1.001.**	*		
	Examiner Note: It is not critical to circle Out Of Spec reading.	Operator circles Out Of Spec reading.			
CUE	**ACKNOWLEDGE report from operator that Thermal Limits MFLPD and MAPRAT are above Maximum Acceptable Limits.**	N/A			

JPM: ZZ040 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Perform Core Thermal Limits Surveillance**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ040

TASK: Perform Core Thermal Limits Surveillance

TASK NUMBER: 4010010201

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ040

Rev #	Date	Description	Validation Required?
00	4/21/10	New Admin JPM. Validated with 2 ROs. Average validation time was 12 minutes.	Y

ALTERNATE P1 REPORT
Page 1 of 2

PAGE 1

HOPE CREEK CYCLE 16
3DM/P11
PERIODIC LOG
AUTOMATIC
CALC RESULTS

SEQUENCE NO 20
23-AUG-2010 23:31 CALCULATED
23-AUG-2010 23:59 PRINTED
CASE ID FMLD1080426093156
RESTART FMLD1080426090201
LPRM SHAPE - FULL CORE

CORE PARAMETERS					
POWER	MWT	3832.3			
POWER	MWE	1268.5			
FLOW	MLB/HR	87.257			
FPAPDR		0.799			
SUBC	BTU/LB	24.05	Keff	1.0062	
PR	PSIa	1018.96	XE WORTH %	-2.26	
CORE	MWD/sT	20831.2	XE/RATED	1.001	
CYCLE	MWD/sT	3557.5	AVE VF	0.473	
MCPR		1.450	FLLLP	0.997	

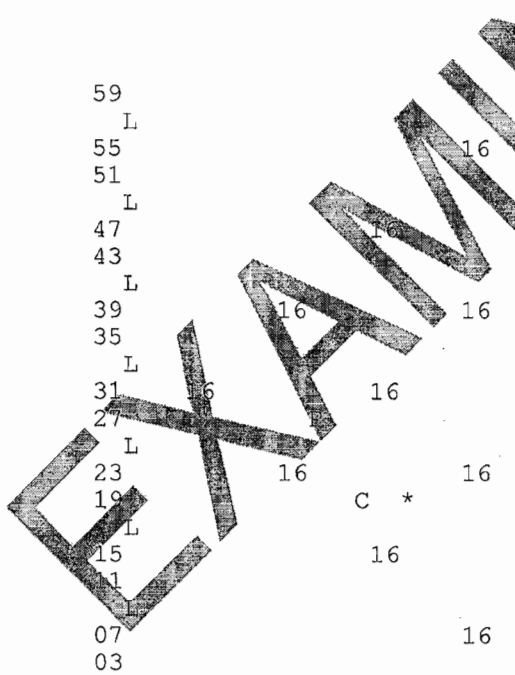
LOAD LINE SUMMARY
CORE POWER 99.3%
CORE FLOW 87.3%
LOAD LINE 106.8%

CORRECTION FACTORS: MFLCPR= 1.001 MFLPD= 0.999 MAPRAT= 1.000 ZBB= 2.09 ft
OPTION: ARTS 2 LOOPS ON MANUAL FLOW MCPRLIM= 1.370 SCBB= N/A

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCRAT	LOC
0.945	19-20	1.002	23-20- 4	1.001	23-20- 4	0.923	17-28- 5
0.941	41-24	0.994	41-24- 4	0.957	41-24- 4	0.919	33-18- 5
0.940	23-20	0.986	27-16- 4	0.953	27-16- 4	0.997	23-20- 4
0.929	25-22	0.981	15-28- 4	0.952	25-18- 4	0.996	43-24- 5
0.928	39-26	0.972	43-26- 4	0.951	43-26- 4	0.993	41-24- 4
0.917	43-26	0.970	25-18- 4	0.948	15-28- 4	0.993	11-36- 5
0.915	25-18	0.968	25-22- 4	0.947	35-26- 4	0.988	23-18- 5
0.912	35-36	0.964	39-26- 4	0.946	25-22- 4	0.987	13-34- 5
0.905	27-16	0.963	23-24- 4	0.943	27-20- 4	0.986	27-16- 4
0.904	15-28	0.958	27-20- 4	0.943	39-26- 4	0.985	27-14- 5

SEQ. A-2 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE



CORE AVE AXIAL NOTCH	REL PW	LOC
	0.161	25
00	0.290	24
02	0.538	23
04	0.685	22
06	0.783	21
08	0.856	20
10	0.904	19
12	0.929	18
14	0.952	17
16	0.937	16
18	0.966	15
20	1.094	14
22	1.129	13
24	1.184	12
26	1.235	11
28	1.260	10
30	1.286	09
32	1.333	08
34	1.369	07
36	1.420	06
38	1.468	05 <-
40	1.457	04
42	1.342	03
44	1.043	02
46	0.379	01

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	1.168	1.209	1.132	1.248	1.186	1.196	1.015	0.554

ATTACHMENT 2
CORE THERMAL LIMITS SURVEILLANCE FORM

1.0 COLLECTION OF CORE THERMAL LIMITS

Date/Time of Monitor Case*: ***23-AUG-2010*** (Date) ***23:31*** (Time)

- Limiting MFLCPR [1] ***0.945***
- Limiting MFLPD [2] ***1.002***
- Limiting MAPRAT [3] ***1.001***

2.0 ACCEPTANCE CRITERIA

			Action Statements
☐ SATISFACTORY	Limiting MFLCPR	[1] ≤ 1.000	T/S 3.2.3
	AND		
	Limiting MFLPD	[2] ≤ 1.000	T/S 3.2.4
	AND		
	→ Limiting MAPRAT	[3] ≤ 1.000	T/S 3.2.1
☒ UNSATISFACTORY	→ Otherwise		

3.0 LIMITING CONTROL ROD PATTERN

			Action Statements
☐ LIMITING	Limiting MFLCPR	[1] = 1.000	T/S 3.1.4.3, 3.2.3
	AND		
	Limiting MFLPD	[2] = 1.000	T/S 3.1.4.3, 3.2.4
	AND		
	→ Limiting MAPRAT	[3] = 1.000	T/S 3.1.4.3, 3.2.1
☒ NOT LIMITING	→ Otherwise		

Performed By ***Operator's Name*** ***Today's Date/Time*** (Date-Time)

Reviewed By ***N/A*** ***N/A*** (Date-Time)

ATTACHMENT 1a
Surveillance Log - Control Room

Operational Condition 1 **Date** Today's Date/Time

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
10	SUPPRESSION CHAMBER AVERAGE WATER TEMP	1,2,3	60	—	95	SB-TR-3881A1, RM-11 (9AX833) (*CIRCLE HIGHEST OPERABLE*)	N/A	N/A		(NOTES 16., 20.)
			60	—	95	SB-TR-3881B1, RM-11 (9AX834) (*CIRCLE HIGHEST OPERABLE*)	N/A	N/A		
11.	DRYWELL PRESSURE	1,2,3	-.25	0-1	+1.5	GS-PR4960A3				
12	SUPPRESSION CHAMBER PRESSURE	1,2,3	-.25	0-1	+1.5	GS-PR4960B3				
13	RX BLDG PRESSURE	1,2,3,*	—	—	< 0	GS-PDR9426A OR B				(NOTE 19.)
14	SLC STORAGE TANK VOLUME	1,2	4640	4800 - 4880	4880	CRIDS PT A7052	N/A	N/A		(NOTE 14., 15.,)
15	RPV FLANGE LEAK IN ALARM	1,2,3	—	NO	—	D3-A4	N/A	N/A		
16	SLC TANK TROUBLE IN ALARM	1,2	—	NO	—	C1-E1				
17	SDV VENT AND DRAIN VALVES OPEN	1,2	—	YES	—	—	N/A	N/A		
18	CONT VENTING OR PURGING IS THRU RBVS OR FRVS	**NOTE 18.**	—	YES	—					
19	SLC WT%	1,2	13.6	14.0-14.4	14.4	HC.CH-TI.ZZ-0013 Form 1, Page 2 of 2	N/A	N/A		(NOTE 14.)
	SLC TK VOL	1,2	—	4800 - 4880	—		N/A	N/A		(NOTE 14.)
20	MFLCPR	1	—	—	1	3D MONICORE	N/A	N/A	0.945	(NOTE 13., 17.)
21	MFLPD	1	—	—	1	3D MONICORE	N/A	N/A	1.002	(NOTE 13., 17.)
22	MAPRAT	1	—	—	1	3D MONICORE	N/A	N/A	1.001	(NOTE 13., 17.)

NOTES:
2. IF VALUE IS OOS OR INSTRUMENT IS INOP, INCREASED SURVEILLANCE REQUIREMENTS MAY BE NECESSARY.
13. INCREASED SURVEILLANCE REQUIREMENTS MAY BE NECESSARY (WHEN OPERATING WITH A LIMITING CONTROL ROD PATTERN; WITHIN 12HRS AFTER THERMAL POWER INCREASE GREATER THAN OR EQUAL TO 24% OF RTP).
14. ITEMS 14 AND 19 ARE DEPENDENT ON FIGURE 3.1.5-1 IN T/S. IF CONCENTRATION OR VOLUME IS OUTSIDE OF THE NORM BAND, THEN DETERMINE SAT OR UNSAT WITHIN ACCEPTABLE OPERATING REGION OF FIGURE 3.1.5-1.
15. TANK VOLUME SHOULD BE MAINTAINED BETWEEN 4800 - 4880 TO ALLOW FOR THE WIDEST POSSIBLE CONCENTRATION RANGE PER T/S FIGURE 3.1.5-1. **[80001560]**
16. REFER TO ATTACHMENT 3W FOR ALTERNATE SUPPRESSION POOL TEMPERATURE DETERMINATION. IF 95°F EXCEEDED, IMPLEMENT ATTACHMENT 3F.
17. ENSURE READINGS ARE DOCUMENTED BY COMPLETING ATT 1 OF HC.RE-ST.ZZ-0001(Q).
18. WHENEVER THE CONTAINMENT IS VENTED OR PURGED. CONTAINMENT SHALL BE DETERMINED TO BE ALIGNED FOR VENTING OR PURGING THROUGH EITHER THE RBVS OR FRVS WITHIN 4 HOURS PRIOR TO START OF AND AT LEAST ONCE PER 12 HOURS DURING VENTING OR PURGING OF THE DRYWELL. FOLLOWING TYPE A ILRT THE MARK 1 CONTAINMENT MAY BE VENTED THROUGH THE HARDENED TORUS VENT. N/A WHEN NO VENTING OR PURGING IS IN PROGRESS.
19. WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL
20. RECORD HIGHEST OPERABLE INDICATION FROM EACH CHANNEL (ALPHA - SB-TR-3881A1, RM-11 (9AX833) // BRAVO - SB-TR-3881B1, RM-11 (9AX834)).

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is operating at 99.8 percent core thermal power following a startup.
2. HC.OP-DL.ZZ-0026(Q) Surveillance Log Attachment 1a is being performed for Midnight Shift.
3. The normal P1 Report is not available.

INITIATING CUE:

PERFORM DL-26 Attachment 1a – Surveillance Log Items 20, 21, and 22 with materials provided below:

- DL-26 Attachment 1a – Surveillance Log page 22.
- ALTERNATE P1 REPORT.
- HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE procedure without EXHIBITS, completed up to and including Step 5.3.
- HC.RE-ST.ZZ-0001 CORE THERMAL LIMITS SURVEILLANCE Attachment 2.

WHEN FINISHED, RETURN ALL PAPERWORK TO THE PROCTOR.

ALTERNATE P1 REPORT
Page 1 of 2

PAGE 1

HOPE CREEK CYCLE 16 | SEQUENCE NO 20
3DM/P11 | 23-AUG-2010 23:31 CALCULATED
PERIODIC LOG | 23-AUG-2010 23:59 PRINTED
AUTOMATIC | CASE ID FMLD1080428093156
CALC RESULTS | RESTART FMLD1080428090201
| LPRM SHAPE - FULL CORE

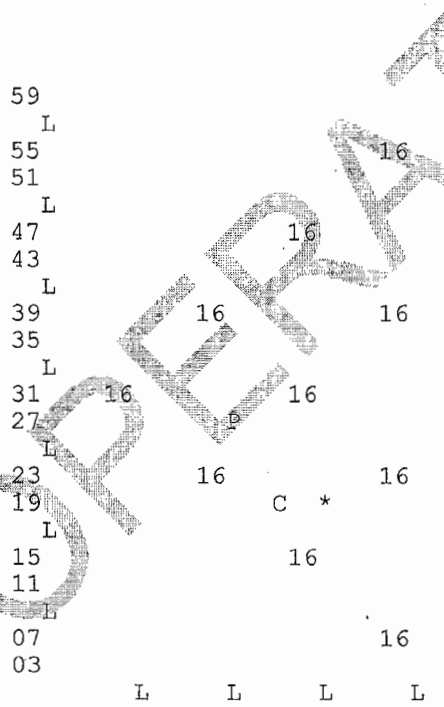
CORE PARAMETERS					LOAD LINE SUMMARY	
POWER	MWT	3832.3	Keff	1.0062		
POWER	MWE	1268.5	XE WORTH %	-2.26	CORE POWER	99.8%
FLOW	MLB/HR	87.257	XE/RATED	1.001	CORE FLOW	87.3%
FPAPDR		0.799	AVE VF	0.473	LOAD LINE	106.8%
SUBC	BTU/LB	24.05	FLLLP	0.997		
PR	PSIa	1018.96				
CORE	MWD/sT	20831.2				
CYCLE	MWD/sT	3557.5				
MCPR		1.450				

CORRECTION FACTORS: MFLCPR= 1.001 MFLPD= 0.999 MAPRAT= 1.000 ZBB= 2.09 ft
OPTION: ARTS 2 LOOPS ON MANUAL FLOW MCPRLIM= 1.370 FCBB= N/A

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCRAT	LOC
0.945	19-20	1.002	23-20- 4	1.001	23-20- 4	0.923	17-28- 5
0.941	41-24	0.994	41-24- 4	0.957	41-24- 4	0.919	33-18- 5
0.940	23-20	0.986	27-16- 4	0.953	27-16- 4	0.997	23-20- 4
0.929	25-22	0.981	15-28- 4	0.953	25-18- 4	0.996	43-24- 5
0.928	39-26	0.972	43-26- 4	0.953	43-26- 4	0.993	41-24- 4
0.917	43-26	0.970	25-18- 4	0.948	15-28- 4	0.993	11-36- 5
0.915	25-18	0.968	25-22- 4	0.947	35-26- 4	0.988	23-18- 5
0.912	35-36	0.964	39-26- 4	0.946	25-22- 4	0.987	13-34- 5
0.905	27-16	0.963	23-24- 4	0.945	27-20- 4	0.986	27-16- 4
0.904	15-28	0.958	27-20- 4	0.943	39-26- 4	0.985	27-14- 5

SEQ. A-2 C=MFLCPR D=MFLPD M=MAPRAT P=PCRAT *=MULTIPLE



NOTCH	REL PW	LOC
	0.161	25
00	0.290	24
02	0.538	23
04	0.685	22
06	0.783	21
08	0.856	20
10	0.904	19
12	0.929	18
14	0.952	17
16	0.937	16
18	0.966	15
20	1.094	14
22	1.129	13
24	1.184	12
26	1.235	11
28	1.260	10
30	1.286	09
32	1.333	08
34	1.369	07
36	1.420	06
38	1.468	05 <-
40	1.457	04
42	1.342	03
44	1.043	02
46	0.379	01

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	1.168	1.209	1.132	1.248	1.186	1.196	1.015	0.554

ALTERNATE P1 REPORT
Page 2 of 2

HOPE CREEK CYCLE 16 INSTRUMENT READINGS/STATUS
CALIBRATED LPRM READINGS

SEQUENCE NO 20
23-AUG-2010 23:31 CALCULATED
23-AUG-2010 23:59 PRINTED
CASE ID FMLD1080428093156
LPRM SHAPE - FULL CORE

57D		21.4	28.2	24.2	26.6		
C		27.3	37.7	31.9	36.1		
B		31.3	47.0	39.0	45.3		
A		25.8	48.1	35.3	49.2		
49D	22.7	36.1	41.3	38.3	41.4	32.5	
C	29.4	48.7	49.3	50.8	49.8	43.3	
B	33.0	60.5	56.7	60.7	57.2	0.0	
A	26.6	67.1	59.0	66.5	62.2	56.7	
41D	34.1	43.0	40.2	34.9	43.6	42.2	26.7
C	45.9	51.5	53.7	47.4	56.3	50.0	36.9
B	0.0	0.0	64.9	57.2	65.5	58.0	46.0
A	61.8	60.4	73.2	62.2	73.2	61.9	49.0
33D	30.4	38.5	34.2	37.5	35.0	37.7	24.8
C	43.0	51.9	47.5	51.1	47.2	50.9	32.8
B	54.5	63.1	59.2	62.6	57.6	61.0	39.2
A	60.5	72.3P	62.7	67.8	62.4	68.3	34.9
25D	35.1	43.1C	38.7	33.4	40.2	40.6	27.8
C	47.3	51.8	52.8	46.7	54.4	0.0	37.5
B	59.6	60.0	64.8	58.7	65.4	56.9	46.6
A	68.0	65.3*	74.9	65.4	74.8	61.4	49.6
17D	32.4	40.7	42.8	39.1	43.2	37.0	20.8
C	43.2	51.7	51.5	51.6	51.0	49.8	26.8
B	53.0	60.7	59.4	62.5	58.4	60.6	30.3
A	54.5	62.0	65.6	72.6	60.9	64.9	25.6
09D		31.3	34.5	30.8	32.1	21.8	
C		42.2	47.1	43.2	44.2	28.4	
B		52.1	59.2	54.4	56.6	32.1	
A		55.6	67.8	61.7	64.6	26.2	

08	16	24	32	40	48	56

OF TIPS NOT SCANNED: 1
OF TIPS REJECTED: 2

FAILED SENSORS:
LPRM (4 SIGNALS FAILED)
841B 1641B 4825C 4849B
LPRM (0 PANACEA REJECTED)
OTHER SENSORS (0 TOTAL)
SUB RODS
NONE

T = TIP RUN RECOMMENDED
C = MFLCPR LOCATION
M = MAPRAT LOCATION
D = MFLPD LOCATION
P = PCRAT LOCATION
* = MULTIPLE LIMIT

CORE SUMMARY

INER	1.045					
CORE POWER	99.8%	CALC SUB FLOW	87.5%	DP MEAS PSI		11.683
CORE FLOW	87.3%	OPER SUB FLOW	-1.0%	DP CALC PSI		17.139
LOAD LINE	106.8%	FLOW BASIS	MEAS	FEEDWTR FLOW MLB/HR		14.23

APRM CALIBRATION

	A	B	C	D	E	F
READING	99.8	99.5	100.3	99.5	99.6	99.7
AGAF	1.001	1.004	0.996	1.004	1.003	1.001
APRM - %CTP	0.0	-0.3	0.5	-0.3	-0.2	-0.1

TIP RUNS RECOMMENDED
STRINGS: NONE

ATTACHMENT 2
CORE THERMAL LIMITS SURVEILLANCE FORM

1.0 COLLECTION OF CORE THERMAL LIMITS

Date/Time of Monitor Case*: _____ (Date) _____ (Time)

- Limiting MFLCPR [1]
- Limiting MFLPD [2]
- Limiting MAPRAT [3]

2.0 ACCEPTANCE CRITERIA

			Action Statements
☐ SATISFACTORY	Limiting MFLCPR	**[1] ≤ 1.000**	**T/S 3.2.3**
	AND		
	Limiting MFLPD	**[2] ≤ 1.000**	**T/S 3.2.4**
	AND		
	→ Limiting MAPRAT	**[3] ≤ 1.000**	**T/S 3.2.1**
☐ UNSATISFACTORY	→ Otherwise		

3.0 LIMITING CONTROL ROD PATTERN

			Action Statements
☐ LIMITING	Limiting MFLCPR	**[1] = 1.000**	**T/S 3.1.4.3, 3.2.3**
	AND		
	Limiting MFLPD	**[2] = 1.000**	**T/S 3.1.4.3, 3.2.4**
	AND		
	→ Limiting MAPRAT	**[3] = 1.000**	**T/S 3.1.4.3, 3.2.1**
☐ NOT LIMITING	→ Otherwise		

Performed By _____ _____ Date-Time

Reviewed By _____ _____ Date-Time

ATTACHMENT 1a
Surveillance Log - Control Room

Operational Condition ____________ **Date** ____________

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
10	SUPPRESSION CHAMBER AVERAGE WATER TEMP	1,2,3	60	---	95	SB-TR-3881A1, RM-11 (9AX833) (*CIRCLE HIGHEST OPERABLE*)	N/A	N/A		**(NOTES** Error! Reference source not found., **16., 20.)**
	.		60	---	95	SB-TR-3881B1, RM-11 (9AX834) (*CIRCLE HIGHEST OPERABLE*)	N/A	N/A		
11.	DRYWELL PRESSURE	1,2,3	-.25	0-1	+1.5	GS-PR4960A3				
12	SUPPRESSION CHAMBER PRESSURE	1,2,3	-.25	0-1	+1.5	GS-PR4960B3				
13	RX BLDG PRESSURE	1,2,3,*	—	—	< 0	GS-PDR9426A OR B				**(NOTE 19.)**
14	SLC STORAGE TANK VOLUME	1,2	4640	4800 - 4880	4880	CRIDS PT A7052	N/A	N/A		**(NOTE 14., 15.,)**
15	RPV FLANGE LEAK IN ALARM	1,2,3	—	NO	—	D3-A4	N/A	N/A		
16	SLC TANK TROUBLE IN ALARM	1,2	—	NO	—	C1-E1				
17	SDV VENT AND DRAIN VALVES OPEN	1,2	—	YES	—	—	N/A	N/A		
18	CONT VENTING OR PURGING IS THRU RBVS OR FRVS	**NOTE 18.**	—	YES	—	—				
19	SLC WT%	1,2	13.6	14.0-14.4	14.4	HC.CH-TI.ZZ-0013 Form 1, Page 2 of 2	N/A	N/A		**(NOTE 14.)**
	SLC TK VOL	1,2	—	4800 - 4880	—		N/A	N/A		**(NOTE 14.)**
20	MFLCPR	1	—	—	1	3D MONICORE	N/A	N/A		**(NOTE 13., 17.)**
21	MFLPD	1	—	—	1	3D MONICORE	N/A	N/A		**(NOTE 13., 17.)**
22	MAPRAT	1		—	1	3D MONICORE	N/A	N/A		**(NOTE 13., 17.)**

NOTES:
2. IF VALUE IS OOS OR INSTRUMENT IS INOP, INCREASED SURVEILLANCE REQUIREMENTS MAY BE NECESSARY.
13. INCREASED SURVEILLANCE REQUIREMENTS MAY BE NECESSARY (WHEN OPERATING WITH A LIMITING CONTROL ROD PATTERN; WITHIN 12HRS AFTER THERMAL POWER INCREASE GREATER THAN OR EQUAL TO 24% OF RTP).
14. ITEMS 14 AND 19 ARE DEPENDENT ON FIGURE 3.1.5-1 IN T/S. IF CONCENTRATION OR VOLUME IS OUTSIDE OF THE NORM BAND, THEN DETERMINE SAT OR UNSAT WITHIN ACCEPTABLE OPERATING REGION OF FIGURE 3.1.5-1.
15. TANK VOLUME SHOULD BE MAINTAINED BETWEEN 4800 - 4880 TO ALLOW FOR THE WIDEST POSSIBLE CONCENTRATION RANGE PER T/S FIGURE 3.1.5-1. **[80001560]**
16. REFER TO ATTACHMENT 3W FOR ALTERNATE SUPPRESSION POOL TEMPERATURE DETERMINATION. IF 95°F EXCEEDED, IMPLEMENT ATTACHMENT 3F.
17. ENSURE READINGS ARE DOCUMENTED BY COMPLETING ATT 1 OF HC.RE-ST.ZZ-0001(Q).
18. WHENEVER THE CONTAINMENT IS VENTED OR PURGED. CONTAINMENT SHALL BE DETERMINED TO BE ALIGNED FOR VENTING OR PURGING THROUGH EITHER THE RBVS OR FRVS WITHIN 4 HOURS PRIOR TO START OF AND AT LEAST ONCE PER 12 HOURS DURING VENTING OR PURGING OF THE DRYWELL. FOLLOWING TYPE A ILRT THE MARK 1 CONTAINMENT MAY BE VENTED THROUGH THE HARDENED TORUS VENT. N/A WHEN NO VENTING OR PURGING IS IN PROGRESS.
19. WHEN HANDLING RECENTLY IRRADIATED FUEL IN THE SECONDARY CONTAINMENT AND DURING OPERATIONS WITH A POTENTIAL FOR DRAINING THE REACTOR VESSEL
20. RECORD HIGHEST OPERABLE INDICATION FROM EACH CHANNEL (ALPHA - SB-TR-3881A1, RM-11 (9AX833) // BRAVO - SB-TR-3881B1, RM-11 (9AX834)).

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: 2990090301

JPM NUMBER: 305H-JPM.ZZ030 **REV #:** 02
NRC ADMIN JPM RO A2

SAP BET: NOH05JPZZ30E

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: A. Faulkner **DATE:** 6/30/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ030 **REV:** 02

SYSTEM: Conduct of Operations

TASK NUMBER: 2990090301

TASK: Generate An SAP System Valve/Breaker Alignment

ALTERNATE PATH: [ ] **K/A NUMBER:** 2.1.29

IMPORTANCE FACTOR: 4.1 (RO) 4.0 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL.ZZ-0015 Rev 21
OP-AA-109-115-1001 Rev 0

TOOLS, EQUIPMENT AND PROCEDURES: SAP Computer and accessible SAP printer.

ESTIMATED COMPLETION TIME: _____ Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: **2990090301**

INITIAL CONDITIONS:

1. The plant is at 100% power steady state.
2. The current time is 3:30 am.

INITIATING CUE:

You are the Tuesday Night Shift Plant Operator.
PRINT a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) for the Shift Routine.

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**SETUP** **ENSURE** a printout of an OFF-NORMAL report is available on the day of the exam to compare operator results.	N/A			
CUE	**SETUP** **Logon to the SAP Training Client Using:** **PSEG Applications Online** Click on: **TRAINING** folder Click on: **Enterprise Training System - ECC6** icon User: **train20** Password: **welcome9** Ensure the "WCM: Area Menu" is open (Fast Path **ZWCMM**)	N/A			
CUE	**PROVIDE** the operator the initiating cue AND the following: ☐ A prepared copy of HC.OP-DL.ZZ-0015 with an Attachment 1 completed for Dayshift (Attached) ☐ OP-AA-109-115-1001	Operator repeats back initiating cue.			

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	HC.OP-DL.ZZ-0015	N/A			
3.6.1. A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room	**Examiner Note:** Refer to steps below for Standards associated with this step.			
	IF necessary, THEN Operator obtains the correct procedure.	Operator obtains procedure OP-AA-109-115-1001. **Examiner Note:** The procedure is only a desktop guide and the operator may be proficient at the task and NOT reference the desktop guide.			
	OP-AA-109-115-1001	N/A			
5.3.6	Printing/Reviewing Off-Normal From the WCM: Area Menu A. Click "WCM Reports" menu, then click "Off Normal Report (Version 1)".	Operator Clicks: "WCM Reports" menu. Operator then clicks "Off Normal Report (Version 1)".			

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	B. Complete "Object Info" section for report to be obtained.	Operator enters the following Object Info: Planning Plant: **NNUC**	*		
		Plant Section: **HC**	*		
		Mode: **01**	*		
		Type: **F**	*		
		Technical Object: * OR **H*** OR **H1***	*		
	C. Select desired "Display Filter" either "Off Normal" or "Tagged" or both.	Operator selects "Display Filter" for "Off Normal" ONLY.	*		
	D. If printing report:	Based on Initiating Cue, Operator determines printing the report IS required. **Examiner Note:** It is NOT critical in the following steps HOW the Operator prints the Report. For instance, may select preview mode and then use printer icon. It is also NOT critical to actually retrieve the printout. (Not all SAP printers work in the Training Client) **Critical portion is to execute steps to generate a printout.**			
	• Under "Program" select "Execute and Print".	Under "Program", Operator selects "Execute and Print".	*		

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	IF in the LDC, THEN **PROVIDE** the Operator with an accessible SAP printer number. PRINTER PROVIDED: _____ IF in the LDC and the applicant does not have permission to print the report THEN terminate at this point.	N/A			
	• Select output device then click "Continue".	Operator Selects an output device then clicks "Continue".	*		
	E. If reviewing report, click "Execute".	Based on Initiating Cue, Operator determines this step is not required.			
	F. Click "Back".	Operator clicks "Back" to exit.			
	HC.OP-DL.ZZ-0015	N/A			
CUE	**RETRIEVE** printed Off-Normal AND **INFORM** the operator the Report has been filed.	N/A			
3.6.1. A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room	WHEN printed Off-Normal is filed, THEN Operator enters time (simulated to be 03:30) AND initials Attachment 1.			

JPM: ZZ030 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Generate An SAP System Valve/Breaker Alignment**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ030

TASK: Generate An SAP System Valve/Breaker Alignment

TASK NUMBER: 2990090301

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power steady state.

INITIATING CUE:

You are the Tuesday Night Shift Plant Operator.
PRINT a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) for the Shift Routine.

JOB PERFORMANCE MEASURE

ATTACHMENT 1
(Page 1 of 1)
TUESDAY SHIFT ROUTINE LOG

Date: TODAY

REQUIRED		ROUTINES	0600 - 1800	1800 - 0600
1 X Shift	3.6.1.B	**PERFORM** lamp test on all possible Sections of 10C800.	JJ	
NOTE	3.6.3	**MARK** all Control Room strip charts (Date & Initial), **VERIFIED** status of Paperless Recorders. **NOTIFIED** I&C if Memory Space digital reading ≥ 20%.	JJ	

NOTE - Only recorders that are Operating or Operable need be checked.

REQUIRED		ROUTINES	TIME COMPLETED	INITIALS
1800 - 0600	3.6.1.A	**PRINT** a copy of the WCM Off-Normal Report (Off-Normal and NOT Tagged) AND **FILE** in the Control Room		
1800 - 0600	3.6.2	Control Room cleanup		
1800 - 0600	3.6.4	Attachment 2 of SH.OP-DL.ZZ-0027(Z), has been completed and Temporary Log package for the next day has been prepared.		
1800 - 0600	3.6.5	**PLACE** the out-of-service TSC Chilled Water Pump 1A(B)-P-414 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0002(Q), A(B)K403 1E Panel Room Chilled Water System Operation.. **[70036044]**		
1800 - 0600	3.6.6	**PLACE** the out-of-service Control Area Chilled Water Pump 1A(B)-P-400 in-service (pump only) for a 1-hour run to purge any air from piping high points IAW HC.OP-SO.GJ-0001(Q), Control Area Chilled Water System Operation. **[70086974]**		

Performed By: John Jones

Supervisor Review: Tim Johnson
0600-1800

1800-0600

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ030

Rev #	Date	Description	Validation Required?
1	11/8/08	Converted to new format. Changed initiating cue from plant startup conditions to Daily Shift Routine to increase the Operational Validity. Added Cue to ensure a printout of that day's OFF-NORMAL report is available to compare to the Operator generated report. Revised wording of LOG ON instructions to match actual LOG ON actions. Editorial change. No re-validation required.	Y
2	5/26/10	Revised due to SH.WM-DG.ZZ-0015 was superseded by OP-AA-109-115-1001. Action steps did not change.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK: Perform An Accident Monitoring Instrumentation Channel Check

TASK NUMBER: 2160010201

JPM NUMBER: 305H-JPM.ZZ025 **REV #:** 02
NRC ADMIN JPM RO A3

SAP BET: **NOH05JPZZ25E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: A. Faulkner **DATE:** 6/30/10
Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010
Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ025 **REV:** 02

SYSTEM: Equipment Control

TASK NUMBER: 2160010201

TASK: Perform An Accident Monitoring Instrumentation Channel Check

ALTERNATE PATH: [X] **K/A NUMBER:** 2.2.12

IMPORTANCE FACTOR: 3.7 (RO) 4.1 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.SH-0001 Rev 29

TOOLS, EQUIPMENT AND PROCEDURES: Prepared copy of HC.OP-ST.SH-0001

ESTIMATED COMPLETION TIME: 18 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Equipment Control

TASK: Perform An Accident Monitoring Instrumentation Channel Check

TASK NUMBER: **2160010201**

INITIAL CONDITIONS:

1. HC.OP-ST.SH-0001(Q), Accident Monitoring Instrumentation Channel Check – Monthly is required.
2. No other testing or maintenance is in progress that will adversely affect the performance of this test.

INITIATING CUE:

PERFORM Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q).
Another operator will complete the rest of the Surveillance (Steps 5.7 to end).

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND a prepared copy of HC.OP-ST.SH-0001 with Attachment 1 Section 1.0 PRETEST INFORMATION completed.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN **INFORM** operator that all are satisfied.	N/A			
5.1	**LOG** test start time in the Control Room log(s).	Operator requests that the start time be logged in the Control Room log.			
CUE	WHEN asked to log the surveillance in the Control Room logs, THEN **REPORT** the surveillance has been logged in the Control Room logs.	Operator initials step 5.1.			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.2	**ENSURE** that all prerequisites have been satisfied IAW Section 2.0.				
CUE	IF excessive time is taken reviewing prerequisites, THEN **INFORM** operator that all are satisfied.	N/A			
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.	Operator ensures permission to perform test is authorized on Attachment 1 Section 1.0.			
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.	Operator signs Attachment 1.0, Section 3.0.			
2.3	Plant is in any condition.	Operator observes plant is in any condition.			
2.4	No other testing OR maintenance is in progress that will adversely affect the performance of this test.	Based on initial conditions, operator recognizes no testing or maintenance is in progress that will adversely affect the performance of the test.			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3	**ENSURE** Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed AND Regular Surveillance OR Retest is indicated.	Operator observes Attachment 1 Section 1.0 has been completed and Regular Surveillance is indicated.			
5.4	**PERFORM** a Channel Check of the following Reactor Vessel Pressure instruments, **RECORD** AND **COMPARE** the indicated pressure readings on Attachment 2: **[T/S 4.3.7.5-1, item 1]**	**Examiner Note:** Refer to following steps for standards associated with this step.			
5.4.1	REACTOR PRESSURE Indicator PI-3684A (Red)	Operator records the value of PI-3684A (Red) on Attachment 2.			
5.4.2	REACTOR PRESSURE Recorder PR-3684A-1 (Red) (alternate indication for PI-3684A) (Panel 10C650 Section B Subsection B)	Operator records the value of PI-3684A-1 (Red) on Attachment 2.			
5.4.3	REACTOR PRESSURE Recorder PR-3684B (Red)	Operator records the value of PR-3684B (Red pen) on Attachment 2.			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.4	**VERIFY** Reactor Pressure instrumentation Channel Check complete, **ENTER** SAT or UNSAT AND **INITIAL** the appropriate space on Attachment 2.	Operator compares the values recorded for PI-3684A (Red), PI-3684A-1, and PR-3684B (Red pen) and verifies they are within 75 psig, then enters SAT on Attachment 2.	*		
		Operator initials Attachment 2.			
5.5	**PERFORM** a Channel Check of the following Reactor Vessel Water Level instruments, **RECORD** AND **COMPARE** the indicated level readings on Attachment 2: **[T/S 4.3.7.5-1, item 2]**	**Examiner Note:** Refer to following steps for standards associated with this step.			
5.5.1	REACTOR FUEL ZONE Water Level Recorder LR-R615 (10C650 A Subsection F)	Operator records the value of LR-R615 (10C650 A Subsection F) on Attachment 2.			
5.5.2	REACTOR FUEL ZONE Water Level Indicator LI-R610 (10C650 A Subsection G)	Operator records the value of LI-R610 (10C650 A Subsection G) on Attachment 2.			
5.5.3	REACTOR CHANNEL A Water Level Recorder LR-R623A (Red)	Operator records the value of LR-R623A (Red pen) on Attachment 2. [32 inches]			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.5.4	REACTOR CHANNEL B Water Level Recorder LR-R623B (Red)	Operator records the value of LR-R623B (Red pen) on Attachment 2. [26 inches]			
5.5.5	REACTOR WATER Level Recorder LR-3622A (Blue)	Operator records the value of LR-3622A (Blue pen) on Attachment 2.			
5.5.6	REACTOR WATER Level Recorder LR-3622B (Blue)	Operator records the value of LR-3622B (Blue pen) on Attachment 2.			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.5.7	**VERIFY** Reactor Water Level instrumentation Channel Check complete, **ENTER** SAT or UNSAT AND **INITIAL** the appropriate space on Attachment 2.	Operator compares the values recorded for: • LR-R615 (10C650 A Subsection F), • LI-R610 (10C650 A Subsection G) And verifies they are within 10 inches, AND, • LR-R623A (Red pen) • LR-R623B (Red pen) And verifies they are within 10 inches, AND, • LR-3622A (Blue pen) • LR-3622B (Blue pen), Are within 20 inches, then enters SAT on Attachment 2.	*		
		Operator initials Attachment 2.			
		Operator: refers to **NOTE 1**, determines the difference between LR-R623A and LR-R623B exceeds half the Max Variance, and notifying System Engineering is required.	*		
CUE	**ACKNOWLEDGE** report from operator that variance between LR-R623A and LR-R623B exceeds half the Max Variance.	N/A			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.6	**PERFORM** a Channel Check of the following Suppression Pool Water Level instruments, **RECORD** AND **COMPARE** the indicated level readings on Attachment 2: [**T/S 4.3.7.5-1, item 3**]	**Examiner Note:** Refer to following steps for standards associated with this step.			
5.6.1	SUPPRESSION POOL Water Level Recorder LR-4805-1 (RED) (10C650B Subsection B)	Operator records the value of LR-4805-1 (10C650B Subsection B) on Attachment 2.			
5.6.2	SUPPRESSION POOL Water Level Indicator LI-4801 (BLUE)	Operator records the value of LI-4801 on Attachment 2.			
5.6.3	**VERIFY** Suppression Pool Water Level instrumentation Channel Check complete, **ENTER** SAT or UNSAT AND **INITIAL** the appropriate space on Attachment 2. [**CD-488E**]	Operator compares the values recorded for LR-4805-1 and LI-4801 and verifies they are within 9 inches, then enters SAT on Attachment 2.			
		Operator initials Attachment 2.			

JPM: ZZ025 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Perform An Accident Monitoring Instrumentation Channel Check**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ025

TASK: Perform An Accident Monitoring Instrumentation Channel Check

TASK NUMBER: 2160010201

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

ATTACHMENT 1
(Page 1 of 3)
SM/CRS DATA AND SIGNATURE SHEET
ACCIDENT MONITORING INSTRUMENTATION CHANNEL CHECK - MONTHLY

1.0 PRETEST INFORMATION

1.1 Reason for the Test

1.1.1 Regular Surveillance — *JMJ* (INITIALS)

1.1.2 Retest/Other — _____ (INITIALS)

1.1.3 IF not performing the complete test,
THEN **LIST** subsection(s)/valves to be performed, as well as marking N/A on the applicable subsection(s)/valves 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)/VALVE(S)

1.2 Plant Conditions

1.2.1 Operational Condition: **1**

1.2.2 Reactor Power Level: **100%**

1.2.3 GMWe: **1260**

1.3 Permission to Perform the Test

1.3.1 Permission granted to perform this test.

Joe Johnson	**Today/Now**
OS/CRS/WCCS	DATE-TIME

1.3.2 Work Order No. _____

SM/CRS DATA AND SIGNATURE SHEET
ACCIDENT MONITORING INSTRUMENTATION CHANNEL CHECK - MONTHLY

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 Specifications 4.3.7.5, Table 4.3.7.5-1 items 1 thru 12 and 14 and UFSAR 6.2.5.2.5 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 Variance between LR-R623A and LR-R623B exceeds half of the allowable variance. System Engineering notified.

JOB PERFORMANCE MEASURE
ATTACHMENT 1
(Page 3 of 3)
SM/CRS DATA AND SIGNATURE SHEET
ACCIDENT MONITORING INSTRUMENTATION CHANNEL CHECK - MONTHLY

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)

PRINT NAME	SIGNATURE	INITIALS	DATE/TIME
Joe Johnson	*Joe Johnson*	*JMJ*	TODAY/NOW

CONTROL ROOM DATA SHEET
ACCIDENT MONITORING INSTRUMENTATION CHANNEL CHECK - MONTHLY

REACTOR VESSEL PRESSURE INSTRUMENTATION			
STEP	**INSTRUMENT NUMBER**	**MAX VARIANCE BETWEEN CHs**	**PRESSURE**
5.4.1	PI-3684A (RED)	75 PSIG (NOTE 1)	
5.4.2	PR-3684A-1 (Red)		
5.4.3	PR-3684B (RED)		

5.4.4 Reactor Vessel Pressure Instrumentation Channel Check

*

SAT/UNSAT _____ INITIAL _____

REACTOR VESSEL WATER LEVEL INSTRUMENTATION			
STEP	**INSTRUMENT NUMBER**	**MAX VARIANCE BETWEEN CHs**	**LEVEL**
5.5.1	LR-R615	10 INCHES (NOTE 1)	
5.5.2	LI-R610		
5.5.3	LR-R623A (RED)	10 INCHES (NOTE 1)	**32**
5.5.4	LR-R623B (RED)		**26**
5.5.5	LR-3622A (BLUE)	20 INCHES (NOTE 1)	
5.5.6	LR-3622B (BLUE)		

5.5.7 Reactor Water Level Instrument Channel Check

*

SAT/UNSAT _____ INITIAL _____

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

NOTE 1 IF maximum channel variance exceeds half the required value **NOTIFY** System Engineer. [**CD-772F**]

CONTROL ROOM DATA SHEET
ACCIDENT MONITORING INSTRUMENTATION CHANNEL CHECK - MONTHLY

SUPPRESSION POOL WATER LEVEL INSTRUMENTATION			
STEP	**INSTRUMENT NUMBER**	**MAX VARIANCE BETWEEN CHs**	**LEVEL**
5.6.1	LR-4805-1 (RED)	9 INCHES	
5.6.2	LI-4801 (BLUE)		

5.6.3 Suppression Pool Level Instrumentation Channel Check

_____ _____ *

SAT/UNSAT INITIAL

SUPPRESSION CHAMBER PRESSURE INSTRUMENTATION			
STEP	**INSTRUMENT NUMBER**	**MAX VARIANCE BETWEEN CHs**	**PRESSURE**
5.7.1	PR-4960A1 (RED)	10 PSIG	
5.7.2	PR-4960B1 (RED)		
5.7.3	PR-4960B3 (GREEN)	0.5 PSIG	
5.7.4	PI-4960B3 (RED)		

5.7.5 Suppression Chamber Pressure Instrumentation Channel Check

_____ _____ *

SAT/UNSAT INITIAL

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

INITIAL CONDITIONS:

1. HC.OP-ST.SH-0001(Q), Accident Monitoring Instrumentation Channel Check – Monthly is required.
2. No other testing or maintenance is in progress that will adversely affect the performance of this test.

INITIATING CUE:

PERFORM Steps 5.1 through 5.6.3 of HC.OP-ST.SH-0001(Q).
Another operator will complete the rest of the Surveillance (Steps 5.7 to end).

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	

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

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

Initial	Description
_____	**COMPLETE** Section 1 of HC.OP-ST.SH-0001 to support the surveillance.
_____	**ENSURE** LR-R623A-B21 indicates 32. Adjust I/O Override as necessary.
_____	**ENSURE** LR-R623B-B21 indicates 26. Adjust I/O Override as necessary.
_____	**ENSURE** HPCI LR-PR 3684A-1 is in Trend display mode.
_____	**ENSURE** other indications are SAT IAW the surveillance. Adjust as necessary.
_____	**REMOVE** any simulated plant Red Stripes associated with surveillance instruments.

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	8AR22 R AO REAC LEVEL LR-R623A-B21	---	---	NONE	---	31.2
	8AR22 R AO REAC LEVEL LR-R623B-B21	---	---	NONE	---	26.5

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ025

Rev #	Date	Description	Validation Required?
01	11/18/08	Converted JPM ZZ025 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. New revision of ST.SH-0001 added channel check for new Control Room indicator PI-3684A-1. This requires validation.	Y
03	6/2/10	Revised Step 5.4.2 to add panel location due to procedure revision to Rev. 29. Adjusted override values due to new simulator model. Validated with 2 ROs. Avg time was 13 minutes. Added to setup, "ENSURE LR-PR-3684A-1 is in Trend Display mode."	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

TASK NUMBER: 4000270401

JPM NUMBER: 305H-JPM.ZZ020 **REV #:** 01
NRC ADMIN JPM RO A4

SAP BET: **NOH05JPZZ20E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/2/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/10/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ020 **REV:** 01

SYSTEM: Administrative

TASK NUMBER: 4000270401

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

ALTERNATE PATH: [ ] **K/A NUMBER:** 295038 A1.01

IMPORTANCE FACTOR: 3.9 (RO) 4.2 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0004 Rev.4

TOOLS, EQUIPMENT AND PROCEDURES: Calculator

ESTIMATED COMPLETION TIME: _____ Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Administrative

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

TASK NUMBER: **4000270401**

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. A Fuel Bundle was damaged while being moved in the Spent Fuel Pool.
3. Rising activity is observed on the following RM-11 radiation monitors:
   - South Plant Vent (SPV) (9RX580)
   - Refuel Floor Exhaust A, B, and C (9RX627, 628, 629)
4. SPDS is unavailable.
5. CRIDS is unavailable.
6. Abnormal HC.OP-AB.CONT-0004(Q), Radioactive Gaseous Release, and HC.OP-AB.CONT-0005(Q), Irradiated Fuel Damage, are being executed concurrently to stop the release of activity.

INITIATING CUE:

Using the RM-11, determine the Total Noble Gas Release Rate in accordance with Action A.4 of HC.OP-AB.CONT-0004(Q).

JPM: ZZ020 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative**

TASK: **Respond To An Abnormal Release Of Gaseous Radioactivity**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
CUE	**IF** candidate attempts to use CRIDS state "CRIDS is unavailable".				
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0004.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be A.4.			
A.4	DETERMINE the Total Release Rates of Noble Gas and Iodine as follows: USE the SPDS Noble Gas Total. OR USE one of the Formulas in Table "A".	Operator manipulates the RM-11 terminal to obtain the values of Noble Gas release from the 9RX580, 9RX590, 9RX680, and 9RX518 detectors and enters the value into the formula; then the operator calculates the Total Noble Gas Release Rate as follows:			
		Operator determines SPDS is not available.			

JPM: ZZ020 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative**

TASK: **Respond To An Abnormal Release Of Gaseous Radioactivity**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator used the first formula from Table "A".			
	Operator uses RM-11 to determine value for SPV (9RX580).	Operator determines value for 9RX580 (SPV) is 1.46E+00 µCi/sec.	•		
	Operator uses RM-11 to determine value for NPV (9RX590).	Operator determines value for 9RX590 (NPV) is 1.04E+01 µCi/sec.	•		
	Operator uses RM-11 to determine value for FRVS (9RX680).	Operator determines value for 9RX680 (FRVS) is 4.18E+01 µCi/sec.	•		
	Operator uses RM-11 to determine value for HTV (9RX518).	Operator determines value for 9RX518 (HTV) is 0.00E+00 µCi/sec.	•		
	Operator uses RM-11 to determine value for Total.	Operator determines value for µCi/sec Total is 5.366E+01 µCi/sec. **EXAMINER NOTE: A tolerance of 0.1 is acceptable. (5.266E+01 to 5.466E+01 µCi/sec)**	*		

JPM: ZZ020 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative**

TASK: **Respond To An Abnormal Release Of Gaseous Radioactivity**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	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:**	N/A			

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ020

TASK: Respond To An Abnormal Release Of Gaseous Radioactivity

TASK NUMBER: 4000270401

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ZZ020 **REV#:** 01

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	UNPLUG SPDS Monitors.
	TURN OFF CRIDS Monitors.
	MANUALLY PLACE FRVS in service IAW HC.OP-SO.GU-0001.
	PLACE Simulator in FREEZE.

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

Initial	Description
	ENSURE a copy of HC.OP-AB.CONT-0004 is available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

JPM NUMBER: ZZ020 **REV#:** 01

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	RM9627 RFE 'A' - Refuel Floor Exhaust Chan 'A' Vent Duct	---	---	NONE	---	1.38E-3
	RM9628 RFE 'B' - Refuel Floor Exhaust Chan 'B' Vent Duct	---	---	NONE	---	1.44E-3
	RM9629 RFE 'C' - Refuel Floor Exhaust Chan 'C' Vent Duct	---	---	NONE	---	1.49E-3
	RM9580 SPV EFF - South Plant Vent Noble Gas Effluent	---	---	NONE	---	1.46
	RM9680 FRVSV EFF - FRVS Vent Noble Gas Effluent	---	---	NONE	---	41.8
	RM9590 NPV EFF - North Plant Vent Noble Gas Effluent	---	---	NONE	---	10.4
	AN-C6C5 CRYWOLF ANN C6C5 SPDS SYS	---	---	NONE	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REVISION HISTORY

JPM NUMBER: ZZ020

Rev #	Date	Description	Validation Required?
01	6/2/10	Converted JPM ZZ020 to new JPM format. Broke Critical Task into individual elements. Turned off all CRIDS Monitors. Added Cue that CRIDS is unavailable. Validated with 2 ROs. Avg time was 4 minutes. No comments.	Y

INITIAL CONDITIONS:

1. The plant is operating at 100% power.
2. A Fuel Bundle was damaged while being moved in the Spent Fuel Pool.
3. Rising activity is observed on the following RM-11 radiation monitors:
   - South Plant Vent (SPV) (9RX580)
   - Refuel Floor Exhaust A, B, and C (9RX627, 628, 629)
4. SPDS is unavailable.
5. CRIDS is unavailable.
6. Abnormal HC.OP-AB.CONT-0004(Q), Radioactive Gaseous Release, and HC.OP-AB.CONT-0005(Q), Irradiated Fuel Damage, are being executed concurrently to stop the release of activity.

INITIATING CUE:

Using the RM-11, determine the Total Noble Gas Release Rate in accordance with Action A.4 of HC.OP-AB.CONT-0004(Q).

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Verify DL-26 log requirements for resuming Core Alterations

TASK NUMBER: H304000007

JPM NUMBER: 305H-JPM.ZZ41 **REV #:** 00

NRC ADMIN JPM SRO A1

SAP BET: NOH05JPZZ41E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [ ] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/30/10

Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010

Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10

Training Department

STATION: Hope Creek

JPM NUMBER: ZZ41 **REV:** 00

SYSTEM: Conduct of Operations

TASK NUMBER: H304000007

TASK: Verify DL-26 log requirements for resuming Core Alterations

ALTERNATE PATH: [X] **K/A NUMBER:** 2.1.18

IMPORTANCE FACTOR: 3.6 (RO) 3.8 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-DL-ZZ-0026(Q) Rev. 121
HC.OP-ST.KE-0001 Rev. 31

TOOLS, EQUIPMENT AND PROCEDURES: Blank Core Map

Marked up copy of HC.OP-ST.SF-0001,
Marked up copy of HC.OP-DL-ZZ-0026(Q) Attachment 2

ESTIMATED COMPLETION TIME: _____ Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Verify DL-26 log requirements for resuming Core Alterations

TASK NUMBER: **H304000007**

INITIAL CONDITIONS:

1. Operational Condition 5, with the reactor core fully loaded.
2. The One-Rod-Out Interlock is operable.
3. Control Rod Drive Mechanism (CRDM) 34-39 has been removed.
4. All other rods are at 00.
5. CRDM 26-43 is scheduled to be replaced once CRDM 34-39 is restored.
6. The following Control Rods are hydraulically disarmed for this work:

18-51	22-51	26-51	30-51	34-51		
18-47	22-47	26-47	30-47	34-47	38-47	42-47
18-43	22-43	26-43	30-43	34-43	38-43	42-43
18-39	22-39	26-39	30-39	34-39	38-39	42-39
18-35	22-35	26-35	30-35	34-35	38-35	42-35
			30-31	34-31	38-31	42-31

- As the CRS, you direct HC.OP-DL.ZZ-0026 logs for Attachment 2 ITEMS 13, 14, and 15 to be taken for the midnight shift.

INITIATING CUE:

Validate the completed HC.OP-DL.ZZ-0026 Attachment 2 ITEMs 13, 14, and 15 for the midnight shift.

JPM: ZZ41 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Verify DL-26 log requirements for resuming Core Alterations**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE the operator the initiating cue.**	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
CUE	**Provide operator marked-up copy of HC.OP-DL-ZZ-0026 Attachment 2.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 3.2.			
3.2	If in OP CON 4 or 5 then complete Attachment 2 as follows daily.	Operator reviews Attachment 2.			
	Examiner Note: Initialing steps is not critical.	N/A			

JPM: ZZ41 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Verify DL-26 log requirements for resuming Core Alterations**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ITEM 13	4 FUEL ASSEMBLIES SURROUNDING EACH REMOVED CONTROL ROD OR MECHANISM HAVE BEEN REMOVED FROM THE CORE CELL OR ALL OTHER CONTROL RODS IN A 5X5 ARRAY HAVE BEEN INSERTED AND DISARMED.				
CUE	**Provide copy of blank Control Rod map.**	N/A			
		Operator uses list of hydraulically disarmed Control Rods to determine that **Control Rod 34-39 DOES NOT** meet this requirement.			
		Operator identifies ITEM 13 is incorrectly marked **YES**.	*		

JPM: ZZ41 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Verify DL-26 log requirements for resuming Core Alterations**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator marks ITEM 13 in the MID column **NO** or **UNSAT**,	*		
		Operator adds an entry in the COMMENTS section to indicate Rod 34-39 does not meet the 5 X 5 requirement because 26-31 is not disarmed.			
CUE	**If necessary, cue the operator to continue with the remaining items.**	N/A			
ITEM 14	VERIFY HC.OP-ST.SF-0001(Q) IS CURRENT.				
CUE	**Provide operator with marked up copy of HC.OP-ST.SF-0001.**	N/A			

JPM: ZZ41 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Verify DL-26 log requirements for resuming Core Alterations**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator obtains last completion date of the last performance from Attachment 1 of HC.OP-ST.SF-0001.			
		Operator determines difference of 19 months is correct.			
	EXAMINER NOTE: It is critical that the SRO identify 4.0.2 can be applied.	Operator identifies that ITEM 14 should be marked YES or 19 Mo. Tech Spec 4.0.2 grace period of 25% can be applied, and should be noted in the COMMENTS.	*		
CUE	**If necessary, cue the operator to continue with the remaining items.**				
ITEM 15	ALL OTHER CONTROL RODS ARE INSERTED	Operator determines from the Initial Conditions that all other rods are inserted.			

JPM: ZZ41 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Verify DL-26 log requirements for resuming Core Alterations**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the ITEM is correctly logged.			
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:**	N/A			

REVISION HISTORY

JPM NUMBER: ZZ41

Rev #	Date	Description	Validation Required?
00	6/1/10	Significantly modified Hope Creek 2003 NRC Remediation Exam Admin A1-2. Changed related rods to a different part of the core. Update to new JPM format. Updated all related procedure revisions. Corrected KA Importance Factor values. Validated with 2 SROs. Feedback provided to change 19 Mo. with NO for Item 14.	Y

ATTACHMENT 2
Refuel/Core Alterations

Date *Today's Date*

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
IF CONTROL RODS OR CONTROL ROD MECHANISMS HAVE BEEN REMOVED UNDER T/S 3.9.10.1 OR 3.9.10.2, THEN **COMPLETE** ITEMS 10, 11, 12, AND 13, OTHERWISE, **MARK** ITEMS - N/A										
10.	REACTOR MODE SWITCH POSITION	4, 5	—	LOCKED IN S/D OR REFUEL	—	(10C651)				**(NOTE 1)**
11.	FUEL LOADING OPERATIONS SUSPENDED	4,5	—	YES	—	N/A				
12.	SRM'S FULLY INSERTED AND OPERABLE IAW T/S 3.9.2	4, 5	—	YES	—	(10C651)				
IF CONTROL RODS OR CONTROL ROD MECHANISMS HAVE BEEN REMOVED UNDER T/S 3.9.10.1, THEN **COMPLETE** ITEMS 13 THRU 16, OTHERWISE, **MARK** ITEMS - N/A										
13.	4 FUEL ASSEMBLIES SURROUNDING EACH REMOVED CONTROL ROD OR MECHANISM HAVE BEEN REMOVED FROM THE CORE CELL OR ALL OTHER CONTROL RODS IN A 5X5 ARRAY HAVE BEEN INSERTED AND DISARMED.	4, 5	—	YES	—	N/A			~~YES~~ NO	Rod 34-39 does not meet 5X5 requirement.
14.	VERIFY HC.OP-ST.SF-0001(Q) IS CURRENT.	4, 5	—	—	18 MO	N/A	N/A	N/A	~~NO~~ YES	Surveilance date 1/20/09 is within 25% grace period of TS 4.0.2
15.	ALL OTHER CONTROL RODS ARE INSERTED	4, 5		YES					YES	
16.	VERIFY REACTOR MODE SWITCH REFUEL POSITION ONE-ROD-OUT INTERLOCK OPERABLE AND CURRENT IAW HC.OP-ST.KE-0001(Q)	4, 5		—	VERIFY EVERY 24 HRS **(NOTE 6)**	N/A		N/A	N/A	**(NOTE 5)**

NOTES:
1. ENSURE KEY IS REMOVED WHILE SWITCH IS BEING MAINTAINED "LOCKED".
5. CHECK 4 HOURS PRIOR TO START OF CONTROL ROD OR CONTROL ROD MECHANISM REMOVAL UNDER T/S 4.9.10.1.
6. SURVEILLANCE COMPLETION FREQUENCY EVERY 7 DAYS, IAW T/S 3.9.1.

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ZZ41

TASK: Verify DL-26 log requirements for resuming Core Alterations

TASK NUMBER: H304000007

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONDITIONS:

1. Operational Condition 5, with the reactor core fully loaded.
2. The One-Rod-Out Interlock is operable.
3. Control Rod Drive Mechanism (CRDM) 34-39 has been removed.
4. All other rods are at 00.
5. CRDM 26-43 is scheduled to be replaced once CRDM 34-39 is restored.
6. The following Control Rods are hydraulically disarmed for this work:

18-51	22-51	26-51	30-51	34-51		
18-47	22-47	26-47	30-47	34-47	38-47	42-47
18-43	22-43	26-43	30-43	34-43	38-43	42-43
18-39	22-39	26-39	30-39	34-39	38-39	42-39
18-35	22-35	26-35	30-35	34-35	38-35	42-35
			30-31	34-31	38-31	42-31

- As the CRS, you direct HC.OP-DL.ZZ-0026 logs for Attachment 2 ITEMS 13, 14, and 15 to be taken for the midnight shift.

INITIATING CUE:

Validate the completed HC.OP-DL.ZZ-0026 Attachment 2 ITEMs 13, 14, and 15 for the midnight shift.

ATTACHMENT 2
Refuel/Core Alterations

Date *Today's Date*

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
1.	REACTOR MODE SWITCH POSITION	5	—	LOCKED IN S/D OR REFUEL	—	(10C651)				**(NOTE 1)**
2.	DATE THE REACTOR MODE SWITCH REFUEL POSITION ONE-ROD-OUT INTERLOCK WAS VERIFIED OPERABLE IAW HC.OP-ST.KE-0001(Q)	5	—	—	WITHIN LAST 7 DAYS	N/A		N/A	N/A	
3.	ALL SRM'S FULLY INSERTED	4, 5	—	YES	—	(10C651)				
4.	RX WATER LEVEL >22' 2"	5	—	YES	—	(D1-A5 OR LOCAL)				
5.	ALL CONTROL RODS INSERTED AND ALL CONTROL ROD DRIVE MECHANISMS INSTALLED	4, 5				(10C651)				**(NOTE 2)**
6.	ADEQUATE SHUTDOWN MARGIN	4, 5	—	YES	—	HC.RE-ST.ZZ-0007(Q)				
IF CORE ALTERATIONS ARE IN PROGRESS THEN COMPLETE ITEMS 7 THRU 9, OTHERWISE MARK ITEMS - N/A										
7.	OPERABLE SRM IN SAME AND ADJACENT QUADRANT AS CORE ALTERATIONS	4, 5	—	YES	—	(10C651)				**(NOTE 7)**
8.	DIRECT COMMUNICATION BETWEEN CONTROL ROOM AND REFUEL FLOOR EXISTS.	5	—	YES	—	(10C651)				
9.	DATE THE NEEDED REFUEL POSITION INTERLOCKS WERE DEMONSTRATED OPERABLE IAW HC.OP-ST.KE-0001(Q).	5	—	—	7 DAY	N/A				

NOTES:
1. **ENSURE** KEY IS REMOVED WHILE SWITCH IS BEING MAINTAINED "LOCKED".
2. EXCEPT CONTROL RODS AND CONTROL ROD DRIVE MECHANISMS REMOVED PER T/S 3.9.10.1 OR 3.9.10.2 (SHORTING LINKS MAY HAVE TO BE PULLED FOR OTHER CONTROL ROD WITHDRAWAL)
7. THIS IS ALWAYS MET IF AT LEAST 3 SRMS ARE OPERABLE DUE TO THE QUADRANT REDEFINITION ANALYSIS. IF LESS THAN 3 SRMS ARE OPERABLE, REFER TO HC.RE-FR.ZZ-0001 FOR FURTHER GUIDANCE.

ATTACHMENT 2
Refuel/Core Alterations

Date *Today's Date*

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
IF CONTROL RODS OR CONTROL ROD MECHANISMS HAVE BEEN REMOVED UNDER T/S 3.9.10.1 OR 3.9.10.2, THEN **COMPLETE** ITEMS 10, 11, 12, AND 13, OTHERWISE, **MARK** ITEMS - N/A										
10.	REACTOR MODE SWITCH POSITION	4, 5	—	LOCKED IN S/D OR REFUEL	—	(10C651)				**(NOTE 1)**
11.	FUEL LOADING OPERATIONS SUSPENDED	4,5	—	YES	—	N/A				
12.	SRM'S FULLY INSERTED AND OPERABLE IAW T/S 3.9.2	4, 5	—	YES	—	(10C651)				
IF CONTROL RODS OR CONTROL ROD MECHANISMS HAVE BEEN REMOVED UNDER T/S 3.9.10.1, THEN **COMPLETE** ITEMS 13 THRU 16, OTHERWISE, **MARK** ITEMS - N/A										
13.	4 FUEL ASSEMBLIES SURROUNDING EACH REMOVED CONTROL ROD OR MECHANISM HAVE BEEN REMOVED FROM THE CORE CELL OR ALL OTHER CONTROL RODS IN A 5X5 ARRAY HAVE BEEN INSERTED AND DISARMED.	4, 5	—	YES	—	N/A			***YES***	
14.	VERIFY HC.OP-ST.SF-0001(Q) IS CURRENT.	4, 5	—	—	18 MO	N/A	N/A	N/A	***NO***	
15.	ALL OTHER CONTROL RODS ARE INSERTED	4, 5		YES					***YES***	
16.	VERIFY REACTOR MODE SWITCH REFUEL POSITION ONE-ROD-OUT INTERLOCK OPERABLE AND CURRENT IAW HC.OP-ST.KE-0001(Q)	4, 5	—	—	VERIFY EVERY 24 HRS **(NOTE 6)**	N/A		N/A	N/A	**(NOTE 5)**

NOTES:
1. ENSURE KEY IS REMOVED WHILE SWITCH IS BEING MAINTAINED "LOCKED".
5. CHECK 4 HOURS PRIOR TO START OF CONTROL ROD OR CONTROL ROD MECHANISM REMOVAL UNDER T/S 4.9.10.1.
6. SURVEILLANCE COMPLETION FREQUENCY EVERY 7 DAYS, IAW T/S 3.9.1.

ATTACHMENT 2
Refuel/Core Alterations

Date *Today's Date*

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
IF CONTROL RODS OR CONTROL ROD MECHANISMS HAVE BEEN REMOVED UNDER T/S 3.9.10.2, THEN **COMPLETE** ITEMS 17 AND 18, OTHERWISE **MARK** ITEMS - N/A										
17.	THE 4 FUEL ASSEMBLIES SURROUNDING EACH REMOVED CONTROL ROD OR MECHANISM HAVE BEEN REMOVED FROM THE CORE CELL.	5	—	YES	—	N/A				**(NOTE 3)**
18.	ALL OTHER CONTROL RODS ARE INSERTED	4, 5		YES						
IF THE REFUELING PLATFORM FUEL GRAPPLE IS IN SERVICE THEN **COMPLETE** ITEMS 19 THRU 26 **(NOTE 4)** IF THE REFUELING PLATFORM FUEL GRAPPLE IS NOT IN SERVICE OR IF ITEMS HAVE ALREADY BEEN COMPLETED ONCE ON THIS DAILY LOG THEN **MARK** ITEMS 19 THRU 26 AS N/A										
19.	VISUALLY **INSPECT** THE FUEL GRAPPLE HOIST CABLE BY OBSERVING THE CABLE IS PROPERLY WOUND ON THE HOIST DRUM, NOT KINKED OR CREASED AND INDIVIDUAL WIRE THREADS ARE NOT BROKEN	5	—	SAT	—	(LOCAL)				
20.	VISUALLY **INSPECT** THE FUEL GRAPPLE PNEUMATIC HOSES BY OBSERVING THE HOSES ARE NOT RIPPED, TORN OR KINKED	5	—	SAT	—	(LOCAL)				
21.	VISUALLY **INSPECT** THE FUEL GRAPPLE LIGHT ELEC. CABLE BY OBSERVING THE CABLE IS NOT BROKEN OR STRIPPED	5	—	SAT	—	(LOCAL)				
22.	**VERIFY** THE NORMAL GRAPPLE UP LIMIT SWITCH IS OPERABLE BY OBSERVING THAT THE FUEL GRAPPLE HOIST AUTOMATICALLY STOPS ≈ 8 FEET BELOW WATER LEVEL AND "NORMAL GRAPPLE UP" LIGHT ILLUMINATES	5	—	SAT	—	(LOCAL)				

NOTES:
3. THE ONE-ROD-OUT INTERLOCK MAY BE BYPASSED FOR THE AFFECTED CONTROL CELLS AFTER THE FUEL IS REMOVED FROM THE CELLS (T/S 3.9.10.2.A)
4. ITEMS 19 THRU 26 ARE ONLY REQUIRED TO BE COMPLETED ONE TIME DAILY WHEN THE REFUELING PLATFORM FUEL GRAPPLE IS IN USE.

ATTACHMENT 2
Refuel/Core Alterations

Today's Date
Date _____

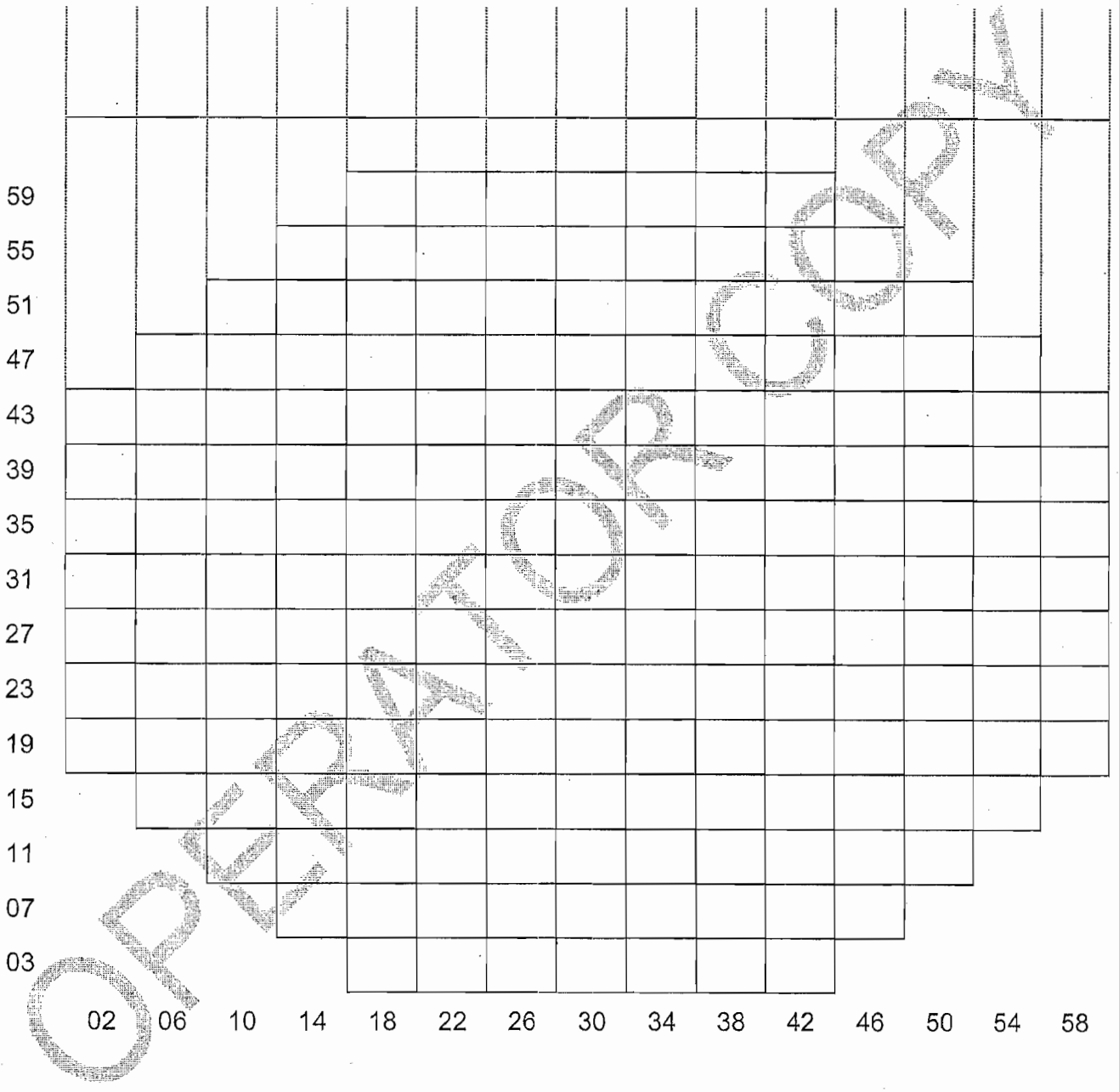
ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
23.	VISUALLY **INSPECT** THE FUEL GRAPPLE HOOKS BY OBSERVING: **A.** WHEN THE FUEL GRAPPLE 'ENGAGE' PB IS DEPRESSED, THE FUEL GRAPPLE HOOKS MOVE TO THE ENGAGED POSITION, THE 'ENGAGE' LIGHT IS ON, AND NO AIR BUBBLES ESCAPE FROM THE AIR HOSES OR HOOK OPERATING CYLINDER, AND **B.** WHEN THE FUEL GRAPPLE 'RELEASE' PB IS DEPRESSED, THE FUEL GRAPPLE HOOKS MOVE TO THE RELEASED POSITION, THE 'ENGAGE' LIGHT IS OFF, AND NO AIR BUBBLES ESCAPE FROM THE AIR HOSES OR HOOK OPERATING CYLINDER.	5	—	SAT	—	(LOCAL)				
24.	**VERIFY** THE SLACK CABLE LIMIT SWITCH IS OPERABLE BY OBSERVING THAT WHEN THE GRAPPLE IS LOWERED ONTO A FUEL BUNDLE OR DUMMY FUEL BUNDLE, DOWNWARD MOTION AUTOMATICALLY STOPS AND THE "SLACK CABLE" LIGHT ILLUMINATES.	5	—	SAT	—	(LOCAL)				
25.	**VERIFY** THE HOIST LOADED SWITCH IS OPERABLE BY OBSERVING: **A.** WHEN A FUEL BUNDLE OR DUMMY FUEL BUNDLE IS LIFTED THE "HOIST LOADED" LIGHT ILLUMINATES, AND **B.** WHEN THE BUNDLE IS SET DOWN THE "HOIST LOADED" LIGHT EXTINGUISHES.	5	—	SAT	—	(LOCAL)				

ATTACHMENT 2
Refuel/Core Alterations

Date *Today's Date*

ITEM	SURVEILLANCE	OPER COND	ACCEPTABLE LIMITS MIN	NORM	MAX	INSTRUMENT (PANEL)	DAY	EVE	MID	COMMENTS
26.	**VERIFY** THE FUEL GRAPPLE BRAKE IS OPERABLE BY OBSERVING NO DOWNWARD MOTION OF THE FUEL GRAPPLE WHEN A FUEL BUNDLE OR DUMMY FUEL BUNDLE IS SUSPENDED ON THE FUEL GRAPPLE.	5	—	SAT	—	(LOCAL)				

Control Rods



JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Conduct of Operations

TASK: Initiate and Review System Lineup Sheets

TASK NUMBER: 2991110302

JPM NUMBER: 305H-JPM.ZZ031 **REV #:** 02
*** NRC ADMIN JPM SRO A2***

SAP BET: NOH05JPZZ31E

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [ ] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/1/10
Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010
Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ031 **REV:** 02

SYSTEM: Conduct of Operations

TASK NUMBER: 2991110302

TASK: Initiate and Review System Lineup Sheets

ALTERNATE PATH: [X] **K/A NUMBER:** 2.1.29

IMPORTANCE FACTOR: 4.1 (RO) 4.0 (SRO)

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-IO.ZZ-0003 Rev 91
M-42-1 Sheet 2
Tech Spec 3.3.2

TOOLS, EQUIPMENT AND PROCEDURES:

Simulated Off-Normal Report, Prepared HC.OP-IO.ZZ-0003 Attachment 4

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Conduct of Operations

TASK: Initiate and Review System Lineup Sheets

TASK NUMBER: **2991110302**

INITIAL CONDITIONS:

1. A start-up is in progress IAW HC.OP-IO.ZZ-0003.
2. Preparations are being made to enter Operational Condition 1 IAW Attachment 4 of the IOP.
3. The Current Mode has been changed to Mode 1 IAW step 1.2.1 of Attachment 4.
4. A Components in OFF-Normal Position Report has been generated IAW step 1.2.3 of HC.OP-IO.ZZ-0003 Attachment 4.

INITIATING CUE:

COMPLETE step 1.2.4 of HC.OP-IO.ZZ-0003 Attachment 4.

You will be allowed access to SAP and DCRMS to research component data.

The provided Off Normal Report does NOT reflect the current status of the actual plant. Do NOT perform ANY changes to actual plant data.

JPM: ZZ031 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Initiate and Review System Lineup Sheets**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND: ☐ Prepared HC.OP-IO.ZZ-0003 Attachment 4 (Attached) ☐ Prepared Components In Off-Normal Position Report (Attached)	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	HC.OP-IO.ZZ-0003 Attachment 4	N/A			
1.2.3	**GENERATE** a Components In Off-Normal Position Report **USING** WCM Reports/Off Normal Report function.	N/A			

JPM: ZZ031 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Initiate and Review System Lineup Sheets**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.2.4	**POSITION** all components as required.	Operator reviews Components In Off-Normal Position Report.			
		Operator recognizes the following isolation valves are closed and should be open: • H1AB -1ABV9979-B • H1AB -1ABV9980-B	*		
		Operator determines these valves are required for isolation instrumentation in OPCON 1. **Examiner Note:** M-42-1 Sheet 2 - Transmitters are Main Steam Low Pressure to NSSSS T/S Table 3.3.2-1 Trip Function 3c	*		

JPM: ZZ031 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Initiate and Review System Lineup Sheets**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	AFTER the operator determines the V9979-B and V9980-B are required to be open, THEN: • **INFORM** the operator investigation has determined the valves were inadvertently closed during I&C work on the opposite channels and have been re-opened. • **PROVIDE** the operator the updated Off-Normal with the V9979-B and V9980-B removed.	Operator repeats initiating cue and accepts updated Off-Normal.			
1.2.4	**POSITION** all components as required.	Operator reviews Components In Off-Normal Position Report.			
		Operator recognizes NO components require re-positioning.			
		Operator initials IO.ZZ-0003 Attachment 4 step 1.2.4.	*		

JPM: ZZ031 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Conduct of Operations**

TASK: **Initiate and Review System Lineup Sheets**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ031

TASK: Initiate and Review System Lineup Sheets

TASK NUMBER: 2991110302

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

User: TRAIN20 Off Normal Report Date: TODAY
Plant: NNUC Mode 01 Time: NOW

Technical Object	Description	Current	Normal	Location	Loc. Description	Status	ChangeDate	Remark
H0FA -0-FA-V366	"C" AUX BLR MAIN STEAM STOP VALVE	X	O	13102101C	HC BOILER C AREA	OffNormal	07/20/2007	CONTROLED PER SOP, N#20330388
H0FA -0-FA-V423	FAFV-3A5/C BYPASS VALVE	O	X	13102101C	HC BOILER C AREA	OffNormal	04/11/2007	TVC NOT WORKING
H0GA -0-GA-V197	DOM WTR HTR 0BE503 HTG STM VLV	X	O	031023342A	HC HOT WATER HEATER ROOM A	OffNormal	08/26/2006	CONTROLLED PER SOP
H0GA -0-GA-V539	HTG STM [illegible]	X	O	031023342B	HC HOT WATER HEATER ROOM B	OffNormal	08/26/2006	CONTROLLED PER SOP
H0JA -0-JA-V051	FO SYS BLR A FO RECIRC ISLN VL	X	O	13102101A	HC BOILER A AREA	OffNormal	10/16/2006	ABANDONED EQUIPMENT
H0KD -0-KD-V450	EXTERIOR HYDRANT ISLN VLV	O	X	00I020A0	HC YARD-SOUTH OF POWER BLOCK	OffNormal	00/00/0000	
H0KD -0-KD-V452	SEW TREAT TRK W/DN EXTRN HYDRT	O	X	18102WWTF	HC WASTEWATER TREATMENT FACILITY	OffNormal	00/00/0000	
H0NC -00L520-23	SPARE	X	O	13102103F	HC FRESH WATER SUPPLY PANEL AREA	OffNormal	00/00/0000	
H0QB -00-L-547-02	SPARE	X	O	0201	HC SWIS BLDG MCC AREA	OffNormal	08/07/2010	RETURNED TO NORMAL
H0ZZ -00L154-01	RECPT WEST WALL/CORRIDOR	O	X	021022000A	HC ADMIN FACILITY EL.102	OffNormal	08/15/2010	BKR NOW SPARED PER DCP
H0ZZ -00L154-03	RECPT RM #109/CORRIDOR	O	X	021022000A	HC ADMIN FACILITY EL.102	OffNormal	08/15/2010	BKR NOW SPARED PER DCP
H0ZZ -00L156-10	LTG,ADMIN RM 253	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2010	BREAKER IS SPARED BY DCP
H0ZZ -00L156-12	LTG,ADMIN RM 255&61	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-14	LTG,ADMIN RM [illegible]	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-16	LTG,ADMIN RM 256	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-18	INTERLOCKED W/16	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L157-26	SPARE	X	O	021022000A	HC ADMIN FACILITY EL.102	OffNormal	02/15/2010	CHANGED FOR A DCP 80087126
H0ZZ -00L327-08	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/28/2010	X PER ORDER # 60054720
H0ZZ -00L327-09	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/24/2010	X PER ORDER # 60053935
H0ZZ -00L327-10	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/28/2010	X PER ORDER # 60054720
H0ZZ -00L327-12	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/22/2010	PER ORDER # 60055303
H0ZZ -00L327-23	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/24/2010	X PER ORDER # 60053935
H0ZZ -00L439-12	SPARE	X	O	021232000C	HC ADMIN FACILITY EL 123	OffNormal	05/11/2010	TP&L PER ORDER 60061688
H0ZZ -2RFSS06	SPARE BKR 200AMP SERVICE DISC	X	O	070897000A	HC HC/SALEM COMMON GDHSE EL 89	OffNormal	07/03/2010	X FOR TEMP LIGHT/DCP WORK
H0ZZ -AC-2-15	SPARE	X	O	001020AX	HC FUTURE ASSIGNMENT	OffNormal	03/30/2010	CLOSED TILL 70051846 OP90 CONFIRMED
H1CD -1-CD-V021	TURB END H2 DETRNG SECT DRN	X	LX	011021302A	HC ELECTRICAL EQUIPMENT AREA A	OffNormal	07/08/2010	COULD NOT ACCESS TO PLACE LOCK

OPERATOR COPY B

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ031

Rev #	Date	Description	Validation Required?
1	11/9/08	Converted ZZ031 to new JPM format. Changed critical Off-Normal components to MSL Low Pressure transmitters, which are NOT required in OPCON 2, but ARE required in OPCON 1. Updated Off-Normal distractor items to more current dates. Added CUE that valves were re-positioned and a corrected Off-Normal to provide to the operator and allow completion of the task.	Y
2	6/1/10	Updated all reference procedure revisions. Updated Off-normal printout Change Dates to be consistent with exam dates. No operator actions have changed. Validated with 2 SROs. Avg validation time was 8 minutes. Added EXHIBIT 1 and EXHIBIT 2 to the lineup sheets.	Y

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A start-up is in progress IAW HC.OP-IO.ZZ-0003.
2. Preparations are being made to enter Operational Condition 1 IAW Attachment 4 of the IOP.
3. The Current Mode has been changed to Mode 1 IAW step 1.2.1 of Attachment 4.
4. A Components in OFF-Normal Position Report has been generated IAW step 1.2.3 of HC.OP-IO.ZZ-0003 Attachment 4.

INITIATING CUE:

COMPLETE step 1.2.4 of HC.OP-IO.ZZ-0003 Attachment 4.

You will be allowed access to SAP and DCRMS to research component data.

The provided Off Normal Report does NOT reflect the current status of the actual plant. Do NOT perform ANY changes to actual plant data.

ATTACHMENT 4
STARTUP FROM COLD SHUTDOWN TO RATED POWER
FINAL CHECKS
(ENTERING OPERATIONAL CONDITION 1)

NOTE

The following checks may be performed in any order.

1. FINAL CHECKS

1.1 System requirements AND surveillances required for entering Operational Condition 1 are completed. This review must include the disposition of all outstanding Equipment Non-Conformances to determine impact on system operability. Any shutdown LCO's which will not be exited prior to changing modes have been assessed IAW Tech Spec 3.0.4.b and OP-HC-108-115-1001.

1.1.1	Operations	*Bob Jones*	Today
1.1.2	I&C	*Bill Smith*	Today
1.1.3	Reactor Engineering	*Susan Anthony*	Today
1.1.4	Chemistry	*Chris Anderson*	Today
1.1.5	System Engineering	*Betty Kidman*	Today
			Date

1.2 PRIOR to taking the RPS MODE SWITCH to RUN, **PERFORM** the following:

1.2.1. **CHANGE** WCM "Current Operating Mode" from 2 to 1 **USING** the Mode Dependent Tagging/Current Mode/Change function. *JMB*

1.2.2. **ENSURE** all current notifications are screened for operability prior to mode change. **[70021851]**

Joe Johnson	Today/Now
SM/CRS	DATE-TIME

NOTE

The Components in off - Normal Position Report will indicate all components NOT in the required position for POWER OPERATION.

1.2.3. **GENERATE** a Components In Off-Normal Position Report **USING** WCM Reports/Off Normal Report function. *JMB*

Continued on next page

ATTACHMENT 4
STARTUP FROM COLD SHUTDOWN TO RATED POWER
FINAL CHECKS
(ENTERING OPERATIONAL CONDITION 1)

1.2.4. **POSITION** all components as required. ___

1.2.5. **UPDATE** WCM using the Mode/Dependent Tagging/Normal Positions/Change Function. ___

1.2.6. The above items have been completed with all equipment required for going into POWER OPERATION available.

_____ _____
SM/CRS DATE-TIME

1.3 Pre-Startup Walk down COMPLETED. IF NOT required, **INDICATE** "NA". IF completed, **ATTACH** completed NC.CC-AP.ZZ-0011(Q), Form-1, Pre-Startup Missile Hazard Inspection Report, to this procedure.

_____ _____
SM/CRS DATE-TIME

Reviewed By:

_____ _____
SM/CRS DATE-TIME

User: TRAIN20
Plant: NNUC

Off Normal Report
Mode 01

Date: TODAY
Time: NOW

Technical Object	Description	Current	Normal	Location	Loc. Description	Status	ChangeDate	Remark
H0FA -0-FA-V366	"C" AUX BLR MAIN STEAM STOP VALVE	X	O	13102101C	HC BOILER C AREA	OffNormal	07/20/2007	CONTROLED PER SOP, N#20330388
H0FA -0-FA-V423	FAFV-3457C BYPASS VALVE	O	X	13102101C	HC BOILER C AREA	OffNormal	04/11/2007	TVC NOT WORKING
H0GA -0-GA-V197	DOM WTR HTR 0BE503 HTG STM VLV	X	O	031023342A	HC HOT WATER HEATER ROOM A	OffNormal	08/26/2006	CONTROLLED PER SOP
H0GA -0-GA-V5[illegible]9	HTG STM LO PT DRN V [illegible]	X	O	031023342B	HC HOT WATER HEATER ROOM B	OffNormal	08/2[illegible]/2006	CONTROLLED PER SOP
H0JA -0-JA-V051	FO SYS BLR A FO RECIRC ISLN VL	X	O	13102101A	HC BOILER A AREA	OffNormal	10/16/2006	ABANDONED EQUIPMENT
H0KD -0-KD-V450	EXTERIOR HYDRANT ISLN VLV	O	X	001020AO	HC YARD-SOUTH OF POWER BLOCK	OffNormal	00/00/0000	
H0KD -0-KD-V452	SEW TREAT TRK W/DN EXTRN HYDRT	O	X	18102WWTF	HC WASTEWATER TREATMENT FACILITY	OffNormal	00/00/0000	
H0NQ -00L520-2[illegible]	SPARE	X	O	19102103E	HC FRESH WATER SUPPLY PANEL AREA	OffNormal	00/00/0000	
H0QB -00-L-547-02	SPARE	X	O	0201	HC SWIS BLDG MCC AREA	OffNormal	08/07/2010	RETURNED TO NORMAL
H0ZZ -00L154-01	RECPT WEST WALL/CORRIDOR	O	X	021022000A	HC ADMIN FACILITY EL.102	OffNormal	08/15/2010	BKR NOW SPARED PER DCP
H0ZZ -00L154-03	RECPT RM #109/CORRIDOR	O	X	021022000A	HC ADMIN FACILITY EL.102	OffNormal	08/15/2010	BKR NOW SPARED PER DCP
H0ZZ -00L156-10	LTG,ADMIN RM 253	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-12	LTG,ADMIN RM 255&61	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-14	LTG,ADMIN RM 255?	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-16	LTG,ADMIN RM 256	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L156-18	INTERLOCKED W/-16	O	X	021202000B	HC ADMIN FACILITY EL 120	OffNormal	12/05/2009	BREAKER IS SPARED BY DCP
H0ZZ -00L157-26	SPARE	X	O	021022000A	HC ADMIN FACILITY EL.102	OffNormal	02/15/2010	CHANGED FOR A DCP 80087126
H0ZZ -00L327-08	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/28/2010	X PER ORDER # 60054720
H0ZZ -00L327-09	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/24/2010	X PER ORDER # 60053935
H0ZZ -00L327-10	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/28/2010	X PER ORDER # 60054720
H0ZZ -00L327-12	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/22/2010	PER ORDER # 60055303
H0ZZ -00L327-23	SPARE	X	O	031023305B	HC UNRESTRICTED MACHINE SHOP B	OffNormal	06/24/2010	X PER ORDER # 6005[illegible]
H0ZZ -00L439-12	SPARE	X	O	021232000C	HC ADMIN FACILITY EL 123	OffNormal	05/11/2010	TP&L PER ORDER 60061688
H0ZZ -2RFSS06	SPARE BKR 200AMP SERVICE DISC	X	O	070897000A	HC HC/SALEM COMMON GDHSE [illegible]	OffNormal	07/03/2010	X FOR TEMP LIGHT/DCP WORK
H0ZZ -AC-2-15	SPARE	X	O	001020AX	HC FUTURE ASSIGNMENT	OffNormal	03/30/2010	CLOSED TILL 70051846 OP90 CONFIRMED
H1AB -1ABV9979-B	INST ISLN VLV FOR 1SMPT-N076A	X	LO	011201406A	HC ELECT EQUIP MEZZANINE A	OffNormal	08/13/2010	CLOSED FOR I&C
H1AB -1ABV9980-B	INST ISLN VLV FOR 1SMPT-N076C	X	LO	011201406A	HC ELECT EQUIP MEZZANINE A	OffNormal	08/13/2010	CLOSED FOR I&C
H1CD -1-CD-V02[illegible]	TURB END H2 DETRNG SECT DRN	X	LX	011021302A	HC ELECTRICAL EQUIPMENT AREA A	OffNormal	07/03/2010	COULD NOT ACCESS TO PLACE LOCK

OPERATOR COPY A

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Equipment Control

TASK: Complete An Action Statement Log Sheet

TASK NUMBER: 4010590202/2990640305

JPM NUMBER: 305H-JPM.ZZ029 **REV #:** 02
NRC ADMIN JPM SRO A3

SAP BET: NOH05JPZZ29E

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [X] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/2/10
Instructor

REVIEWED BY: _____ **DATE:** 8/4/10
Operations Representative

APPROVED BY: _____ **DATE:** 8/4/10
Training Department

STATION: Hope Creek

JPM NUMBER: ZZ029 **REV:** 02

SYSTEM: Equipment Control

TASK NUMBER: 4010590202/2990640305

TASK: Complete An Action Statement Log Sheet

ALTERNATE PATH: ☐ **K/A NUMBER:** 2.2.23

IMPORTANCE FACTOR: 3.1 (RO) 4.6 (SRO)

APPLICABILITY:

EO ☐ RO ☐ STA ☒ SRO ☒

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: OP-HC-108-115-1001 Rev 10
Tech Spec 3.6.4.2 Amendment 133
HC.OP-ST.GS-0003 Rev 8

TOOLS, EQUIPMENT AND PROCEDURES: HC Technical Specifications
Prepared OP-HC-108-115-1001 Attachment 3-1, Blank OP-HC-108-115-1001 Form 1

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Equipment Control

TASK: Complete An Action Statement Log Sheet

TASK NUMBER: **4010590202/2990640305**

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 _____. (**ENTER** Current Time minus one hour)
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.
Determination of retests is NOT required at this time.

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND: ☐ 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	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	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/LAOT 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/LAOT Action Statement is entered.	Operator determines a T/S LCO must be entered.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.2	**DETERMINE** if the T/S LCO/LAOT Action Statement is ACTIVE or TRACKING based on the following criteria: **ACTIVE**: An Active T/S LCO/LAOT 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/LAOTs. An example of an Active T/S LCO/LAOT Action Statement is a failure of an Emergency Diesel Generator to satisfy its surveillance requirements in Operational Condition 1. **TRACKING**: A Tracking T/S LCO/LAOT Action Statement is entered whenever either of the following conditions exists: The SSC is INOPERABLE, but is not required by Technical Specifications/LAOTs to be OPERABLE in the current Operational Condition. An example of this type of Tracking T/S LCO/LAOT Action Statement is a failure of an Emergency Diesel Generator to satisfy surveillance requirements in Operational Condition 5. This includes refuel outage LCOs not required for the current operational condition.	Operator determines failure requires ACTIVE LCO due to INOPERABLE SSC and the the SSC design function is specifically required to be OPERABLE in the current Operational Condition by Technical Specification 3.6.4.2.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.2 cont	OR The SSC is INOPERABLE, but there is 100% redundant equipment that satisfies the Operability requirements of Technical Specifications/LOATs for the current Operational Condition. An example of this type of Tracking T/S LCO/LAOT Action Statement is the inoperability of one 1E 125 VDC battery charger in Operational Condition 1, provided the other battery charger is OPERABLE (100% redundant). **[CD-026F]**	Operator determines failure requires ACTIVE LCO due to absence of 100% redundant equipment IAW T/S 3.6.4.2.			
5.3.3	IF 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 activities that cause a TECH SPECS/LAOT 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.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	TS LCO/LAOT Action Statement Tracking may be accomplished using either the computerized SAP LCO Tracking System or Attachment 3-1 and Form 1.	N/A			
5.3.4.1	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/LAOT Action Statements.	N/A			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2	For LCO tracking using Attachment 3-1 and Form 1, **PEFORM** the following:	Based on Initial Conditions (Electronic LCO Tracking NOT available) and Initiating Cue, operator recognizes the following steps apply.			
5.3.4.2. A	**ASSIGN** the next consecutive LCO Index Number obtained from the Action Statement Log Index (Attachment 3-1) and LOG the T/S LCO/LAOT ACTION Statement on the Index.				
CUE	**PROVIDE the operator with the Index Number... SIM-001.**	N/A			
		Operator assigns next consecutive log number SIM-001 from Attachment 3-1.			
		Operator logs the TSAS on the Index.			
5.3.4.2. B	**COMPLETE** Sections 1 and 2 of Form 1 by performing the following:				
	– **RECORD** the LCO Index Number (from Attachment 3-1)	Operator records **SIM-001** in LCO INDEX NUMBER.			
	– **RECORD** the LCO Status (Active / Tracking)	Operator records **ACTIVE** in LCO STATUS.	*		

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. B (cont)	– **RECORD** the applicable Technical Specification/LAOT LCO number. When an INOPERABLE TECH SPECS/LAOT 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 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.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. B (cont)	– **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.			
	– **INITIATE** Responsible Department Notifications for required compensatory actions and **DOCUMENT** Name of Department and Person Notified with the Notification Date/Time, as well as Name of Person Making Notification. (Include NOTIF # if applicable)	Operator determines no compensatory actions or notifications are required.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. B (cont)	– The individual being notified will come to the Control Room and sign the NOTIF# box next to their name to indicate that they have received the information and they fully understand the action they have been directed to take. In the TSAS Description Addendum section they will list the procedure they will use to take the action to comply with the license.	Due to absence of compensatory actions, operator determines this step does not apply.			
	– For recurring samples, analysis, hook-up of sample equipment, etc., the departmental individual performing this action will report to the Control Room and document in the description addendum of the TSAS each time an action is taken. This will be audited at a frequency determined by Licensed Operations Supervision.	Due to absence of compensatory actions, operator determines this step does not apply.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. B (cont)	– When actions are no longer required or an instrument is to be restored to the pre-LCO condition (example: OGPTRMS correction factor) the action taken will be documented and signed for by the departmental individual performing the action in the description addendum section of the TSAS.	Due to absence of compensatory actions, operator determines this step does not apply.			
	– **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.			
	– **RECORD** Redundant Equipment Operable (Y/N).	Operator enters **Y** in REDUNDANT EQUIPMENT OPERABLE.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. C	IF the INOPERABLE SSC will impact Secondary Containment Integrity per T/S 3.6.5.1 - during Fuel Handling and CORE ALTERATIONS when Secondary Containment Integrity and FRVS actuation is not required, THEN **COMPLETE** Attachment 5, "Contingency Plan for Sealing Secondary Containment Penetrations During Fuel Handling and CORE ALTERATIONS" for EACH inoperable penetration. Attachment 5, Section 1 and 2 may be completed in advance as part of refueling outage preparations.	Based on Initial Conditions (OPCON 1), and absence of effect on Secondary Containment, operator recognizes this step does not apply.			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	For a planned entry into an action statement, SRO/STA concurrence is required, but the signature on the Action Statement Log Sheet is not required prior to entering the action statement. For an unplanned entry into an action statement, SRO/STA concurrence should be obtained as soon as practical after entering the action statement. If the person who completed Sections 1 and 2 of Form 1 (Step 5.3.4.2.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/LAOT Action Statement in 5.3.4.B.5	N/A			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. D	**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/LAOT Action Statement) and, that redundant equipment is operable. For planned entry into a T/S LCO/LAOT 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 form service. **[CD-079A]**	Operator obtains CONCURRENCE REVIEW.			
CUE	**ROLE PLAY** as STA and sign for CONCURRENCE.	N/A			

JPM: ZZ029 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Equipment Control**

TASK: **Complete An Action Statement Log Sheet**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.3.4.2. E	**OBTAIN** SM/CRS AUTHORIZATION for entry into the TECH SPECS/LAOT Action Statement. The SM/CRS should review 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 TS LCO/LAOT Action Statement) and that redundant equipment is operable. **[CD-079A]**	Operator obtains SM/CRS AUTHORIZATION.			
CUE	**ROLE PLAY** as SM and sign for AUTHORIZATION.	**Examiner Note:** Once the Action Statement entry is Authorized, the JPM is complete.			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ029

TASK: Complete An Action Statement Log Sheet

TASK NUMBER: 4010590202/2990640305

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

ATTACHMENT 3-1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG INDEX
(Page 1 of 1)

LCO INDEX NUMBER	TECH SPEC NUMBER	ACTIVE/ TRACKING	SUMMARY DESCRIPTION	PLANNED Y/N	ENTRY DATE/ TIME	EXPIRATION DATE/TIME/ CONDITION	EXIT DATE/ TIME
SIM-001	3.6.4.2	ACTIVE	GS-PSV-5032 Failed to stroke	N	INITIAL CONDITION DATE/TIME	INITIAL CONDITION DATE/TIME +72 hours	

TRAINING USE ONLY

FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
(Page 1 of 4)

1.0 ACTION STATEMENT LOG SHEET

LCO INDEX NUMBER:	**SIM-001**	**LCO STATUS (ACTIVE/TRACKING):**	**ACTIVE**
TECH SPEC NUMBER:	**3.6.4.2**	**DATE/TIME ENTERED:**	**INIT CONDITION DATE/TIME**
APPLICABILITY:	**1,2,3**	**DATE/TIME ACTION REQUIRED:**	**INIT CONDITION DATE/TIME + 72hr**
OTHER APPLICABLE T/S:			
EQUIPMENT:			

SUMMARY DESCRIPTION (Include Summary of Actions Required)

GS-PSV-5032 failed to stroke open when tested:
3.6.4.2 Each reactor building - suppression chamber vacuum breaker assembly shall be OPERABLE
APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.
ACTION:
a. With one reactor building - suppression chamber vacuum breaker assembly, with one or two valves inoperable for opening, restore the vacuum 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.

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) ENTRY / EXIT	NAME of PERSON MAKING NOTIFICATION	NOTIF# (If applicable)

* 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** the Licensing Department is notified of the reporting requirements,
AND, **INITIATE** a Notification IAW LS-AA-120, Notification Process.

REDUNDANT EQUIPMENT OPERABLE (Y/N) : Y

APPROVAL TO REMOVE FROM SERVICE, VERIFICATION OF REDUNDANT EQUIPMENT

CONCURRENCE		AUTHORIZATION	
Examiner STA Name		**Examiner SM Name**	
SRO/STA (print name)		SM/CRS (print name)	
Examiner STA Signature	*Date/Time*	*Examiner SM Signature*	*Date/Time*
SRO/STA (signature)	DATE/TIME	SM/CRS (signature)	DATE/TIME

FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
(Page 2 of 4)

2.0 ORDER AND WCD ADDENDUM

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

(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	: _____

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

FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG
(Page 3 of 4)

2.0 ORDER AND WCD ADDENDUM (Continued)

INDEX NUMBER _____ **Page Number ___ of ____**

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

FORM 1
TECHNICAL SPECIFICATION ACTION STATEMENT LOG SHEET
(Page 4 of 4)

3.0 DESCRIPTION ADDENDUM

INDEX NUMBER _____ **Page Number ___ of ____**

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 _____. (**ENTER** Current Time minus one hour)
6. SAP is currently unavailable, and no NOTF has been written.
7. SAP LCO Tracking is NOT available.

INITIATING CUE:

Complete a manual Action Statement log entry for the failure of GS-PSV-5032. Determination of retests is NOT required at this time.

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ029

Rev #	Date	Description	Validation Required?
01	12/6/08	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. 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. Incorporation of significant governing procedure change requires validation.	Y
02	6/1/10	Updates all reference procedure revisions. Validated with 2 SROs. Avg validation time was 9 minutes.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Radiation Control

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

TASK NUMBER: 2990740302

JPM NUMBER: 305H-JPM.ZZ032 **REV #:** 02

NRC ADMIN JPM SRO A4

SAP BET: **NOH05JPZZ32E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/30/10

Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010

Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10

Training Department

STATION: Hope Creek

JPM NUMBER: ZZ032 **REV:** 02

SYSTEM: Radiation Control

TASK NUMBER: 2990740302

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

ALTERNATE PATH: [X] **K/A NUMBER:** 2.3.11

IMPORTANCE FACTOR: 3.8 (RO) 4.3 (SRO)

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Classroom/Perform

REFERENCES: HC.OP-GP.ZZ-0004 Rev 7

TOOLS, EQUIPMENT AND PROCEDURES:

Prepared copy of HC.OP-GP.ZZ-0004 (Attached); Tech Specs

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Radiation Control

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

TASK NUMBER: **2990740302**

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the completed HC.OP-GP.ZZ-0004 AND **COMPLETE** ATTACHMENT 1 Section 2 POST TEST INFORMATION.

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue AND the attached prepared copy of HC.OP-GP.ZZ-0004.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
ATT.1	**POST TEST INFORMATION**	N/A			
2.1	The data acquired during the performance of this test has been reviewed for completeness and compliance with Technical Specification 3.4.3.2, Reactor Coolant System Operational Leakage and the test is considered:	Operator reviews completed HC.OP-GP.ZZ-0004.			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11	**CALCULATE** the leak rate through 1BE-V007 (HV-F005A) by dividing the volume recorded in Step 5.1.9 by the elapsed time recorded in Step 5.1.10. **RECORD** leak rate in gpm on Attachment 2.	Operator recognizes a math error was made when calculating Leak Rate in step 5.1.11. Actual leak rate is 6.3 gpm, NOT 0.63 gpm (6.25 gpm rounded up).			
		Operator ensures 5.1.11 ACTUAL block is corrected to 6.25 OR 6.3 gpm. **Examiner Note:** Operator may correct data or call Performer to correct data.	*		
CUE	IF directed as Performer to correct data entered, THEN **ROLE PLAY** as Performer and **CORRECT** ACTUAL block as directed by Operator.	N/A			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11	CALCULATE the leak rate through 1BE-V007 (HV-F005A) by dividing the volume recorded in Step 5.1.9 by the elapsed time recorded in Step 5.1.10. RECORD leak rate in gpm on Attachment 2.	Operator recognizes 5.1.11 ACTUAL Leak Rate exceeds REQUIRED Leak Rate of ≤ 5 GPM.			
		Operator ensures 5.1.11 SAT/UNSAT block is corrected to UNSAT. **Examiner Note:** Operator may correct data or call Performer to correct data.	*		
CUE	IF directed as Performer to correct data entered, THEN **ROLE PLAY** as Performer and **CORRECT** SAT/UNSAT block as directed by Operator.	N/A			

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
T/S 3.4.3.2	Reactor coolant system leakage shall be limited to: d. 0.5 gpm leakage per nominal inch of valve size up to a maximum of 5 gpm from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1, at rated pressure. APPLICABILITY: OPCON 1,2,3 ACTION: c. With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.	Operator determines T/S 3.4.3.2 Action c applies: With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one closed manual or deactivated automatic or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. **Examiner Note:** Determining the SPECIFIC compensatory action is beyond the scope of the JPM. It is only necessary for the Operator to IDENTIFY the applicable Tech Spec Action.	*		

JPM: ZZ032 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 02 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Radiation Control**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	AFTER the Operator determines the applicable Tech Spec Action statement, THEN **INFORM the Operator compensatory actions have been implemented.**	N/A			
ATT.1	**POST TEST INFORMATION**	N/A			
2.1.2	UNSATISFACTORY AND IF necessary the T.S. ACTION statement has been implemented.	Operator signs UNSATISFACTORY block 2.1.2 of Attachment 1.			
CUE	IF the Operator goes beyond the Leak Rate Determination Tech Specs, THEN **CUE the Operator to stay with the Leak Rate Determination.**	N/A			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ZZ032

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

TASK NUMBER: 2990740302

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ZZ032

Rev #	Date	Description	Validation Required?
1	11/9/08	Converted ZZ032 to new JPM format. Since Critical JPM actions are now uniquely identified by the format, all statements identifying critical portion of action were redundant and deleted. Changed JPM to have CRS review completed GP.ZZ-0004 instead of completing the final step. This has greater Operational Validity for the SRO position. Added Examiner Cue: "IF the Operator goes beyond the Leak Rate Determination Tech Specs, CUE the Operator to stay with the Leak Rate Determination." per Chief Examiner request.	Y
2	6/1/10	Updated Reference procedure revision numbers. Updated "Cal Due" Date to reflect exam date. Validated with 2 SROs. Avg validation time was 7 minutes. Validation comment; revise Initiation Cue to be more specific on what needs to be performed. Revised cue to read: "**PERFORM** the CRS review of the completed HC.OP-GP.ZZ-0004 AND **COMPLETE** ATTACHMENT 1 Section 2 POST TEST INFORMATION."	N

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is Operational Condition 2 with a startup in progress following a Refuel Outage.
2. Pressure has been raised to 905 psig, and preparations are being made to transition to Operational Condition 1.
3. Leakage into the Core Spray Loop A Injection Header resulted in loop pressurization above normal ECCS Jockey Pump discharge pressure observed at 1BEPISH-N654A (Panel 10C617) AND 1BEPI-R600A (Panel 10C650).
4. HC.OP-GP.ZZ-0004 REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVE LEAKAGE DETERMINATION was performed to determine the leakage rate.

INITIATING CUE:

PERFORM the CRS review of the completed HC.OP-GP.ZZ-0004 AND **COMPLETE** ATTACHMENT 1 Section 2 POST TEST INFORMATION.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Administrative Duties/Reporting Requirements

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

TASK NUMBER: 2000500302/2000020505
NRC ADMIN JPM SRO A5

JPM NUMBER: 305H-JPM.ECG004 **REV #:** 02

SAP BET: **NOH05JPCL04E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [ ] **STA** [X] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 6/30/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: ECG004

SYSTEM: Administrative Duties/Reporting Requirements

TASK NUMBER: 2000500302/2000020505

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

ALTERNATE PATH: [ ]

K/A NUMBER: 2.4.38

IMPORTANCE FACTOR: 2.4 (RO) 4.4 (SRO)

APPLICABILITY:

EO [ ] RO [ ] STA [X] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform or In Plant/Simulate

REFERENCES: Hope Creek Event Classification Guide, TOC Rev 90

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 13 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: / Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Administrative Duties/Reporting Requirements

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

TASK NUMBER: **2000500302/2000020505**

INITIAL CONDITIONS:

1. The plant is in OPERATIONAL CONDITION 4 and has been shutdown for 10 days.
2. 'B' RHR was in Shutdown Cooling at 10,000 gpm with an RCS temperature of 120 degF.
3. The torus access hatches have been removed for work on the Suppression Chamber to Drywell Vacuum Breakers.

Then, Hope Creek experiences an earthquake which indicates a magnitude of > 0.1g.

1. Control Room Annunciator C6-C4"SEISMIC MON PNL C673" is in.
2. On Panel 10C673:
   - The SMA-3 Event Indictor 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.
3. Numerous amber lights and 8 red lights are lit on the response spectrum analyzer.
4. A LOCA occurs. RPV level dropped to, then stabilizes between –150" and –155", being maintained using all available ECCS.
5. Estimated restoration time for remaining ECCS is at least 1 hour.
6. FRVS Vent RMS failed. Alternate sampling methods are not yet in place.
7. The Rad Pro Shift Technician reports dose rates measured at the Security Center entrance are 150 mRem/hr.
8. The current 33 ft. elevation wind direction is from 291° at 4 mph.

INITIATING CUE:

Based on this information, classify this event and make the initial notifications.

This is a Time Critical Task, and has two Time Critical elements.
Time zero for this event is now.

ECG004 OPERATOR TRAINING PROGRAM NAME: _____
JOB PERFORMANCE MEASURE DATE: _____

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains Hope Creek Event Classification Guide.			
ECG Section i.IV.C	Classification: To use this ECG volume, follow this sequence: 1. ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.	Operator assesses the initial conditions, and determines that Sections 6.0 (Radiological Releases), Sections 8.0 (System Malfunctions) and 9.0 (Hazards – Internal/External) are appropriate ECG sections.			
	2. REFER to Section EAL/RAL Flowchart diagram(s), and identify the Initiating Conditions that are related to the event/condition that has occurred or is ongoing.	Operator reviews the EALs and determines that the Initiating Conditions for EALs 6.1.3, 8.1.2, 8.1.3.a, and 9.5.2 are related to the event that has occurred Operator refers to the Initial Conditions for EAL are related to the event that has occurred.			

ECG004 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
Table 3.0	In the table, review the Emergency Action Levels of all columns and identify which need further review.	Operator reviews the EALs of all columns, and determines the Barrier Table is not applicable in OC 4.			
ECG Section i.IV.C (cont.)	3. REVIEW the associated EALs as compared to the event and SELECT the highest appropriate emergency or reportable action level. If identification of an EAL is questionable, refer to paragraph IV.A above. If there is any doubt with regard to assessment of a particular EAL, the ECG Technical Basis Document should be reviewed. Words contained in an EAL that are bold face are either threshold values associated with that action level or are words that are defined in the basis for that specific EAL.	Operator reviews the EALs in section 6.1, and determines that EAL #6.1.3.b is the highest emergency action level met or exceeded (Site Area Emergency).			

ECG004 OPERATOR TRAINING PROGRAM NAME: _____
JOB PERFORMANCE MEASURE DATE: _____

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C (cont.)	4. If an EAL has been entered, then equal level EALs or lower level EALs and RALs are not required to be reported as long as the applicable information is communicated to the NRC using Attachment 5, NRC Data Sheet.	**Examiner Note:** Filling out the NRC Data Sheet is beyond the scope of this JPM.			
ECG Section i.IV.C (cont.)	5. The STA is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO.	N/A			
CUE	IF the Operator requests the STA/IA to independently verify the EAL Classification, THEN **INFORM the Operator the STA/IA is not available.**	N/A			

ECG004 OPERATOR TRAINING PROGRAM NAME: _____
JOB PERFORMANCE MEASURE DATE: _____

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Section i.IV.C (cont.)	6. IDENTIFY and IMPLEMENT the referenced Attachment under Action Required.	Operator identifies and implements ECG Attachment 3.			
ECG Att. 3	**I. <u>EMERGENCY COORDINATOR (EC) LOG SHEET</u>** **A. DECLARE A SITE AREA EMERGENCY AT HOPE CREEK** **EAL #(s)** _____, _____, _____ DECLARED AT _____ hrs on _____ time date	Operator declares a Site Area Emergency, places the EAL # s 6.1.3.b, 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.) Initialing the step is not critical.	*		
ECG Att. 3	**B. NOTIFICATIONS** 1. CALL the communicators to the Control Room	Operator calls the communicator using the plant page. **Examiner Note:** <u>IF</u> this JPM is being performed in a classroom, <u>THEN</u> this step will not be performed.			

ECG004 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**After 2 minutes, report as the communicators and give your name as CM1 and CM2.**	**Examiner Note:** IF this JPM is being performed in a classroom, THEN this step will not be performed.			
ECG Att. 3	2. ACTIVATE "ERO Emergency Callout" per posted instructions titled: "Emergency Callout Activation" (EP96-003)	Operator activates the ERO per posted instructions titled Training Use Emergency Callout Activation. **Examiner Note: ENSURE** the operator is using the Simulator Training Activation instructions. **Examiner Note:** IF this JPM is being performed in a classroom, THEN this step will not be performed.			

ECG004 OPERATOR TRAINING PROGRAM NAME: _____

JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Administrative Duties/Reporting Requirements**

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
ECG Att. 3	3. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).	Operator Completes the ICMF. **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 6.1.3.b the recommended wording from "HOPE CREEK EMERGENCY CLASSIFICATION DISCRIPTION TABLE" is "Radioactive Gas Release Exceeds 10% of the Protective Action Guide Limit". The operator may place the Examiner's name as the Communicator or tell the Examiner to place his/her name as the Communicator.	*		
	4. PROVIDE the ICMF to the Primary Communicator (CM1) and DIRECT the Communicator to implement **ECG Attachment 6.**	Operator provides the ICMF to CM1 and directs implementation of Att.6.	*		

ECG004 OPERATOR TRAINING PROGRAM NAME: _____
JOB PERFORMANCE MEASURE DATE: _____

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

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**LOG** the time the ICMF is provided to CM1. **LOG TIME:** _____ **Role-play as CM1 and repeat back the direction as given.**	**Examiners Note:** The difference between the "DECLARED AT" TIME and this LOG TIME is the **second** critical time (13 min.)			
ECG Att. 4	5. DIRECT the Secondary Communicator (CM2) to implement **ECG Attachment 8** for a SITE AREA EMERGENCY.	Operator directs CM2 to implement Att.8 for a SITE AREA EMERGENCY. **Examiner Note:** IF this JPM is being performed in a classroom, THEN this step will not be performed.			
CUE	**ROLE-PLAY** as CM2 and **REPEAT BACK** the direction as given.	N/A			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: ECG004

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

TASK NUMBER: 2000500302/2000020505

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONTACT MESSAGE FORM

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

II. ☒ THIS IS NOTIFICATION OF A **SITE AREA EMERGENCY** WHICH WAS DECLARED AT **Time –24 Hour** (Time – 24 HOUR CLOCK) ON , **Today's Date** (DATE)

EAL # **6.1.3.a.** DESCRIPTION OF EVENT:
Radioactive Gas Release Exceeds 10% of the Protective Action Guide Limit

---

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

IV.
☒ 33 FT. LEVEL WIND DIRECTION (**From**): **291** (DEGREES) WIND SPEED: **4** (MPH)
(From MET computer / SPDS)

V. ☒ **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

Initials

EC Initials
(Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Federal Limit of 1.20E+04 μCi/sec Noble Gas or 1.70E+01 μCi/sec I-131.

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ECG004

Rev #	Date	Description	Validation Required?
02	6/1/10	Updated Reference procedure revision number. No change in operator actions. This change is editorial. Converted JPM ECG004 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. 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. Updated Initial Conditions due to changes in the ECG to make the resulting classification specific to 6.1.3.b for a Site Area Emergency. Validated with 2 SROs. Average validation time is 13 minutes. One SRO commented that there should be a release rate given. Based on the information in the I.C sheet, there is sufficient information available to determine that a release rate above Tech Spec limits is in progress.	Y

INITIAL CONDITIONS:

1. The plant is in OPERATIONAL CONDITION 4 and has been shutdown for 10 days.
2. 'B' RHR was in Shutdown Cooling at 10,000 gpm with an RCS temperature of 120 degF.
3. The torus access hatches have been removed for work on the Suppression Chamber to Drywell Vacuum Breakers.

Then, Hope Creek experiences an earthquake which indicates a magnitude of > 0.1g.

1. Control Room Annunciator C6-C4"SEISMIC MON PNL C673" is in.
2. On Panel 10C673:
   - The SMA-3 Event Indictor 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.
3. Numerous amber lights and 8 red lights are lit on the response spectrum analyzer.
4. A LOCA occurs. RPV level dropped to, then stabilizes between –150" and –155", being maintained using all available ECCS.
5. Estimated restoration time for remaining ECCS is at least 1 hour.
6. FRVS Vent RMS failed. Alternate sampling methods are not yet in place.
7. The Rad Pro Shift Technician reports dose rates measured at the Security Center entrance are 150 mRem/hr.
8. The current 33 ft. elevation wind direction is from 291° at 4 mph.

INITIATING CUE:

Based on this information, classify this event and make the initial notifications.

This is a Time Critical Task, and has two Time Critical elements.
Time zero for this event is now.

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump

TASK NUMBER: 2590020101

JPM NUMBER: 305H-JPM.AE009 **REV #:** 01

SAP BET: **NOH05JPAE09E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/2/10
Instructor

REVIEWED BY: [signature] **DATE:** 8/4/10
Operations Representative

APPROVED BY: [signature] **DATE:** 8/4/10
Training Department

STATION: Hope Creek

JPM NUMBER: AE009 **REV:** 01

SYSTEM: Feedwater

TASK NUMBER: 2590020101

TASK: Start a Secondary Condensate Pump

ALTERNATE PATH: [ ] **K/A NUMBER:** 256000 A4.01

IMPORTANCE FACTOR: 3.3 (RO) 3.3 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.AE-0001 Rev 63

TOOLS, EQUIPMENT AND PROCEDURES:

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 JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Feedwater

TASK: Start a Secondary Condensate Pump

TASK NUMBER: **2590020101**

INITIAL CONDITIONS:

1. A plant startup is in progress IAW HC.OP-IO.ZZ-0003.
2. Reactor pressure is 500 psig.
3. "A" and "B" Primary Condensate Pumps are in service.
4. "A" Secondary Condensate Pump is in service.
5. "B" RFPT is in service.
6. The Start-Up Level Control Valve is in AUTO.
7. The Turbine Building Operator has been briefed and is standing by on location.

INITIATING CUE:

Start the second Secondary Condensate Pump BP102 IAW HC.OP-SO.AE-0001(Q).

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.AE-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.11.			
5.1.11	WHEN required by HC.OP-IO.ZZ-0003(Q), Startup from Cold Shutdown to Rated Power START the first Secondary Condensate Pump A(B,C)P137, as follows:				

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. A	ENSURE at least two Primary Condensate Pumps are running.	Operator observes the A and B Primary Condensate Pumps are running.			
5.1.11. B	ENSURE HV-1651A(B,C), SEC CNDS PUMP A(B,C) DISCH VLV, for the pump to be run is closed.	Operator observes the HV-1651B, SEC CNDS PUMP B DISCH VLV CLOSE light is illuminated and OPEN light is extinguished.			
5.1.11. C	ENSURE valve FV-1650A(B,C), MIN FLOW VALVE FLOW CONTROL (FIC-1650A(B,C)), is in AUTO with a setpoint of 4800 gpm. (Local Panel A(B,C)C102).	Operator contacts Turbine Building Equipment Operator (TBEO) to check FIC-1650B is in AUTO with a setpoint of 4800 gpm on local panel 1B-C-102.			
CUE	**INFORM operator that FIC-1650B is in AUTO with a setpoint of 4800 gpm on local panel 1B-C-102.**	N/A			
	NOTE DO NOT place Secondary Condensate Pump Auxiliary Lube Oil Pump in-service until just prior to starting the associated Secondary Condensate Pump.	Operator reads NOTE			

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. D	START lube oil system for Secondary Condensate Pump A(B,C) as follows:				
5.1.11. D.1	OBSERVE LI-1671A(B,C), Secondary Condensate Pump Lube Oil Reservoir Level, indicates a normal level between LOW and HIGH marks (local).	Operator contacts the TBEO to OBSERVE LI-1671B, Secondary Condensate Pump Lube Oil Reservoir Level, indicates a normal level between LOW and HIGH marks locally on the pump skid.			
CUE	**INFORM operator that LI-1671B, Secondary Condensate Pump Lube Oil Reservoir Level, indicates a normal level between LOW and HIGH marks.**	N/A			
5.1.11. D.2	PRESS SEC CNDS PUMP A(B,C) AUX LUBE OIL PMP START pushbutton.	Operator presses the SEC CNDS PUMP B AUX LUBE OIL PMP START pushbutton.	*		Y N Flagging Y N STAR Y N Peer Check
		Operator observes the START light is illuminated and STOP light is extinguished.			

JPM: AE009
Rev: 01
SYSTEM: **Feedwater**
TASK: **Start a Secondary Condensate Pump**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. D.3	OBSERVE PI-1669A(B,C), AUX LUBE Condensate Pump A(B,C) Oil Pressure, indicates approximately 7 to 9 psig (local).	Operator contacts the TBEO to OBSERVE PI-1669B, AUX LUBE Condensate Pump B Oil Pressure, indicates approximately 7 to 9 psig locally on the pump skid.			
CUE	**INFORM operator that PI-1669B, AUX LUBE Condensate Pump B Oil Pressure, indicates approximately 7 to 9 psig.**	N/A			
5.1.11. E	OBSERVE SEC CNDS PUMP A(B,C) START ENABLE is illuminated.	Operator observes the START ENABLE is illuminated.			
	CAUTION When starting a SCP, the time between starting the pump and opening the discharge valve should be minimized. Operation with the min flow valve open diverts flow and may lower feed pressure to the RPV, challenging RPV level. RPV level and start-up level control valve operation should be monitored closely.	Operator reads CAUTION			

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. F	START SEC CNDS Pump A(B,C) AND PERFORM the following:	Operator presses the SEC CNDS PUMP B START pushbutton.	*		Y N Flagging Y N STAR Y N Peer Check
		Operator observes the START light is illuminated and STOP light is extinguished.			
5.1.11. F.1	OBSERVE FV-1650A(B,C), SEC CNDS PUMP A(B,C) MIN FLOW VLV OPEN, is illuminated.	Operator observes FV-1650B, SEC CNDS PUMP B MIN FLOW VLV OPEN, is illuminated.			
5.1.11. F.2	OBSERVE AI-6317A(B,C), SEC CNDS PUMP A(B,C) MOT AMPS, indicates < 279 amps (< 481 amps for CP137).	Operator observes the AI-6317B, SEC CNDS PUMP B MOT AMPS, indicates < 279 amps.			
5.1.11. G	PRESS SEC CNDS Pump A(B,C) AUX LUBE OIL PMP STOP pushbutton.	Operator presses the SEC CNDS PUMP B AUX LUBE OIL PMP STOP pushbutton.			
		Operator observes the STOP light is illuminated and START light is extinguished.			

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. H	PRESS SEC CNDS Pump A(B,C) AUX LUBE OIL PMP AUTO pushbutton.	Operator presses the SEC CNDS Pump B AUX LUBE OIL PMP AUTO pushbutton.	*		Y N Flagging Y N STAR Y N Peer Check
		Operator observes the AUTO light is illuminated and MAN light is extinguished.			
	NOTE AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC valve will not have an auto open signal present once two Secondary Condensate Pumps are in service.	Operator reads NOTE.			
	CAUTION **Flow through Condensate Demineralizer should be maintained between 3000 - 6000 gpm during normal operation.**	Operator reads CAUTION.			

JPM: AE009 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Feedwater**

TASK: **Start a Secondary Condensate Pump**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11.l	IF TWO Secondary Condensate Pumps are now in service THEN PRESS AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC CLOSE PB.	Operator determines this step is applicable and presses the AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC CLOSE PB.	*		Y N Flagging Y N STAR Y N Peer Check
		Operator observes the AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC OPEN and CLOSE lights are illuminated.			
		Operator observes the AD-HV-1710 PRI CNDS FLOW PATH MIN FLOW RECIRC OPEN light extinguishes.			
CUE	When asked about the Start-Up Level Control Valve, provide Terminatiing Cue.	N/A			

JPM: AE009
Rev: 01
SYSTEM: **Feedwater**
TASK: **Start a Secondary Condensate Pump**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____
DATE: _____

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

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: AE009

TASK: Start a Secondary Condensate Pump

TASK NUMBER: 2590020101

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

INITIAL CONDITIONS:

1. A plant startup is in progress IAW HC.OP-IO.ZZ-0003.
2. Reactor pressure is 500 psig.
3. "A" and "B" Primary Condensate Pumps are in service.
4. "A" Secondary Condensate Pump is in service.
5. "B" RFPT is in service.
6. The Start-Up Level Control Valve is in AUTO.
7. The Turbine Building Operator has been briefed and is standing by on location.

INITIATING CUE:

Start the second Secondary Condensate Pump BP102 IAW HC.OP-SO.AE-0001(Q).

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to a startup I.C., 500 psig reactor pressure.
	ENSURE A and B Primary Condensate Pumps are in service.
	ENSURE A Secondary Condensate Pump is in service.

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

Initial	Description
	ENSURE a copy of HC.OP-SO.AE-0001 is available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

I/O OVERRIDE SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: AE009

Rev #	Date	Description	Validation Required?
01	5/26/10	Converted JPM AE009 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. Added additional information to turnover cue sheet. Revised FV-1650A(B,C) flow setpoint from 5500 gpm to 4800 gpm. Validation required. Validation comments: Added to cue sheet "7. The Turbine Building Operator has been briefed and is standing by on location." Validated avg time 11 minutes.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor/Turbine Pressure Regulating System

TASK: Respond to a Low Turbine Hydraulic Pressure

TASK NUMBER: 4000570401

JPM NUMBER: 305H-JPM.CH002 **REV #:** 07

SAP BET: **NOH05JPCH02E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 5/21/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: CH002 **REV:** 07

SYSTEM: Reactor/Turbine Pressure Regulating System

TASK NUMBER: 4000570401

TASK: Respond to a Low Turbine Hydraulic Pressure

ALTERNATE PATH: [X] **K/A NUMBER:** 241000 A2.06

IMPORTANCE FACTOR: 3.1 (RO) 3.2 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-SO.CH-0001 Rev. 42

TOOLS, EQUIPMENT AND PROCEDURES: None

ESTIMATED COMPLETION TIME: 8 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Reactor/Turbine Pressure Regulating System

TASK: Respond to a Low Turbine Hydraulic Pressure

TASK NUMBER: 4000570401

INITIAL CONDITIONS:

1. The plant is at 100% power, steady state.
2. The BP116 EHC pump is in MAN and running, the AP116 is in Standby.
3. The BP116 EHC is scheduled for maintenance.

INITIATING CUE:

You are the Plant Operator.
Swap In service EHC pumps to AP116 in service, and BP116 in Standby.
Leave BP116 in Standby (AUTO) for a confidence run on AP116 prior to C/T the BP116.

JPM: CH002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 07 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor/Turbine Pressure Regulating System**

TASK: **Respond to a Low Turbine Hydraulic Pressure**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains and locates procedure HC.OP-SO.CH-0001.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations, and initials each precaution and limitation in the space provided in the procedure.			
CUE	**If excessive time is taken to review precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step of procedure to be 5.12.			
5.12.1	**ENSURE** all prerequisites of Section 2.12 are satisfied.	Operator reviews Prerequisites and initials each Prerequisite in the space provided in the procedure. **Examiner Note: It is NOT critical to initial the procedure steps.**			

JPM: CH002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 07 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor/Turbine Pressure Regulating System**

TASK: **Respond to a Low Turbine Hydraulic Pressure**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**	N/A			
5.12.2	**STATION** an equipment operator at the EHC Skid to monitor pump performance during swap.	The operator contacts the equipment operator.			
CUE	**Inform the operator that an equipment operator is standing by to monitor pump performance.**	N/A			
5.12.3	**PERFORM** the following to alternate the EHC Pumps (Panel 10C651C):				
5.12.3.A	**PRESS** HYDR FLUID PUMP B(A)P116 MAN push-button AND **OBSERVE** AUTO lamp extinguish AND MAN lamp backlight illuminates.	Operator presses the HYDR FLUID PUMP AP116 MAN pushbutton.	* #		
		Operator observes AUTO lamp extinguishes AND MAN lamp backlight illuminates.			
5.12.3.B	**PRESS** HYDR FLUID PUMP B(A)P116 START push-button.	Operator presses the HYDR FLUID PUMP AP116 START push-button	* #		

JPM: CH002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 07 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor/Turbine Pressure Regulating System**

TASK: **Respond to a Low Turbine Hydraulic Pressure**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the START pushbutton illuminates and the STOP pushbutton extinguishes.			
5.12.3. C	**OBSERVE** that B(A)P116, HYDR FLUID PUMP, starts AND develops flow, as indicated by AI-6427B(A), MOTOR AMPS, for both pumps indicating approximately the same current.	Operator observes the AP116, HYDR FLUID PUMP, starts AND develops flow, as indicated by AI-6427B(A), MOTOR AMPS, for both pumps indicating approximately the same current.			
5.12.3. D	**VERIFY** HYDR FLUID PUMP A(B)P116 is in manual AND the AUTO lamp is extinguished AND MAN lamp backlight is illuminated.	Operator verifies that BP116 MAN push-button lamp backlight is illuminated.			
5.12.3. E	**PRESS** HYDR FLUID PUMP A(B)P116 STOP push-button.	Operator presses the BP116 STOP push-button.	* #		
		Operator observes the START lamp extinguish AND STOP lamp backlight illuminates. **Examiner Note: The operator may notice the reduction of system pressure at any time while performing the following.**			

JPM: CH002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 07 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor/Turbine Pressure Regulating System**

TASK: **Respond to a Low Turbine Hydraulic Pressure**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.12.3. F	**OBSERVE** that A(B)P116, HYDR FLUID PUMP, stops AND that B(A)P116, HYDR FLUID PUMP, maintains system pressure. (1550 - 1700 psig using CRIDS Point A3290 OR equivalent)	Operator observes that BP116, HYDR FLUID PUMP, stops AND that AP116, HYDR FLUID PUMP, does NOT maintain system pressure. (1550 - 1700 psig using CRIDS point A3290 OR equivalent).			
5.12.3. G	IF the B(A)P116, HYDR FLUID PUMP, fails to maintain system pressure, THEN IMMEDIATELY **START** A(B)P116, HYDR FLUID PUMP.	Based on previous step, operator determines this step applies, **IMMEDIATELY** starts BP116, HYDR FLUID PUMP by pressing HYDR FLUID PUMP BP116 START pushbutton. **Examiner Note: Starting the BP116, HYDR FLUID PUMP will prevent low pressure and turbine trip/reactor scram. If the turbine trips, then consider this step UNSAT.**	* #		
		Operator observes that the pump starts AND develops flow, as indicated by AI-6427A/B, MOTOR AMPS, for both pumps indicating approximately the same current.			
CUE	**If asked, direct the operator to start the BP116, "B" HYDR FLUID PUMP. After the Operator starts the BP116 OR the turbine trips, GIVE the terminating Cue.**	N/A			

JPM: CH002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 07 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor/Turbine Pressure Regulating System**

TASK: **Respond to a Low Turbine Hydraulic Pressure**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: CH002

TASK: Respond to a Low Turbine Hydraulic Pressure

TASK NUMBER: 4000570401

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power, steady state.
2. The BP116 EHC pump is in MAN and running, the AP116 is in Standby.
3. The BP116 EHC is scheduled for maintenance.

INITIATING CUE:

You are the Plant Operator.
Swap In service EHC pumps to AP116 in service, and BP116 in Standby.
Leave BP116 in Standby (AUTO) for a confidence run on AP116 prior to C/T the BP116.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to full power.
	ENSURE the BP116 EHC pump is in service in MAN and the AP116 is in Standby in AUTO.

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

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

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	**zdtuehtb** // 'B' EHC pump STOP pushbutton
	2	EVENT ACTION: COMMAND: PURPOSE:	**zdtuehsb** // 'B' EHC pump START pushbutton **dmf tc16**

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	TC16 EHC Pump Discharge Filter clogging	---	---	ET-1	---	100%
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	TC05 EHC pump A Discharge Filter Replacement	1	---	ET-2	---	REPLACE
	TC06 EHC pump B Discharge Filter Replacement	1	---	ET-2	---	REPLACE

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: CH002

Rev #	Date	Description	Validation Required?
05	8/26/08	Update to new JPM format and revise performance completion times. Update reference procedure revisions.	Y
06	9/9/09	Update reference procedure revisions. No validation required.	N
07	4/20/10	Update reference procedure revisions. Updated estimated Completion time based on pre-briefed 2009 LOR performance. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: High Pressure Coolant Injection

TASK: Place HPCI In Full Flow Recirc

TASK NUMBER: 2060180201

JPM NUMBER: 305H-JPM.BJ006 **REV #:** 08

SAP BET: **NOH05JPBJ06E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 7/1/10
Instructor

REVIEWED BY: [signature] **DATE:** 7/1/10
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: BJ006 **REV:** 08

SYSTEM: High Pressure Coolant Injection

TASK NUMBER: 2060180201

TASK: Place HPCI In Full Flow Recirc

ALTERNATE PATH: [ ] **K/A NUMBER:** 206000 A4.06

IMPORTANCE FACTOR: 4.3 (RO) 4.3 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.ZZ-0001 Rev 21

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 12 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: High Pressure Coolant Injection

TASK: Place HPCI In Full Flow Recirc

TASK NUMBER: 2060180201

INITIAL CONDITIONS:

1. The Reactor has scrammed due to a spurious Group 1 isolation.
2. All control rods are full in.
3. RCIC was manually initiated and is injecting to the RPV.
4. Reactor water level is approximately -15 inches and slowly rising.
5. Reactor pressure is being controlled with Lo-Lo Set.
6. RHR loop B is in suppression pool cooling.
7. Another operator is taking the HC.OP-DL.ZZ-0026, Attachment 3.m, Suppression Chamber Average Water Temp 5 Minute Log.

INITIATING CUE:

Place HPCI into the Full Flow Test Mode.

JPM: BJ006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **High Pressure Coolant Injection**

TASK: **Place HPCI In Full Flow Recirc**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.ZZ-0001 Attachment 6.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 1.0.			
1.0	IF HPCI is NOT in the Injection mode of operation PERFORM the following:	N/A			
1.0.A	ENSURE OP216 VAC TK VACUUM PUMP is RUNNING.	Operator presses the OP216 START pb.			STAR Y N
		Operator observes the red RUNNING light illuminates.			

JPM: BJ006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **High Pressure Coolant Injection**

TASK: **Place HPCI In Full Flow Recirc**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.0.B	ENSURE HV-F059 is OPEN.	Operator presses the HV-F059 OPEN pb.	* #		STAR Y N
		Operator observes the red OPEN light illuminates and green CLSD light extinguishes.			
1.0.C	ENSURE HPCI AND RCIC Suctions are lined up to the CST.	Operator observes the HPCI HV-F004 OPEN light is illuminated and green CLSD light is extinguished.			
		Operator observes the RCIC HV-F010 OPEN light is illuminated and green CLSD light is extinguished.			
1.0.D	PRESS HV-F008 INCR PB for ≈ 20 seconds.	Operator presses HV-F008 INCR pb for approximately 20 seconds.	* #		STAR Y N
		Operator observes the HV-F008 OPEN light illuminates.			

JPM: BJ006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **High Pressure Coolant Injection**

TASK: **Place HPCI In Full Flow Recirc**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.0.E	ADJUST FIC-R600 HPCI FLOW setpoint to 1000 gpm.	Operator presses the LOWER SETPOINT pb on the FIC-R600 controller until the pointer is on 1000 gpm.	* #		STAR Y N
1.0.F	SIMULTANEOUSLY PERFORM the following:	N/A			
1.0.F. 1	START AUXILIARY OIL PUMP	Operator presses the AUXILIARY OIL PUMP OP213 START pb.	* #		
		Operator observes the red RUNNING light illuminates.			
1.0.F. 2	PRESS FD-HV-F001 OPEN Pushbutton	Operator presses the HV-F001 OPEN pb.	* #		
		Operator observes the red OPEN light illuminates and green CLSD light extinguishes.			

JPM: BJ006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **High Pressure Coolant Injection**

TASK: **Place HPCI In Full Flow Recirc**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.0.G	IMMEDIATELY OPEN AP-HV-F011.	Operator presses the AP-HV-F011 OPEN pb.	* #		
		Operator observes the red OPEN light illuminates and green CLSD light extinguishes.			
1.0.H	WHEN Discharge Pressure turns ADJUST FIC-R600 setpoint to 3000 gpm.	Operator observes HPCI Pump Discharge Pressure on PI-R601-E41 (red) ribbon indicator rises and lowers.			STAR Y N
		Operator presses the RAISE SETPOINT or LOWER SETPOINT pbs as necessary to obtain a flow setpoint of 3000 gpm.	*		

JPM: BJ006 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 08 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **High Pressure Coolant Injection**

TASK: **Place HPCI In Full Flow Recirc**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
1.0.I	THROTTLE HV-F008 AND ADJUST FIC-R600 setpoint, as necessary, up to and including full flow rate, to control HPCI pump parameters/reactor pressure.	Operator presses the HV-F008 INCR or DECR pbs and/or RAISE SETPOINT or LOWER SETPOINT pbs as necessary to adjust pump parameters.			STAR Y N
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: BJ006

TASK: Place HPCI In Full Flow Recirc

TASK NUMBER: 2060180201

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The Reactor has scrammed due to a spurious Group 1 isolation.
2. All control rods are full in.
3. RCIC was manually initiated and is injecting to the RPV.
4. Reactor water level is approximately -15 inches and slowly rising.
5. Reactor pressure is being controlled with Lo-Lo Set.
6. RHR loop B is in suppression pool cooling.
7. Another operator is taking the HC.OP-DL.ZZ-0026, Attachment 3.m, Suppression Chamber Average Water Temp 5 Minute Log.

INITIATING CUE:

Place HPCI into the Full Flow Test Mode.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS

I.C.

Initial	

_____ INITIALIZE the simulator to 100% power, MOL.

_____ Place "B" RHR in Suppression Pool Cooling.

_____ Lower Suppression Pool level to approximately 75.0"

_____ Reduce Recirc to minimum.

_____ Place Mode Switch to S/D.

_____ Stabilize RPV level at approximately -20 inches with RFPs. Do NOT allow water lvl to drop to lvl 2.

_____ Arm and depress channels A and D NSSSS, then disarm. (Simulates spurious Group 1 isolation)

_____ Manually initiate RCIC, runback flow controller setpoint to maintain RPV level at approximately -15 inches.

_____ Freeze simulator.

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

Initial	Description

_____ ENSURE Mode Switch key is removed.

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

EVENT TRIGGERS

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BJ006

Rev #	Date	Description	Validation Required?
08	7/1/10	JPM BJ006 updated to new JPM format. Converted JPM BJ006 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. Added Initial Condition, "Reactor pressure is being controlled with Lo-Lo Set." Reduce SP level to 75 inches to provide more time before suction swap. Validated with 2 licensed operators. Validation time 12 minutes.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Primary Containment Instrument Gas

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

TASK NUMBER: 3780050501

JPM NUMBER: 305H-JPM.KL003 **REV #:** 01

SAP BET: **NOH05JPKL03E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 7/28/10
Instructor

REVIEWED BY: _____ **DATE:** 8/4/10
Operations Representative

APPROVED BY: _____ **DATE:** 8/4/10
Training Department

STATION: Hope Creek

JPM NUMBER: KL003 **REV:** 01

SYSTEM: Primary Containment Instrument Gas

TASK NUMBER: 3780050501

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

ALTERNATE PATH: [X] **K/A NUMBER:** 223001 A4.11

IMPORTANCE FACTOR: 3.1 (RO) 3.0 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.COMP-0002 Rev. 6
HC.OP-SO.KL-0001 Rev. 25

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 12 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Primary Containment Instrument Gas

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

TASK NUMBER: 3780050501

INITIAL CONDITIONS:

1. The plant is operating at 100 percent power.
2. An inadvertent Channel "A" isolation signal has occurred.

INITIATING CUE:

Restore Primary Containment Instrument Gas IAW HC.OP-AB.COMP-0002 PRIMARY CONTAINMENT INSTRUMENT GAS Subsequent Action D.

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0002.			
		Operator reviews Retainment Override Conditions and Actions.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be Subsequent Operator Action D.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE 5	Both PCIG Compressors are placed in STOP to prevent a SAFETY LOCKOUT due to low suction pressure until the suction line up is restored.	Operator reads NOTE.			
D.1	PRESS A and B PCIG Compressors STOP PB.	Operator presses A PCIG Compressor STOP PB.	*		Y N STAR
		Operator observes the STOP light is illuminated and START light is extinguished.			
		Operator presses B PCIG Compressor STOP PB.	*		Y N STAR
		Operator observes the STOP light is illuminated and START light is extinguished.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
D.2	**ENSURE** Isolations per Attachment 5 for A Channel.	Operator turns to Attachment 5 of HC.OP-AB-COMP-0002.			
NOTE 1	Valves isolate on 1.68 psig DRYWELL PRESSURE, 1 X 10-3 uCi/cc REACTOR BUILDING EXHAUST RADIATION, Core Spray Manual Initiation Pushbutton and -129" Low Reactor Level unless otherwise noted.	Operator reads NOTE.			
Attach 5	KL-HV5152A INSTRUMENT GAS SUPPLY HDR A INBD ISLN	Operator observes the KL-HV5152A INSTRUMENT GAS SUPPLY HDR A INBD ISLN CLOSE light is illuminated and OPEN light is extinguished.			
Attach 5	KL-HV5148 INSTRUMENT GAS CPRSR SUCT INBD ISLN	Operator observes the KL-HV5148 INSTRUMENT GAS CPRSR SUCT INBD ISLN CLOSE light is illuminated and OPEN light is extinguished.			
Attach 5	KL-HV5172A CONT ATMOSPHERE A INSTR GAS EMER SUP	Operator observes the KL-HV5172A CONT ATMOSPHERE A INSTR GAS EMER SUP CLOSE light is illuminated and OPEN light is extinguished.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE 6	Opening of the Reactor Building Post Accident Compressor Suction Valves in Step D.3 or D.5 may cause a rise in Primary Containment Oxygen concentrations. Monitor Drywell and Suppression Chamber Oxygen Concentration for compliance. **[TS 3.6.6.2]**	Operator reads NOTE.			
D.3	PLACE B PCIG Compressor in service as follows:				
D.3.A	CLOSE HV-5162.	Operator presses the HV-5162 CLOSE PB.	* #		Y N STAR
		Operator observes the HV-5162 CLOSE light is illuminated and OPEN light is extinguished.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
D.3.B	OPEN HV-5160B using Key Lock Switch.	Operator opens HV-5160B using Key Lock Switch.	* #		Y N STAR
		Operator observes the HV-5160B OPEN light is illuminated and CLOSE light is extinguished.			
D.3.C	ENSURE B PCIG Compressor SAFETY LOCKOUT is RESET.	Operator contacts Reactor Building Equipment Operator and ensures B PCIG Compressor SAFETY LOCKOUT is RESET.			
CUE	**IF contacted as Reactor Building Equipment Operator, THEN after approximately 1 minute, TRIGGER ET-4 and REPORT that the Safety Circuit Lockout is reset.**	N/A			
D.3.D	PRESS B PCIG Compressor AUTO LEAD PB.	Operator presses the B PCIG Compressor AUTO LEAD PB.	*		Y N STAR
		Operator observes the B PCIG Compressor AUTO LEAD light is illuminated.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
D.4	ENSURE the following valves are OPEN:				
	• HV-5156A	Operator observes the HV-5156A OPEN light is illuminated and CLOSE light is extinguished.			
	• HV-5156B	Operator observes the HV-5156B OPEN light is illuminated and CLOSE light is extinguished.			
	B PCIG Trip **ENSURE ET-5** triggers after B PCIG placed in AUTO LEAD.				
		Operator recognizes trip of B PCIG by: • A1-A5 INST GAS PANEL A/B C213			
		Operator reports trip of B PCIG to the CRS.			
CUE	**"Take any required action"**	N/A			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**IF contacted as Reactor Building Equipment Operator, THEN after approximately 1 minute, REPORT that the B PCIG Compressor Safety Circuit Lockout is tripped and will not reset.**	N/A			
D.5	If B PCIG Compressor is not available, PLACE A PCIG Compressor in service as follows:	Operator recognizes these steps are applicable.			
D.5.A	CLOSE HV-5147.	Operator presses the HV-5147 CLOSE PB.	* #		Y N STAR
		Operator observes the HV-5147 CLOSE light is illuminated and OPEN light is extinguished.			
D.5.B	OPEN HV-5160A using Key Lock Switch.	Operator opens HV-5160A using Key Lock Switch.	* #		Y N STAR
		Operator observes the HV-5160A OPEN light is illuminated and CLOSE light is extinguished.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
D.5.C	ENSURE A PCIG Compressor SAFETY LOCKOUT is RESET.	Operator ensures A PCIG Compressor SAFETY LOCKOUT is RESET.			
		Operator contacts Reactor Building Equipment Operator and ensures A PCIG Compressor SAFETY LOCKOUT is RESET.			
CUE	**IF contacted as Reactor Building Equipment Operator, THEN after approximately 1 minute, TRIGGER ET-6 and REPORT that the Safety Circuit Lockout is reset.**	N/A			
D.5.D	PRESS A PCIG Compressor AUTO LEAD PB.	Operator presses the A PCIG Compressor AUTO LEAD PB.	*		Y N STAR
		Operator observes the A PCIG Compressor AUTO LEAD light is illuminated.			

JPM: KL003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 01 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Primary Containment Instrument Gas**

TASK: **Operate The PCIG System During Post LOCA/Isolation Conditions**

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

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: KL003

TASK: Operate The PCIG System During Post LOCA/Isolation Conditions

TASK NUMBER: 3780050501

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

INITIAL CONDITIONS:

1. The plant is operating at 100 percent power.
2. An inadvertent Channel "A" isolation signal has occurred.

INITIATING CUE:

Restore Primary Containment Instrument Gas IAW HC.OP-AB.COMP-0002 PRIMARY CONTAINMENT INSTRUMENT GAS Subsequent Action D.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

IC

Initial	
	INITIALIZE the simulator to a 100 percent power IC.
	LOWER PCIG Gas pressure to ~85 psig using IA03 Loss of drywell instrument gas.
	INSERT PC03A in the tripped condition and allow valves to travel to required positions.
	ACKNOWLEDGE alarms and place simulator in FREEZE.

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

Initial	Description
	ENSURE a copy of HC.OP-AB.COMP-0002 is available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	3	EVENT ACTION: COMMAND: PURPOSE:	ZDIA60BO >= 1.0 // HV5160 keyswitch to OPEN Simulates opening of HV-5160B
	5	EVENT ACTION: COMMAND: PURPOSE:	ZDIAALCB >= 1.0 // B PCIG Auto Lead PB

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	IA03 Loss of drywell instrument gas	---	---	NONE	22	0
	PC03A Drywell pressure transmitter N094A failure	---	---	NONE	3	3
	AN-A1A5 CRYWOLF ANN A1A5 - INST GAS PANEL A/B C213	---	---	ET-5	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	IA09 Instrument gas compressor B reset	---	---	ET-4	---	RESET
	IA08 Instrument gas compressor A reset	---	---	ET-6	---	RESET
	AN01B A1-A5 Inst Gas Panel BC213	00:00:05	---	ET-4	---	NORM
	AN01A A1-A5 Inst Gas Panel AC213	00:00:05	---	ET-6	---	NORM
		---	---	---	---	---

I/O OVERRIDE SUMMARY

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	10DS2 A HV-5160B OPEN-INSTRUMENT GAS HV-5160B	---	---	ET-3	---	ON
	10DS2 B HV-5160B CLOSED-INSTRUMENT GAS HV-5160B	00:00:27	---	ET-3	---	OFF
	10S8 A CLOSE HV-5160B	00:00:30	---	ET-3	---	ON
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: KL003

Rev #	Date	Description	Validation Required?
00	5/26/10	New JPM. Validation required. Validated with 2 RO's. Avg validation time 12 minutes.	Y
01	7/28/10	Fixed trigger numbers ET-4 and ET-6 in text to agree with snap.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

TASK NUMBER: 4000780401

JPM NUMBER: 305H-JPM.EG008 **REV #:** 05

SAP BET: **NOH05JPEG08E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 5/26/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: EG008 **REV:** 05

SYSTEM: Safety Auxiliaries Cooling Water

TASK NUMBER: 4000780401

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

ALTERNATE PATH: [X] **K/A NUMBER:** 295018AA1.02

IMPORTANCE FACTOR: 3.3 (RO) 3.4 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.COOL-0002, Rev 6
HC.OP-SO.KJ-0001, Rev 54

TOOLS, EQUIPMENT AND PROCEDURES: Annotated copy of HC.OP-SO.KJ-0001.

ESTIMATED COMPLETION TIME: 3 Minutes

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: 9 Minutes

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: _____ Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Safety Auxiliaries Cooling Water

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

TASK NUMBER: 4000780401

INITIAL CONDITIONS:

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

INITIATING CUE:

Implement Condition A of HC.OP-AB.COOL-0002.
You are only responsible for actions contained in HC.OP-AB.COOL-0002.
The Simulator is in freeze and you will be given five minutes to walk down the panels and obtain your procedure. Inform your examiner when you are ready to begin.
This is a time critical JPM.

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
	Examiner Note: Keep the Simulator in freeze and allow the Operator to walk down the panels and obtain HC.OP-AB.COOL-0002.				
	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, PLACE the Simulator in RUN and INFORM the Operator the JPM has commenced.**				
CUE	**ENTER** START TIME AFTER SIMULATOR IS REMOVED FROM FREEZE: **START TIME:**				

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.1	START the unaffected pump as follows:				
A.1.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.			
A.1.b	PLACE the pump in manual.	Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D MAN pushbutton.	* #		
		Operator observes the MAN light illuminates and the AUTO light extinguishes.			

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.1.c	START the pump.	Operator presses the SAFETY AUXILIARIES COOLING LOOP B PUMPS PUMP D DP210 START pushbutton.	* #		**TIME:** _____
		Operator observes the PUMP D DP210 START light illuminates and the STOP light extinguishes			
		Operator observes the PUMP D DP210 AI-6356D (amps) goes off-scale high.			
		After approximately 3 seconds, the 'D' SACS pump trips and the operator observes the following: • PUMP D AI-6356D amps drop to zero • OHA A1-E5 SACS LOOP B TROUBLE reflashes • The PUMP D DP210 START light extinguishes • The PUMP D STOP light begins flashing			

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
A.2	IF flow cannot be restored to the affected loop, THEN PERFORM the following:	Operator determines flow cannot be restored to the 'B' SACS loop.			
CUE	**If the Operator questions who is responsible for the 'D' EDG, DIRECT the Operator to perform steps in A.2 of HC.OP-AB.COOL-0002.**	N/A			
A.2	UNLOAD AND SECURE all EDG's aligned to the affected loop as follows:				
A.2.a	PRESS GEN VR LOWER pushbutton until Generator KVAR loading is < 200 KVAR.	Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 GEN VR LOWER pushbutton until GEN D VARI-6395D indicates < 200 KVAR.			
A.2.b	PRESS DIESEL ENG GOV DECR pushbutton until Generator load < 200 KW.	Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 DIESEL ENG GOV DECR pushbutton until GEN D WI-6394D indicates < 200 KW.			

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Examiner Note: The D EDG output breaker may trip on reverse power.				
A.2.c	TRIP associated EDG GEN BRKR.	Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 GEN BRKR TRIP pushbutton.			
		Operator observes the 40407 TRIP light illuminates and the CLOSE light extinguishes.			
A.2.d	STOP the EDG.	Operator presses the EMERGENCY GENERATORS D DIESEL GENERATOR 1DG400 DIESEL ENG STOP pushbutton.	*		**TIME:** _____
		Operator observes the DG400 STOP light illuminates and the START light extinguishes BEFORE the EDG catastrophically fails and trips (≈9 minutes with NO operator action).			

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	Examiner Note: Time Critical portion is satisfied if Operator secures EDG before it catastrophically fails and trips.				
	• ENSURE Control Room Chilled Water is aligned to the unaffected loop.(GJ)	Operator observes the 'A' Control Room Ventilation and Chilled Water train is in service.			
	• ENSURE TSC Chilled Water is aligned to the unaffected loop.(GJ)	Operator observes the 'A' TSC Ventilation and Chilled Water train is in service.			
	• DECLARE the loop inoperable, AND IMPLEMENT Condition K.	Operator informs CRS the 'B' SACS loop should be declared inoperable and Condition K should be implemented.			
	Examiner Note: It is not necessary for the Operator to perform any Condition K actions.				

JPM: EG008 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 05 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Safety Auxiliaries Cooling Water**

TASK: **Respond To A Safety Auxiliaries Cooling Water Malfunction**

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

JOB PERFORMANCE MEASURE

OPERATOR TRAINING PROGRAM

EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: EG008

TASK: Respond To A Safety Auxiliaries Cooling Water Malfunction

TASK NUMBER: 4000780401

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

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

INITIATING CUE:

Implement Condition A of HC.OP-AB.COOL-0002.
You are only responsible for actions contained in HC.OP-AB.COOL-0002.
The Simulator is in freeze and you will be given five minutes to walk down the panels and obtain your procedure. Inform your examiner when you are ready to begin.
This is a time critical JPM.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

IC

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	ENSURE TACS is aligned to the 'A' SACS loop.
	ENSURE the 'A' Control Room Ventilation train is in service.
	ENSURE the 'A' TSC Ventilation train is in service.
	ENSURE the EG-HV-2314B is closed ('B' SACS to Fuel Pool Cooling Hx).
	START the 'D' EDG and **LOAD** to 1000 KW and 500 KVAR IAW SO.KJ-0001.
	ACKNOWLEDGE Control Room and Local alarms.
	INSERT the trip of the 'B' SACS pump as follows:
	1. **ENSURE** the 'B' SACS pump is in service and 'D' SACS pump is in standby.
	2. **INSERT** Malfunction **CW10B**
	3. Allow the pump to trip AND OHA A1-A5 to alarm, then **FREEZE** the simulator.

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

Initial	Description
	INITIAL HC.OP-SO.KJ-0001 for the 'D' EDG.
	UPDATE the LAST START and BAR information for 'D' EDG on 10C651E to the current date.
	PLACE Robust Op Barriers on the 'D' EDG BRKR and ENG controls
	FLAG the 'D' EDG GOV AND GEN VR pushbuttons
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	**cw:z52pd >= 1.0** // 'D' SACS pump start Trips 'D' SACS pump shortly after start.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CW10B Trip of 'B' SACS pump	---	---	NONE	---	---
	CW10D Trip of 'D' SACS pump	3 sec	---	ET-1	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---
		---	---	---	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---
		---	---	---	---	---

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A29 A1 LO BP210 OVLD/PWR FAIL	---	---	NONE	---	ON
		---	---	---	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: EG008

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

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To A Control Rod System Malfunction

TASK NUMBER: 4000070401

JPM NUMBER: 305H-JPM.SB004 **REV #:** 13

SAP BET: **NOH05JPSB04E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 4/20/10
Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010
Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: SB004 **REV:** 13

SYSTEM: Control Rod and Drive Mechanism

TASK NUMBER: 4000070401

TASK: Respond To A Control Rod System Malfunction

ALTERNATE PATH: [X] **K/A NUMBER:** 295015 AA1.02

IMPORTANCE FACTOR: 4.0 (RO) 4.2 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-ST.SF-0003 Rev 12
HC.OP-AB.IC-0001 Rev 10
HC.OP-AB.ZZ-0001 Rev 21

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 14 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Control Rod and Drive Mechanism

TASK: Respond To A Control Rod System Malfunction

TASK NUMBER: **4000070401**

INITIAL CONDITIONS:

1. Reactor is at 100% power.
2. No other testing or maintenance is in progress.
3. A thermal scan of all 185 HCUs has been performed.

INITIATING CUE:

You are the Reactor Operator.
Perform HC.OP-ST.SF-0003, RPS MANUAL SCRAM TEST - WEEKLY.

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-ST.SF-0003.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.1.			
5.1.1	LOG test start time in the Control Room log(s).	Operator requests that the test start time be logged in the Control Room logs.			
CUE	**INFORM the Operator the test start time has been logged in the Control Room logs.**	N/A			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.2	ENSURE all prerequisites have been satisfied IAW Section 2.1.	Operator reviews Prerequisites, completes Section 3.0 of 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.**	N/A			
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.	Operator ensures that Attachment 1, Section 1.0 of the SM/CRS Data and Signature Sheet has been completed and Regular Surveillance is indicated			
5.1.4	ENSURE all RPS TRIPS are reset.	Operator observes RPS indications on the 10C651 panel and overhead annunciator panels, and determines that RPS is reset.			
5.1.5	ARM RPS TRIP SYS A1 MAN INIT PB.	Operator rotates the RPS TRIP SYS A1 MAN INIT push button clockwise.	* #		
5.1.6	VERIFY Annunciator MANUAL SCRAM SW ARMED alarms. [T/S 4.3.1.1]	Operator observes OHA C3-A1 MANUAL SCRAM SW ARMED alarms.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	The following step will cause a TRIP of RPS TRIP SYS A1.	Operator reads NOTE.			
5.1.7	PRESS RPS TRIP SYS A1 MAN INIT PB.	Operator presses the RPS TRIP SYS A1 MAN INIT push button.	* #		
5.1.8	VERIFY the following occurs:	N/A			
5.1.8. A	Annunciator MANUAL SCRAM alarms	Operator observes OHA C5-A3 MANUAL SCRAM annunciator alarms.			
5.1.8. B	RPS TRIP SYSTEM A TRIP LOGIC A1 NORMAL/RESET light extinguishes. [T/S 4.3.1.1]	Operator verifies the RPS TRIP SYSTEM A TRIP LOGIC A1 NORMAL/RESET light extinguishes.			
5.1.8. C	PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights extinguish. [T/S 4.3.1.1]	Operator verifies the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights extinguish.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.8. D	Annunciator REACTOR SCRAM TRIP LOGIC A1 alarms.	Operator observes OHA C3-A2 REACTOR SCRAM TRIP LOGIC A1 annunciator alarms.			
5.1.9	UN-ARM RPS TRIP SYS A1 MAN INIT PB.	Operator rotates the RPS TRIP SYS A1 MAN INIT push button counterclockwise.			
5.1.10	RESET RPS Channel A1.	Operator momentarily rotates the RPS TRIP SYS A1 RESET key switch clockwise, then allows it to return to the counterclockwise position.	*		
5.1.11	VERIFY the following occurs:	N/A			
5.1.11. A	MANUAL SCRAM annunciator is clear.	Operator observes OHA C5-A3 MANUAL SCRAM annunciator extinguishes.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.11. B	MANUAL SCRAM SW ARMED annunciator is clear. [T/S 4.3.1.1]	Operator observes OHA C3-A1 MANUAL SCRAM SW ARMED annunciator extinguishes.			
5.1.11. C	RPS TRIP SYSTEM A TRIP LOGIC A1 NORMAL/RESET light is illuminated. [T/S 4.3.1.1]	Operator verifies the RPS TRIP SYSTEM A TRIP LOGIC A1 NORMAL/RESET light illuminates.			
5.1.11. D	PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights are illuminated. [T/S 4.3.1.1]	Operator observes the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights illuminate.			
	Examiner Note: RPS is considered reset.	N/A			
5.1.11. E	REACTOR SCRAM TRIP LOGIC A1 is clear.	Operator observes that OHA C3-A2 REACTOR SCRAM TRIP LOGIC A1 clears.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.12	ENSURE all RPS Trips are RESET.	Operator observes RPS indications on the 10C651 panel and overhead annunciator panels, and determines that RPS is reset.			
5.1.13	ARM RPS TRIP SYS A2 MAN INIT PB.	Operator rotates the RPS TRIP SYS A2 MAN INIT push button clockwise.	* #		
5.1.14	VERIFY Annunciator MANUAL SCRAM SW ARMED alarms. [T/S 4.3.1.1]	Operator observes OHA C3-A1 MANUAL SCRAM SW ARMED alarms.			
NOTE	The following step will cause a TRIP of RPS TRIP SYS A2.	N/A			
5.1.15	PRESS RPS TRIP SYS A2 MAN INIT PB.	Operator presses the RPS TRIP SYS A2 MAN INIT push button.	* #		
5.1.16	VERIFY the following occurs:	N/A			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.16. A	Annunciator MANUAL SCRAM alarms.	Operator observes OHA C5-A3 MANUAL SCRAM annunciator alarms.			
5.1.16. B	RPS TRIP SYSTEM A TRIP LOGIC A2 NORMAL/RESET light extinguishes. [T/S 4.3.1.1]	Operator verifies the RPS TRIP SYSTEM A TRIP LOGIC A2 NORMAL/RESET light extinguishes.			
5.1.16. C	PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights extinguish. [T/S 4.3.1.1]	Operator verifies the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights extinguish.			
5.1.16. D	Annunciator REACTOR SCRAM TRIP LOGIC A2 alarms.	Operator observes OHA C3-A3 REACTOR SCRAM TRIP LOGIC A2 annunciator alarms.			
5.1.17	UN-ARM RPS TRIP SYS A2 MAN INIT PB.	Operator rotates the RPS TRIP SYS A2 MAN INIT push button counterclockwise.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.18	RESET RPS Channel A2.	Operator momentarily rotates the RPS TRIP SYS A2 RESET key switch clockwise, then allows it to return to the counterclockwise position.	*		
5.1.19	VERIFY the following occurs:	N/A			
5.1.19. A	MANUAL SCRAM annunciator is clear.	Operator observes OHA C5-A3 MANUAL SCRAM annunciator extinguishes.			
5.1.19. B	MANUAL SCRAM SW ARMED annunciator is clear. [T/S 4.3.1.1]	Operator observes OHA C3-A1 MANUAL SCRAM SW ARMED annunciator extinguishes.			
5.1.19. C	RPS TRIP SYSTEM A TRIP LOGIC A2 NORMAL/RESET light is illuminated. [T/S 4.3.1.1]	Operator verifies the RPS TRIP SYSTEM A TRIP LOGIC A2 NORMAL/RESET light illuminates.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.19. D	PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights are illuminated. [T/S 4.3.1.1]	Operator observes the PILOT SCRAM VALVE SOLENOID TRIP ACTUATOR LOGICS Groups 1, 2, 3 and 4 SOLENOIDS LOGIC A NORMAL lights illuminate.			
	Examiner Note: RPS is considered reset.	N/A			
5.1.19. E	REACTOR SCRAM TRIP LOGIC A2 is clear.	Operator observes that OHA C3-A3 REACTOR SCRAM TRIP LOGIC A2 clears.			
5.1.20	ENSURE all RPS Trips are RESET.	Operator observes RPS indications on the 10C651 panel and overhead annunciator panels, and determines that RPS is reset.			
5.1.21	ARM RPS TRIP SYS B1 MAN INIT PB.	Operator rotates the RPS TRIP SYS B1 MAN INIT push button clockwise.	* #		

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.22	VERIFY Annunciator MANUAL SCRAM SW ARMED alarms. [T/S 4.3.1.1]	Operator observes OHA C3-A1 MANUAL SCRAM SW ARMED alarms.			
NOTE	The following step will cause a TRIP of RPS TRIP SYS B1.	N/A			
5.1.23	PRESS RPS TRIP SYS B1 MAN INIT PB.	Operator presses the RPS TRIP SYS B1 MAN INIT push button.	* #		

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	HC.OP-AB.IC-0001	N/A			
	IMMEDIATE OPERATOR ACTIONS Multiple Control Rods are Drifting Simultaneously. **LOCK** the Mode Switch in SHUTDOWN.	Operator recognizes multiple rods drifting.			
		Operator rotates the Mode Switch Counterclockwise to SHUTDOWN.	*		
	Examiner Note: Operator may select drifting rods on Rod Select Matrix to verify drifting prior to placing Mode Switch to SHUTDOWN.	N/A			
	Examiner Note: Placing Mode Switch in SHUTDOWN may be performed during Hard card execution.	N/A			
		Operator removes the Mode Switch key.			
	HC.OP-AB.ZZ-0001 Attachment 1	N/A			
1.0	ANNOUNCE "Crew - Standby for Scram Report".	Operator announces "Crew - Standby for Scram Report".			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
2.0	LOCK the Mode Switch in Shutdown.	IF not previously performed, THEN Operator rotates the Mode Switch Counterclockwise to SHUTDOWN and removes the key.			
3.0	ANNOUNCE the following: • Rod Motion status	Operator observes red FULL OUT lights extinguish and green FULL IN lights illuminate on the Full Core Display. Operator announces the presence of rod motion.			
	• APRM Downscale status	Operator observes Operator observes the amber MONITOR STATUS DNSC lights for all APRMs are Illuminated. Operator announces the APRMs are downscale.			

JPM: SB004 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 13 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Rod and Drive Mechanism**

TASK: **Respond To A Control Rod System Malfunction**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	• Reactor Shutdown status	Operator observes all rods are fully inserted and/or reactor is shutdown on one or more of the following: • Rod Worth Minimizer • CRIDS • Full Core display • Four Rod Display • Plant Process Computer • SPDS Operator announces the reactor is shutdown.			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: SB004

TASK: Respond To A Control Rod System Malfunction

TASK NUMBER: 4000070401

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. Reactor is at 100% power.
2. No other testing or maintenance is in progress.
3. A thermal scan of all 185 HCUs has been performed.

INITIATING CUE:

You are the Reactor Operator.
Perform HC.OP-ST.SF-0003, RPS MANUAL SCRAM TEST - WEEKLY.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power.
	PERFORM any other set-up items that can be snapped.

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

Initial	Description
	ENSURE Copy of HC.OP-ST.SF-0003 with Attachment 1 Section 1.0 completed is available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	**rp:k14b <= 0.0 || rp:k14d <= 0.0** // RPS B1 or B2 tripped Initiates multiple rod scrams.
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CD010243 Control Rod 02-43 Drift In	---	---	ET-1	---	---
	CD012627 Control Rod 26-27 Drift In	---	---	ET-1	---	---
	CD011827 Control Rod 18-27 Drift In	---	---	ET-1	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: SB004

Rev #	Date	Description	Validation Required?
10	7/20/07	Revision 10 of HC.OP-ST.SF-0003 added verbiage "and initial Attachment 2" to various steps. Since these steps already had Attachment 2 initials, and the Standard already referenced the need to initial Attachment 2 for these steps, no new actions were generated and the change is editorial, validation is not required. Corrected typographical error in SB004 Rev 9 which identified the Scram Hard Card as "HC.OP-AB.IC-0001 Attachment 1" instead of HC.OP-AB.ZZ-0001 Attachment 1". This change is editorial, validation not required. Converted SB004 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 initialing procedure steps. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial, validation not required. References to initialing of Attachment 2 remain, since they are relevant to the documented completion of the surveillance. Added Note text to Element section. This is for examiner reference only and has no associated student actions. This change is editorial, validation not required.	N
11	8/25/08	Revision 11 to OP-ST.SF-003 required the following changes: All steps with "Initial Attachment 2" removed. Revision 9 to AB-IC-0001 Immediate Operator Action required the following changes: Rod malfunctions for scramming rods changed to drifting rods.	Y
12	10/6/09	Updated Reference procedure revision number. Revised Initial Conditions from 97% to 100% power. Corrected typos on Malfunction Summary description for Control Rod numbers. No change to operator actions. No validation required.	N
13	4/20/10	Updated Reference procedure revision number. Split out operator actions and observation elements. No change to operator actions. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Reactor Auxiliary Cooling System

TASK: Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)

TASK NUMBER: 5880040101

JPM NUMBER: 305H-JPM.ED001 **REV #:** 10

SAP BET: **NOH05JPED01E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 7/28/10
Instructor

REVIEWED BY: _____ **DATE:** 8/4/10
Operations Representative

APPROVED BY: _____ **DATE:** 8/4/10
Training Department

STATION: Hope Creek

JPM NUMBER: ED001 **REV:** 10

SYSTEM: Reactor Auxiliary Cooling System

TASK NUMBER: 5880040101

TASK: Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)

ALTERNATE PATH: [ ] **K/A NUMBER:** 295018 AA1.01

IMPORTANCE FACTOR: 3.3 (RO) 3.4 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.CONT-0001 Rev 01

TOOLS, EQUIPMENT AND PROCEDURES:

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'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Reactor Auxiliary Cooling System

TASK: Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)

TASK NUMBER: **5880040101**

INITIAL CONDITIONS:

1. The plant is at 100% Reactor power.
2. All Turbine Building chilled water circ pumps have tripped due to a Freon leak into the system.
3. All Turbine Building chillers have tripped and efforts to restart them have failed.
4. HC.OP-AB.CONT-0001 Drywell Pressure is being implemented.

INITIATING CUE:

Align RACS to supply drywell cooling IAW Condition B of HC.OP-AB.CONT-0001.

JPM: ED001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliary Cooling System**

TASK: **Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE the operator the initiating cue.**	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-AB.CONT-0001.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be Condition B.			
	Condition B **Turbine Bldg. Chill Water System is lost to the Drywell.**	N/A			
CAUT 1	**If the cause of the loss of Turbine Building Chilled Water is Gas/Air intrusion, there is a potential to displace air into the RACS system, degrading its operation.**	Operator reads CAUTION			

JPM: ED001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliary Cooling System**

TASK: **Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
B.1	ALIGN RACS to the Chill Water System for Drywell Cooling as follows:	N/A			
B.1.a	ENSURE RACS to the out of service Off-Gas Train is ISOLATED as follows:	N/A			
	• IF the Common Off-Gas train is in service, THEN CLOSE HV-2577	Operator recognizes this step does NOT apply, leaves the HV-2577 open.			
	• IF the UNIT 1 Off-Gas train is in service, THEN CLOSE HV-7712A1.	Operator presses the OFF GAS CLR CNDS COOLING 00E306 COMMON HV-7712A1 CLOSE pushbutton.	*		Y N STAR
		Operator observes the CLOSE light illuminates and OPEN light extinguishes.			

JPM: ED001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliary Cooling System**

TASK: **Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
B.1.b	CLOSE HV-9532-1 AND HV-9532-2.	Operator presses the CHW ISLN RTN VLV HV-9532-1 CLOSE pushbutton.	*		Y N STAR
		Operator presses the CHW ISLN SUP VLV HV-9532-2 CLOSE pushbutton.	*		Y N STAR
		Operator observes the green CLOSE indicators illuminate and the red OPEN indicators extinguish.			
B.1.c	PRESS LOOP A SPLY/RTN OPEN RACS PB.	Operator presses the CONTAINMENT CLG SPLY SELECT LOOP A SPLY/RTN CHW/RACS SEL OPEN RACS pushbutton.	*		Y N STAR
B.1.d	PRESS LOOP B SPLY/RTN OPEN RACS PB.	Operator presses the CONTAINMENT CLG SPLY SELECT LOOP B SPLY/RTN CHW/RACS SEL OPEN RACS pushbutton.	*		Y N STAR

JPM: ED001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliary Cooling System**

TASK: **Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
B.1.e	OBSERVE the following indications:	N/A			
	• HV-9530A1/A3 CLOSED	The green HV-9530A1/A3 CLOSED indicator illuminates and red OPEN indicator extinguishes.			
	• HV-9530B1/B3 CLOSED	The green HV-9530B1/B3 CLOSED indicator illuminates and red OPEN indicator extinguishes.			
	• HV-9530A2/A4 OPEN	The red HV-9530A2/A4 OPEN indicator illuminates and green CLOSED indicator extinguishes.			
	• HV-9530B2/B4 OPEN	The red HV-9530B2/B4 OPEN indicator illuminates and green CLOSED indicator extinguishes.			

JPM: ED001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Reactor Auxiliary Cooling System**

TASK: **Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
B.1.f	OPEN HV-9532-1 AND HV-9532-2.	Operator presses the CHW ISLN RTN VLV HV-9532-1 OPEN pushbutton.	*		Y N STAR
		Operator presses the CHW ISLN SUP VLV HV-9532-2 OPEN pushbutton.	*		Y N STAR
		Operator observes the red OPEN indicators illuminate and the green CLOSED indicators extinguish.			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: ED001

TASK: Manually Switch between Chill Water and The Reactor Auxiliary Cooling System (RACS)

TASK NUMBER: 5880040101

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% Reactor power.
2. All Turbine Building chilled water circ pumps have tripped due to a Freon leak into the system.
3. All Turbine Building chillers have tripped and efforts to restart them have failed.
4. HC.OP-AB.CONT-0001 Drywell Pressure is being implemented.

INITIATING CUE:

Align RACS to supply drywell cooling IAW Condition B of HC.OP-AB.CONT-0001.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	PLACE CP161 in MANUAL.
	INSERT trips of AP161, BP161, and CP161 and allow TB Chillers to trip.
	MAXIMIZE Drywell Cooling.

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

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

EVENT TRIGGERS:

Initial	ET #	Description	
	1	EVENT ACTION: COMMAND: PURPOSE:	**mstunl >= 135** // Main Steam Tunnel temp . 135 degF Starts BVH216 Steam Tunnel Unit Cooler to prevent MSIV isolation.
	2	EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	CW18A TB Chilled Water Circ Pump AP161 Trip	---	---	NONE	---	---
	CW18B TB Chilled Water Circ Pump BP161 Trip	---	---	NONE	---	---
	CW18C TB Chilled Water Circ Pump CP161 Trip	---	---	NONE	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	HV12 BVH216 Steam Tunnel Unit Cooler	---	---	ET-1	---	RUN

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	1A95 E DI AK111 Safety Ckt Pushbutton	---	---	NONE	---	OFF
	1A113 E DI BK111 Safety Ckt Pushbutton	---	---	NONE	---	OFF
	1A134 E DI CK111 Safety Ckt Pushbutton	---	---	NONE	---	OFF
	1A181 E1 DI DK111 Safety Ckt Pushbutton	---	---	NONE	---	OFF
	1A97 A1 LO AP161 OVLD/PWR FAIL	---	---	NONE	---	OFF
	1A115 A1 LO BP161 OVLD/PWR FAIL	---	---	NONE	---	OFF

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: ED001

Rev #	Date	Description	Validation Required?
7	7/20/07	Revision 1 of HC.OP-AB.CONT-0001 incorporated OTC 0B and changed Condition C to Condition B with NO change in action steps. ED001 updated to reflect this re-numbering of steps. No change in actions, validation not required. Converted ED001 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 steps in abnormal. This is a generic work practice and adds unnecessary clutter to the Standard section. This change is editorial, validation not required. Added Caution text to Element section. This is for examiner reference only and has no associated student actions. This change is editorial, validation not required.	N
8	9/17/08	Broke down steps B.1.b and B.1.f into individual elements. Marked action steps as critical. Editorial change only. No changes to operator actions. No validation is required.	N
9	10/6/09	Corrects typo at I/O Override Summary 1A181 E1 DI DK111 Safety Ckt Pushbutton. No operator actions changed. Validation is not required.	N
10	7/28/10	Adds HPI check items. Add CW18C to snap. Corrects typo error. No operator actions changed. Validation is not required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Control Area Ventilation System

TASK: Isolate the Control Room HVAC System

TASK NUMBER: 4880060101

JPM NUMBER: 305H-JPM.GK002 **REV #:** 00

SAP BET: **NOH05JPGK02E**

ALTERNATE PATH: [X]

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 8/2/10
Instructor

REVIEWED BY: _____ **DATE:** 8/4/10
Operations Representative

APPROVED BY: _____ **DATE:** 8/4/10
Training Department

STATION: Hope Creek

JPM NUMBER: GK002 **REV:** 00

SYSTEM: Control Area Ventilation System

TASK NUMBER: 4880060101

TASK: Isolate the Control Room HVAC System

ALTERNATE PATH: [X] **K/A NUMBER:** 290003 A4.01

IMPORTANCE FACTOR: RO 3.2 SRO 3.2

APPLICABILITY:

EO [ ] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Simulator/Perform

REFERENCES: HC.OP-AB.HVAC-0002 Rev 7
HC.OP-SO.GK-0001 Rev 14

TOOLS, EQUIPMENT AND PROCEDURES:

ESTIMATED COMPLETION TIME: 18 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Control Area Ventilation System

TASK: Isolate the Control Room HVAC System

TASK NUMBER: 4880060101

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. "A" Control Room Ventilation train is in service.
3. The Aux Building Operator has been briefed and is standing by on location.

INITIATING CUE:

You are the Plant Operator.
Swap Control Room Ventilation to "B" Train IAW HC.OP-SO.GK-0001.

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	PROVIDE the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	ENTER START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.GK-0001.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.4.			
5.4.1	ENSURE all prerequisites of Section 2.4 are satisfied.	Operator ensures that all prerequisites have been satisfied.			
CUE	**IF excessive time is taken reviewing prerequisites, THEN INFORM operator that all are satisfied.**	N/A			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**IF excessive time is taken reviewing precautions and limitations,** **THEN INFORM operator that all are satisfied.**	N/A			
NOTE	All operations are performed from 10C651E unless otherwise noted. Procedure describes transfer from A Control Chilled Water Loop in service to the B Loop in service, values in parentheses used to transfer back to A in service. SACS Pump Room Unit Coolers 1AVH214 AND 1BVH214 are interlocked to operate in AUTO only IF Chilled Water Pump AP400 is in service. SACS Pump Room Unit Coolers 1CVH214 and 1DVH214 are interlocked to operate in AUTO only IF Chilled Water Pump BP400 is in service.	Operator reads NOTE.			
5.4.2	PRESS CH W CIRC PUMP B(A)P400 MAN PB. MAN comes on.	Operator presses the MAN PB.	*		

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the MAN light illuminates.			
5.4.3	STOP the running Chiller by performing the following:	N/A			
5.4.3. A	PRESS CH W CPRSR A(B)K400 MOT STOP PB. VERIFY STOP comes on.	Operator presses the CH W CPRSR AK400 MOT STOP PB.	*		
		Operator observes the STOP light illuminates.			
		Operator acknowledges OHA D1-A4 "BOP SAFETY SYS OUT OF SVCE"			
5.4.3. B	OBSERVE the following:	N/A			
5.4.3. B.1	CH W CPRSR MOT A (B) ON/AUTO goes off.	Operator observes the CH W CPRSR MOT A MAN light illuminates.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.3. B.2	CH W CPRSR A (B) OFF comes ON.	Operator observes the CH W CPRSR A OFF light illuminates.			
5.4.3. B.3	CH W CPRSR A (B) PROGRAM TIMER ON comes on.	Operator observes the CH W CPRSR A PROGRAM TIMER ON light illuminates.			
5.4.3. B.4	CH W CPRSR A (B) SAFETY CKT COMPLETE goes off.	Operator observes the CH W CPRSR A SAFETY CKT COMPLETE light extinguishes.			
5.4.3. B.5	After approximately 99 seconds PROGRAM TIMER ON goes off AND the Chiller is ready for re-start.	Operator observes the CH W CPRSR A PROGRAM TIMER ON light extinguishes.			
5.4.4	PRESS CH W CIRC PUMP A (B) P400 MAN PB. A (B) P400 MAN comes on.	Operator presses the CH W CIRC PUMP AP400 MAN PB.	*		
		Operator observes the CH W CIRC PUMP AP400 MAN light illuminates.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.5	PRESS CW W CIRC PUMP A (B) P400 STOP PB. STOP comes on AND the following actions occur:	Operator presses the CW W CIRC PUMP AP400 STOP PB.	*		
		Operator observes the CW W CIRC PUMP AP400 STOP light illuminates.			
5.4.5. A	Cont Rm Sply Fan 1A (B) VH403 stops.	Operator observes the Cont Rm Sply Fan 1AVH403 stops.			
5.4.5. B	Cont Eq Rm Sply Fan 1A (B) VH407 stops.	Operator observes the Cont Eq Rm Sply Fan 1AVH407 stops.			
		Operator acknowledges OHA E6B1 "CONTROL AREA HVAC FAN MALF"			
5.4.6	ACKNOWLEDGE fan trips by selecting STOP on the following:				
5.4.6. A	PRESS CONT RM SPLY FAN A(B)VH403 STOP PB. VERIFY STOP comes on.	Operator presses the CONT RM SPLY FAN AVH403 STOP PB.	*		

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the CONT RM SPLY FAN AVH403 STOP light illuminates.			
5.4.6. B	PRESS CONT EQ RM SPLY FAN A (B) VH407 STOP PB. VERIFY STOP comes on.	Operator presses the CONT EQ RM SPLY FAN AVH407 STOP PB.	*		
		Operator observes the CONT EQ RM SPLY FAN AVH407 STOP light illuminates.			
5.4.7	PRESS CONTROL RM RTN AIR FAN A (B) VH415 MAN PB THEN STOP PB to secure fan.	Operator presses the CONTROL RM RTN AIR FAN AVH415 MAN PB.	*		
		Operator observes the CONTROL RM RTN AIR FAN AVH415 MAN light illuminates.			
		Operator presses the CONTROL RM RTN AIR FAN AVH415 STOP PB. **Examiner Note**: The AVH415 fan may have tripped on low flow.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the CONTROL RM RTN AIR FAN AVH415 STOP light illuminates.			
5.4.8	PRESS CONTROL RM RTN AIR FAN A (B) VH415 AUTO PB. VERIFY AUTO comes on AND INITIAL Attachment 1.	Operator presses the CONTROL RM RTN AIR FAN AVH415 AUTO PB.	*		
		Operator observes the CONTROL RM RTN AIR FAN AVH415 AUTO light illuminates.			
NOTE	Control Area Chilled Water Pumps 1AP400 and 1BP400 are interlocked to operate in AUTO mode with SACS Pumps CP210 and DP210 respectively.	Operator reads NOTE.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.9	PLACE the B(A) Control Area Chilled Water Loop in service as follows:				
5.4.9. A	PRESS CH W CIRC PUMP B (A) P400 START PB B(A)P400. VERIFY START comes on.	Operator presses the CH W CIRC PUMP BP400 START PB.	* #		
		Operator observes the CH W CIRC PUMP BP400 START light illuminates.			
5.4.9. B	PRESS CONT RM SPLY FAN B (A) VH403 START PB. VERIFY B (A) VH403 START comes on AND OBSERVE CONTROL RM RTN AIR FAN 1B (A) VH415 Auto Start.	Operator presses the CONT RM SPLY FAN BVH403 START PB.	* #		
		Operator observes the CONT RM SPLY FAN BVH403 START light illuminates.			
		Operator observes the CONTROL RM RTN AIR FAN 1BVH415 START light illuminates.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.9. C	PRESS CONT EQ RM SPLY FAN B (A) VH407 START PB. VERIFY START comes on.	Operator presses the CONT EQ RM SPLY FAN BVH407 START PB.	*		
		Operator observes the CONT EQ RM SPLY FAN BVH407 START light illuminates.			
5.4.9. D	To start Chiller 1B(A)K400 from CONT RM, PERFORM the following:	N/A			
5.4.9. D.1	IF CH W CPRSR B (A) REMOTE is on, PRESS REMOTE PB. VERIFY REMOTE goes off.	Operator observes the CH W CPRSR B REMOTE light is extinguished.			
5.4.9. D.2	PRESS CH W CPRSR B (A) ON/AUTO PB. VERIFY ON/AUTO comes on.	Operator presses the CH W CPRSR B ON/AUTO PB. **Examiner Note:** The CH W CPRSR B ON/AUTO PB light is already on.			
		Operator observes the CH W CPRSR B ON/AUTO light is illuminated.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.4.9. D.3	WHEN CH W CPRSR B (A) SAFETY CKT COMPLETE is on, PRESS CH W CPRSR MOT B (A) K400 START PB. VERIFY B (A) K400 START comes on.	Operator observes the CH W CPRSR B SAFETY CKT COMPLETE.			
		Operator presses the CH W CPRSR MOT BK400 START PB.	* #		
5.4.9. D.4	PERFORM the following:	N/A			
5.4.9. D.4.a	VERIFY CH W CPRSR B (A) TIMER ON is on.	Operator observes the CH W CPRSR B PROGRAM TIMER ON light is illuminated.			
5.4.9. D.4.b	After approximately 51 seconds, VERIFY Compressor starts by observing CPRSR B(A) AI 6362B(A) MOTOR AMPS indicates approximately 48 to 50 amps AND B(A)K400 START is illuminated OR CH W CPRSR B (A) LOAD RECYCLE is ON.	After approximately 51 seconds, Operator observes the CPRSR B AI-6362B MOTOR AMPS indicates approximately 48 to 50 amps.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator observes the BK400 START light illuminates.			
5.4.9. D.4.c	VERIFY CH W CPRSR B (A) TIMER ON goes off.	Operator observes the CH W CPRSR B PROGRAM TIMER ON extinguishes.			
5.4.9. D.4.d	VERIFY CH W CPRSR B (A) MOTOR RESTART DELAY comes on, AND THEN extinguishes (approx. 10 sec).	Operator observes the CH W CPRSR B MOTOR RESTART DELAY light illuminates and then extinguishes.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	REPORT as Yard Operator that there is a large fire north of the HC Million Gallon Fuel Oil Storage Tank and smoke is headed towards the power block.	N/A			
CUE	Light smoke is coming out of the Control Room ventilation supply ductwork into the Main Control Room. [SRO] Take any required actions. [RO] Implement AB-HVAC-0002 and take any required actions.	N/A			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	HC.OP-AB.HVAC-0002				
		Operator reviews HC.OP-AB.HVAC-0002 CONTROL ROOM ENVIRONMENT. **EXAMINER NOTE:** The same actions are contained within SO-GK-0001. The operator may not go to AB.HVAC-0002.			
Cond I.	Smoke OR Toxic Gases are ENTERING the Control Room from an Outside source.	Operator determines Retainment Override Condition I. applies.			
I.a	**PRESS** the ISOLATE PB for the I/S Control Room Ventilation Train.	Operator presses the ISOLATE PB for the B Control Room Ventilation Train.	*		
		Operator observes the HD9598B ISOLATE PB for the B Control Room Ventilation Train illuminates.			
		Operator observes the BV400 START PB illuminates.			

JPM: GK002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 00 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Control Area Ventilation System**

TASK: **Isolate the Control Room HVAC System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
I.b	**PRESS** the RECIRC PB for the I/S CREF Unit.	Operator presses the RECIRC MODE PB for the B CREF Unit.	*		
		Operator observes the RECIRC PB for the B CREF Unit illuminates.			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: GK002

TASK: Isolate the Control Room HVAC System

TASK NUMBER: 4880060101

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant is at 100% power.
2. "A" Control Room Ventilation train is in service.
3. The Aux Building Operator has been briefed and is standing by on location.

INITIATING CUE:

You are the Plant Operator.
Swap Control Room Ventilation to "B" Train IAW HC.OP-SO.GK-0001.

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

I. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	ENSURE B and D SACS Pumps in service supplying TACS and in AUTO.
	SWAP TSC HVAC to place B train in service.
	ENSURE C SACS Pump in service and in AUTO.
	ENSURE A SACS Pump stopped and in AUTO.

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

Initial	Description
	ENSURE a copy of HC.OP-SO.GK-0001 is available.
	ENSURE a copy of HC.OP-AB.HVAC-0001 is available.
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
		EVENT ACTION: COMMAND: PURPOSE:	

JOB PERFORMANCE MEASURE
SIMULATOR SETUP INSTRUCTIONS
(OPTIONAL)

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	NONE	---	---

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: GK002

Rev #	Date	Description	Validation Required?
00	5/26/10	New Alternate Path JPM. Validated with 2 RO's. Added to cue sheet: "3. The Aux Building Operator has been briefed and is standing by on location." Average validation time 18 minutes.	Y

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Redundant Reactivity Control

TASK: Defeat ARI Interlocks

TASK NUMBER: 2000720504

JPM NUMBER: 305H-JPM.SA001 **REV #:** 10

SAP BET: **NOH05JPSA01E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [X] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 4/20/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: SA001 **REV:** 10

SYSTEM: Redundant Reactivity Control

TASK NUMBER: 2000720504

TASK: Defeat ARI Interlocks

ALTERNATE PATH: [ ] **K/A NUMBER:** 295037 EA1.03

IMPORTANCE FACTOR: 4.1 (RO) 4.1 (SRO)

APPLICABILITY:

EO [X] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: In Plant/Simulate

REFERENCES: HC.OP-EO.ZZ-0320 Rev 4

TOOLS, EQUIPMENT AND PROCEDURES:

EOP-320 Implementation Kit specified in Section 4.0 of HC.OP-EO.ZZ-0320

ESTIMATED COMPLETION TIME: 9 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] **SAT** [ ] **UNSAT**

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Redundant Reactivity Control

TASK: Defeat ARI Interlocks

TASK NUMBER: 2000720504

INITIAL CONDITIONS:

1. The plant has experienced a failure to scram.
2. All Scram Valves have opened but the Scram Discharge volume is full.
3. RPV level is being maintained at -50 inches.
4. HC.OP-EO.ZZ-0101A, ATWS-RPV Control, is being executed.
5. Draining the SDV and attempting a manual scram is required.
6. HC.OP-EO.ZZ-0302 has NOT been implemented.

INITIATING CUE:

Defeat the ARI interlocks IAW HC.OP-EO.ZZ-0320.

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-EO.ZZ-0320.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	**EQUIPMENT REQUIRED**	**Examiner Note:** After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.			
4.1	EOP-320 Implementation kit (OS office EOP drawer) Contents: 1 set of fuse pullers 1 flashlight 1 plastic bag for ARI fuses 4 banana plug jumpers OR	Operator obtains the following required equipment: EOP-320 Implementation kit from SM Office Clerk Area EOP drawer. OR			
4.2	Key #9 for EOP Locker in OSC (obtain from OS office or break red key holder glass in OSC). AND EOP-320 Implementation kit (EOP Locker in OSC) Contents: 1 set of fuse pullers 1 flashlight 1 plastic bag for ARI fuses 4 banana plug jumpers	Key #9 from SM office or key from break glass key holder in OSC for OSC EOP locker. AND EOP-320 Implementation kit from EOP locker in OSC.			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.1.			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1	**Defeating ARI Interlocks**	N/A			
NOTE	Execution of the following steps will defeat all automatic and manual RRCS ARI functions and cause all RRCS ARI valves to close and remain closed. ARI valve position indication will be retained.	N/A			
5.1.1	**ENSURE** that Prerequisites have been satisfied IAW Section 2.1.	Operator ensures that all prerequisites have been satisfied.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**	N/A			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.2	**REMOVE** the following fuses in Local Panel 10C601 (Aux Bldg elev. 163', RRCS Panel, front center section, lower door) (see Attachment 3):				
	• F268 C22A-F6A	Operator removes fuse F268 C22A-F6A in 10C601.	*		
	• F267 C22A-F5A	Operator removes fuse F267 C22A-F5A in 10C601.	*		
CUE	**"The fuses you indicated are removed."**	N/A			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.3	**ENSURE** the following RRCS ARI Valves are CLOSED. (Local indication on 10C601, Green when CLOSED): • C11-F160A • C11-F162A • C11-F162C • C11-F163A	Operator observes the GREEN CLOSED indicator is illuminated and the RED OPEN indicator is extinguished for the following valves: • C11-F160A • C11-F162A • C11-F162C • C11-F163A			
CUE	**"The green CLOSED indicator is illuminated and the red OPEN indicator is extinguished for the valve(s) you indicated."**	N/A			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.4	**REMOVE** the following fuses in Local Panel 10C602 (Aux Bldg elev. 163', RRCS Panel, front center section, lower door) (see Attachment 3):				
	• F267 C22A-F5B	Operator removes fuse F267 C22A-F5B in 10C602.	*		
	• F268 C22A-F6B	Operator removes fuse F268 C22A-F6B in 10C602.	*		
CUE	**"The fuses you indicated are removed."**	N/A			

JPM: SA001 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Redundant Reactivity Control**

TASK: **Defeat ARI Interlocks**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.5	**ENSURE** the following RRCS ARI valves are CLOSED (Local indication on 10C602, Green when CLOSED): • C11-F160B • C11-F162B • C11-F162D • C11-F163B	Operator observes the green CLOSED indicator is illuminated and the red OPEN indicator is extinguished for the following valves: • C11-F160B • C11-F162B • C11-F162D • C11-F163B			
CUE	**"The green CLOSED indicator is illuminated and the red OPEN indicator is extinguished for the valve(s) you indicated."**	N/A			
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:**	N/A			

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: SA001

TASK: Defeat ARI Interlocks

TASK NUMBER: 2000720504

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

QUESTION: _____

RESPONSE: _____

RESULT: **SAT** ☐ **UNSAT** ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. The plant has experienced a failure to scram.
2. All Scram Valves have opened but the Scram Discharge volume is full.
3. RPV level is being maintained at -50 inches.
4. HC.OP-EO.ZZ-0101A, ATWS-RPV Control, is being executed.
5. Draining the SDV and attempting a manual scram is required.
6. HC.OP-EO.ZZ-0302 has NOT been implemented.

INITIATING CUE:

Defeat the ARI interlocks IAW HC.OP-EO.ZZ-0320.

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: SA001

Rev #	Date	Description	Validation Required?
09	7/31/07	Revision 3 of HC.OP-EO.ZZ-0320 added the text "Green when CLOSED" to steps 5.1.3 and 5.1.5 with NO change in action steps. JPM SA001 updated to reflect this. JPM already contained examiner cues for these steps. No change in actions, validation not required. Converted JPM SA001 to new JPM format. This change is editorial, validation not required. Added Note text to Element section. This is for examiner reference only and has no associated student actions. This change is editorial, validation not required.	N
10	4/20/10	Updated reference procedure revision number. Revised estimated completion time to 9 minutes based on 2008 LOR performance times. No changes to operator actions. No validation required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Core Spray

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

JPM NUMBER: 305H-JPM. BE002 **REV #:** 10

SAP BET: **NOH05JPBE02E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [ ] RO [X] STA [X] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 4/20/10
Instructor

REVIEWED BY: [signature] **DATE:** 6/30/2010
Operations Representative

APPROVED BY: [signature] **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: BE002 **REV:** 10

SYSTEM: Core Spray

TASK NUMBER: 2000530504

TASK: Perform Torus Makeup Via Core Spray System

ALTERNATE PATH: [ ] **K/A NUMBER:** 295030 EA1.06

IMPORTANCE FACTOR: 3.4 (RO) 3.4 (SRO)

APPLICABILITY:

EO [ ] RO [X] STA [X] SRO [X]

EVALUATION SETTING/METHOD: Reactor Building/Simulate

REFERENCES: HC.OP-EO.ZZ-0315 (Q) Rev. 5

TOOLS, EQUIPMENT AND PROCEDURES: 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'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Core Spray

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

INITIAL CONDITIONS:

1. A leak on the 'D' RHR Pump suction line has lowered suppression pool level to 73 inches.
2. The leak has been isolated and suppression pool level is stable.

INITIATING CUE:

Make-up to the Suppression Chamber from Core Spray Loop B IAW HC.OP-EO.ZZ-0315

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE** the operator the initiating cue.	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER OPERATOR REPEATS BACK INITIATING CUE: **START TIME:**	N/A			
	Operator obtains/locates procedure HC.OP-EO.ZZ-0315.	Operator obtains the correct procedure.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**Examiner Cue: If excessive time is taken reviewing precautions and limitations, inform operator that all are satisfied.**	N/A			
	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.1.			

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
4.0	**EQUIPMENT REQUIRED** 4.1 Key #9 for EOP Locker in OSC (obtain from OS office or break red key holder glass in OSC AND EOP-315 Implementation Kit (EOP Locker in OSC) Contents: 1 Wire Cutter	Operator obtains the following required equipment: 1. Key #9 for EOP locker in OSC (obtain from OS office or break red key holder glass in OSC) 2. EOP-315 implementation kit from EOP locker in OSC **Examiner Note:** After operator has demonstrated ability to obtain required equipment, ensure that the equipment is returned to its appropriate storage location.			
5.1.1	**ENSURE** that all prerequisites have been satisfied IAW Section 2.1.	Operator ensures that all prerequisites have been satisfied.			
CUE	**If excessive time is taken reviewing prerequisites, inform operator that all are satisfied.**	N/A			

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CAUT	**The SM/CRS shall be aware of, and take into consideration, the environmental and radiological conditions that exist in areas requiring entry prior to dispatching personnel into the field.** **Adequate core cooling takes precedence over suppression pool make-up. See HC.OP-AB.ZZ-0155, Attachment 3 for direction on aligning Core Spray B to make-up to the RPV from the CST. Use of Core Spray with suction from the CST injecting to the RPV meets the intent of this procedure.**	Operator reads CAUTION.			
5.1.2	UNLOCK AND OPEN 1-AP-V068 //Cond Stor & Xfr to Core Spray Pump B and D Suction Fill & Flush Isln Vlv//. (local, Room 4203 reactor building, elevation 77')	Operator locates 1-AP-V068, Cond Stor and Xfr to Core Spray Pump B & D Suction Fill & Flush Isln Valve on the 77 ft. elevation of the Reactor building.			
		Operator simulates UNLOCKING 1-AP-V068.	* #		

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		Operator simulates OPENING 1-AP-V068, by turning the hand-wheel in the counterclockwise direction until the hand-wheel reaches a hard stop.	*		
CUE	**The valve you indicated is unlocked and open.**	N/A			
5.1.3	**ENSURE** the following (PANEL C650) are OPEN: A. HV-F001B CS Pmp B Suct Isln MOV B. HV-F001D CS Pmp D Suct Isln MOV	Operator contacts Control Room and directs Control Room Operator to verify OPEN HV-F001B and HV-F001D.			
		Examiner Note: Operator may verify these valves OPEN before leaving the Control Room Area.			
CUE	**Respond as the MCR, HV-F001B and HV-F001D are open.**	N/A			

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
5.1.4	**UNLOCK** AND **THROTTLE OPEN** one OR both of the following valves to obtain the desired fill rate while monitoring CST and Torus levels (local, reactor building, elevation 54'):	Operator locates BE-V058 CS Pmps B & D Suct X-Tie Isln Vlv (Reactor building, elevation 54' B CS Pump Room) **and/or** BE-V059 CS Pmps B & D Suct X-Tie Isln Vlv (Reactor building, elevation 54' D CS Pump Room)			
	Examiner Note: It is critical to unlock and open at least one of the following two valves.	N/A			
	BE-V058 CS Pmps B & D Suct X-Tie Isln Vlv	Operator simulates UNLOCKING 1-BE-V058.	*		
		Operator throttles open BE-V058 by turning the hand-wheel counterclockwise until flow is heard.	*		
CUE	**(As appropriate) The valve you indicated is throttled open. Flow can be heard past the valve(s).**	N/A			

JPM: BE002 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 10 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Core Spray**

TASK: **Perform Torus Makeup Via Core Spray System**

STEP NO.	ELEMENT	(*Denotes a Critical Step) (#Denotes a Sequential Step) STANDARD	* #	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	BE-V059 CS Pmps B & D Suct X-Tie Isln Vlv	Operator simulates UNLOCKING 1-BE-V059.	*		
		Operator throttles open BE-V059 by turning the hand-wheel counterclockwise until flow is heard.	*		
CUE	**(As appropriate) The valve you indicated is throttled open. Flow can be heard past the valve(s).**	N/A			
		Operator informs Control Room that Suppression Chamber makeup is in progress.			
CUE	**If operator informs Control Room, provide Terminating Cue.**	N/A			
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:**				

JOB PERFORMANCE MEASURE
OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____
DATE: _____

JPM Number: BE002

TASK: Perform Torus Makeup Via Core Spray System

TASK NUMBER: 2000530504

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

JOB PERFORMANCE MEASURE

INITIAL CONDITIONS:

1. A leak on the 'D' RHR Pump suction line has lowered suppression pool level to 73 inches.
2. The leak has been isolated and suppression pool level is stable.

INITIATING CUE:

Make-up to the Suppression Chamber from Core Spray Loop B IAW HC.OP-EO.ZZ-0315

JOB PERFORMANCE MEASURE

REVISION HISTORY

JPM NUMBER: BE002

Rev #	Date	Description	Validation Required?
08	9/3/2008	Revised to new JPM format. Revalidated JPM time. Updated reference procedure revision number. Operator actions did not change. Added missing 5.1.4.B element for BE-V059.	Y
9	9/9/09	Added Caution at step 5.1.1. Updated reference procedure revision number. Operator actions did not change. Re-validation not required.	N
10	4/20/10	Revised estimated completion time based on 2009 LOR performance. Split-out operator action and observation elements. Operator actions did not change. Validation not required.	N

JOB PERFORMANCE MEASURE

STATION: Hope Creek

SYSTEM: Emergency Diesel Generators

TASK: Manual Emergency Start A DG from the Local Panel

TASK NUMBER: 2640180104

JPM NUMBER: 305H-JPM.KJ003 **REV #:** 14

SAP BET: **NOH05JPKJ03E**

ALTERNATE PATH: [ ]

APPLICABILITY:

EO [X] RO [X] STA [ ] SRO [X]

DEVELOPED BY: Archie E. Faulkner **DATE:** 10/1/09
Instructor

REVIEWED BY: _____ **DATE:** 6/30/2010
Operations Representative

APPROVED BY: _____ **DATE:** 7/1/10
Training Department

STATION: Hope Creek

JPM NUMBER: KJ003 **REV:** 14

SYSTEM: Emergency Diesel Generators

TASK NUMBER: 2640180104

TASK: Manual Emergency Start A DG from the Local Panel

ALTERNATE PATH: [ ] **K/A NUMBER:** 295003 A1.02

IMPORTANCE FACTOR: 4.2 (RO) 4.3 (SRO)

APPLICABILITY:

EO [X] RO [X] STA [ ] SRO [X]

EVALUATION SETTING/METHOD: Plant/Simulate

REFERENCES: HC.OP-SO.KJ-0001 Rev. 54

TOOLS, EQUIPMENT AND PROCEDURES: HC.OP-SO.KJ-0001

ESTIMATED COMPLETION TIME: 12 Minutes

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

JPM PERFORMED BY: _____ **GRADE:** [ ] SAT [ ] UNSAT

ACTUAL COMPLETION TIME: _____ Minutes

ACTUAL TIME CRITICAL COMPLETION TIME: N/A Minutes

REASON, IF JPM UNSATISFACTORY:

EVALUATOR'S SIGNATURE: _____ **DATE:** _____

NAME: _____

DATE: _____

SYSTEM: Emergency Diesel Generators

TASK: Manual Emergency Start A DG from the Local Panel

TASK NUMBER: 2640180104

INITIAL CONDITIONS:

1. A Loss of Offsite Power has occurred.
2. The Reactor is shutdown. All rods are full in.
3. HC.OP-AB.ZZ-0135 is being implemented.
4. 1AG400 Diesel Generator has failed to start, but all other EDGs have started and loaded onto their respective buses.

INITIATING CUE:

Start 1AG400 Diesel Generator from local panel 1AC421 (102' El.).

JPM: KJ003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 14 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generators**

TASK: **Manual Emergency Start A DG from the Local Panel**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**PROVIDE the operator the initiating cue.**	Operator repeats back initiating cue.			
CUE	**ENTER** START TIME AFTER Operator repeats back the Initiating Cue: **START TIME:**	N/A			
	Operator obtains the correct procedure.	Operator obtains procedure HC.OP-SO.KJ-0001.			
	Operator reviews precautions and limitations.	Operator reviews precautions and limitations.			
CUE	**IF excessive time is taken reviewing precautions and limitations, THEN INFORM operator that all are satisfied.**	N/A			
5.5	Operator determines beginning step of the procedure.	Operator determines correct beginning step to be 5.5.1.			

JPM: KJ003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 14 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generators**

TASK: **Manual Emergency Start A DG from the Local Panel**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	All Operations are performed at Local Engine Control Panel 1A(B,C,D)C-421 El. 102'.	Operator reads NOTE.			
5.5.1	ENSURE all prerequisites of Section 2.5 are satisfied.	Operator ensures that all prerequisites have been satisfied.			
CUE	IF excessive time is taken reviewing prerequisites, THEN INFORM operator that all are satisfied.	N/A			
5.5.2	OBTAIN key #51 – KIRK – Diesel Emg Takeover/Local Cont., from Work Control Center for the REM/LOC/MAINT CONTROL SELECT Switch at Panel 1A(B,C,D)-C421 El. 102'.	Operator obtains key #51 from Work Control Center.			
		Examiner Note: Once the trainee demonstrates where to obtain the required key, key use will be simulated.			

JPM: KJ003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 14 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generators**

TASK: **Manual Emergency Start A DG from the Local Panel**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
NOTE	Manual operations performed from Local Engine Control Panel 1A(B,C,D)C-421 El. 102' are not taken-over by an auto-initiation signal.	Operator reviews NOTE.			
5.5.3	PLACE REM/LOC/MAINT CONTROL SELECT Switch in LOCAL.	Operator simulates inserting the key and placing A EDG REM/LOC/MAINT CONTROL SELECT Switch in LOCAL.	*		
CUE	**The control you have indicated is in the position stated.**	N/A			
5.5.4	PLACE LOCAL ENGINE CONTROL Switch in START.	Operator places LOCAL ENGINE CONTROL Switch in START.	*		
CUE	**The control you have indicated is in the position stated. The Diesel engine is running.**	N/A			
5.5.5	OBSERVE that DIESEL RUNNING NOT LOADED comes ON.	Operator identifies the DIESEL RUNNING NOT LOADED indicating light.			

JPM: KJ003 OPERATOR TRAINING PROGRAM NAME: _____

Rev: 14 JOB PERFORMANCE MEASURE DATE: _____

SYSTEM: **Emergency Diesel Generators**

TASK: **Manual Emergency Start A DG from the Local Panel**

STEP NO.	(• Denotes a Critical Element of a Critical Step) ELEMENT	(*Denotes a Critical Step) STANDARD	* •	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
CUE	**The indication you have identified is lit.**	N/A			
5.5.6	INFORM Control Room that 1AG400 (1BG400, 1CG400, 1DG400) Diesel Generator is running.	Operator notifies the Main control Room that the A EDG is running.			
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:**	N/A			

OPERATOR TRAINING PROGRAM
EVALUATOR FOLLOWUP QUESTION DOCUMENTATION

NAME: _____

DATE: _____

JPM Number: KJ003

TASK: Manual Emergency Start A DG from the Local Panel

TASK NUMBER: 2640180104

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

QUESTION: _____

RESPONSE: _____

RESULT: SAT ☐ UNSAT ☐

INITIAL CONDITIONS:

1. A Loss of Offsite Power has occurred.
2. The Reactor is shutdown. All rods are full in.
3. HC.OP-AB.ZZ-0135 is being implemented.
4. 1AG400 Diesel Generator has failed to start, but all other EDGs have started and loaded onto their respective buses.

INITIATING CUE:

Start 1AG400 Diesel Generator from local panel 1AC421 (102' El.).

REVISION HISTORY

JPM NUMBER: KJ003

Rev #	Date	Description	Validation Required?
13	10/1/09	Converted JPM KJ003 to new JPM format. Validated with 2 operators from A Shift. Avg completion time is 20 minutes.	Y
14	4/20/10	Revised estimated completion time to 12 minutes based on average 2009 LOR performance times. Deleted Simulator setup instructions which are not used for an In-Plant JPM. Revised reference procedure revision number. No operator actions changed. No validation required.	N

SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE: NRC SCENARIO 1

SCENARIO NUMBER: ESG-NRC-S1

EFFECTIVE DATE: Effective when approved.

EXPECTED DURATION: 50-60 minutes

REVISION NUMBER: 01

PROGRAM:

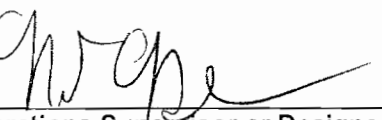
[ ] L.O. REQUAL

[X] INITIAL LICENSE

[ ] OTHER _____

REVISION SUMMARY:

1. Added spurious trips of all 3 RFTS when reactor is scrammed to begin inventory loss from a lower level per Chief Examiner request.
2. Change HPCI from being tagged to HPCI fails to initiate. Added Malfunction HP04.

PREPARED BY:	Archie E. Faulkner **Instructor**	8/2/10 **DATE**
APPROVED BY:	 **LORT Group Lead or Designee**	8/4/10 **DATE**
APPROVED BY:	 **Shift Operations Supervisor or Designee**	8/4/10 **DATE**

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Raise Reactor Power with Control Rods
B. Swapping In-Service SJAE's
C. APRM D Failure Upscale
D. Main Steam Line Pressure Transmitter N076D failure
E. SJAE B Malfunction
F. Loss of Main Condenser Vacuum with Reactor Feed Pump trips
G. LOP w/ EDG B failure
H. EDG A Fails to Auto Start
I. HPCI F001 failure to open.
J. RCIC Overspeed

III. SCENARIO SUMMARY:

The scenario starts with the plant at approximately 90% power. The crew will withdraw Control Rods to 95% power. The crew will commence swapping SJAE's. During the rod withdrawal, D APRM will fail upscale. The crew will bypass the APRM and reset RPS. The CRS will enter the appropriate Tech Specs. After the reactivity manipulation, Main Steam Line Pressure transmitter N076D will fail high resulting in a Tech Spec entry. At the end of the SJAE swap, the oncoming SJAE will malfunction, combined with a loss of Main Condenser vacuum requiring the unit to be shutdown. When the reactor is scrammed, all Reactor Feed Pumps will spuriously trip. A LOP will occur after the Main Generator trips off-line. EDG A will fail to auto start, requiring manual action to initiate containment cooling. EDG B will fail completely. HPCI F001 will not respond automatically or manually. RCIC Turbine will trip on overspeed requiring manual operator action to restore high pressure injection. The scenario will be terminated when reactor level is controlled above –161 inches and Suppression Pool Cooling is in service.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to IC-02; 100% power, MOC.
	INSERT Group 9B control rods to 00 and lower core flow to reduce power to 90%.
	TOGGLE Cross Flow to NOT APPLIED.
	INITIAL HC.OP-IO-ZZ-0006 for current power level and power ascension.
	INITIAL HC.OP-SO.CG-0001 up to step 5.4.3.I for swapping SJAE from A to B.

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

Initial	Description
	ENSURE Data Collection is trending the following parameters:
	• Reactor power
	• W/R Reactor Water Level
	• Fuel Zone RPV Level
	• W/R Reactor Pressure
	• Main Condenser pressure
	COMPLETE the Simulator Ready for Training/Examination Checklist.
	PRE-BRIEF the crew for the power change and SJAE swap.

EVENT TRIGGERS:

Initial	ET #	Description	
	4	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 14** // Power < 14% **mmf mc01 10** Increases MC01 leak to 10% and inserts RCIC trip on Overspeed.
	5	EVENT ACTION: COMMAND: PURPOSE:	**ZLEG26T && ZLEG65T** // Both Main Gen Output Breakers open Initiates LOP after 2-6 and 5-6 breaker open.
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	DG02B Diesel generator B failure	---	---	NONE	---	---
	DG07A Diesel generator emergency start failure	---	---	NONE	---	---
	HP04 HPCI fails to auto initiate	---	---	NONE	---	---
	NM21D APRM channel D fails high or low	---	---	ET-1	---	100
	MS09D Steam line header pressure transmitter N076D fails	---	---	ET-2	---	100
	MC01 Low pressure turbine exhaust bellows leak	---	---	ET-3	---	1
	FW26A Feedwater pump turbine AS105 trip	---	---	ET-4	---	---
	FW26B Feedwater pump turbine AS105 trip	---	---	ET-4	---	---
	FW26C Feedwater pump turbine AS105 trip	---	---	ET-4	---	---
	RC01 RCIC turbine overspeed	---	---	ET-4	---	---
	EG12 Loss of all off site power	---	---	ET-5	---	---
	CD08A CRD suction filter AF201 clogging	---	---	ET-5	---	---
	CD08B CRD suction filter BF201 clogging	---	---	ET-5	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	PP04 OD-3 Crossflow Applied	---	---	ET-6	---	YES
	AN28 CROSSFLOW ALARM/TRBL	---	---	ET-6	---	NORM
	AN17 A4-F3 Off Gas Recomb Pnl 00C327	---	---	ET-8	---	NORM
	EP36 EOP-323, Bypass BC-HV-F015A isolation interlocks	11:00	---	ET-10	---	BYPASS
	EP37 EOP-323, Bypass BC-HV-F015B isolation interlocks	11:00	---	ET-10	---	BYPASS
	CD02 Pump B discharge valve V008 position (0-100%)	---	---	ET-11	---	0
	CD09 CRD FCV A	---	---	ET-12	---	ON

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A93 E OVLO RECOM TRAIN 1 OPEN	---	---	NONE	---	ON
	5A93 E OVDI RECOM TRAIN 1 OPEN	---	---	NONE	---	ON
	5A92 F OVDI HV-2016B CLOSE-STEAM SUPPLY-MAIN STEAM DIS	---	---	ET-7	---	ON
	5A92 E OVDI HV2016B EJECTOR B OPEN-STEAM SUPPLY-MAIN S	---	---	ET-7	---	OFF

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Raise Reactor Power with Control Rods: After the Crew assumes the watch.	• CRS directs the RO to raise Reactor power with Control Rods in accordance with RE guidance.	
	• RO withdraws Control Rods in accordance with HC.OP-SO.SF-0001 and CRS directions. ⇒ Selected rod PB comes ON (bright white). ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod position (10C650C). ⇒ The associated Full Core Display (white) numbered rod identification light comes ON (10C650C).	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
NOTE: Operator may single notch withdraw the rods, as necessary, in which case the CONTINUOUS WITHDRAW PB is NOT used.	• At the ROD SELECT MODULE, press the WITHDRAW PB and observe the following: ⇒ The INSERT (white) light comes ON momentarily. ⇒ The WITHDRAW (white) light comes ON. ⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates control rod movement. ⇒ The WITHDRAW (white) light goes OUT. ⇒ The SETTLE (white) light comes ON for ≈ 6 seconds, then goes out.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ CONTROL ROD POSITION FOUR ROD DISPLAY indicates the control rod has settled to the desired position.	
	• RO indicates the completion of the movement on the Pull Listing.	
'D' APRM Upscale After the 2nd control rod is withdrawn or at Lead Examiner's descretion, THEN **TRIGGER ET-1.**	• RO monitors Reactor power, pressure, and level and ensure plant conditions are stable. Ensures no scram setpoints have been exceeded.	
	• Crew recognizes RPS ½ scram by: ⇒ OHA C3-A5 "REACTOR SCRAM TRIP LOGIC B2" ⇒ OHA C5-A1 "NEUTRON MONITORING SYSTEM" ⇒ RPS Trip Logic B2 NORMAL/RESET status lights extinguished ⇒ Pilot Scram Valve Solenoid LOGIC B NORMAL status lights for all four groups extinguished.	
	• Crew recognizes 'D' APRM Upscale by: ⇒ OHA C3-C5 "APRM SYS B UPSCALE TRIP/INOP" ⇒ C3-D4 "APRM UPSCALE" ⇒ APRM D "UPSC TR OR INOP" status light ⇒ APRM D "UPSC ALARM" status light ⇒ APRM 'D' indicating 125% on 10C650 and CRIDS	
	• Crew terminates control rod withdrawal.	Immediate Operator Action IAW AB.IC-0004. **HPI USED:** STAR ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO observes normal indications on the other APRM's and reports that "D" APRM has failed upscale.	
	• RO refers to AR.ZZ-0009 alarm response procedure for OHA C3-C5 and the associated digital alarm point response procedure for D2444.	
	• CRS enters AB.IC-0004: ⇒ Condition B • CRS references AB.IC-0003: ⇒ Condition B • RO informs the CRS to ensure compliance with Tech Spec 3.3.1.	
	• CRS reviews Technical Specifications 3.3.1 for RPS Instrumentation, 3.3.6 for Rod Block Instrumentation AND 3.3.11.a OPRMS.	
	• CRS determines that the "D" APRM can be bypassed and only a tracking LCO is needed since the minimum number of APRMs per trip system remain operable for both the RPS, Rod Block, and OPRM functions.	
	• CRS directs the RO to bypass the "D" APRM.	
	• RO places APRM RPS TRIP CHANNEL A(B) MONITOR BYPASS joystick in "D" APRM position.	**HPI USED:** STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO resets the "B" channel ½ scram. • RO resets alarms as applicable. • RO reports that the "D" APRM is bypassed and that the ½ scram is reset. • CRS contacts I&C OR Work Control to initiate corrective action to repair the "D" APRM. • CRS directs the RO to continue with Group 9B control rod withdraw of the Reactor Engineering Pull Sheet. • RO pulls the next two control rods from position 00 to position 08. The RO monitors control rod position and NI response during rod withdraws.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Swap SJAE's: After the Crew assumes the watch.	• CRS directs the PO to swap the SJAE to "B" in accordance with HC.OP-SO.CG-0001 starting at 5.4.3.I • PO commences swapping SJAE in accordance with CRS directions by:	
IAW the Turnover Sheet, >30 minutes has elapsed.	⇒ AFTER 30 minutes, OPEN HV-1956B - AIR EJECTOR "B" JET SUCT 3RD STAGE. ⇒ MONITOR the following Air Ejector 3rd Stage parameters for appropriate response while bringing the SJAE on line. (10C650A):	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	○ 3rd Stage Suction flow (rising) as indicated on FR-2021B - SJAE 3rd STAGE SUCTION FLOW. ○ 3rd Stage Suction pressure (lowering) as indicated on PI-1954B SJAE TRAIN "B" PRESSURES STG 3 SUCT.	
	⇒ OPEN HV-1963B AIR EJECTOR "B" SECOND STAGE JET STM INLET.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐
If requested, Operators have been briefed and are standing by.	⇒ DIRECT a Qualified Operator, or Maintenance (I&C) personnel to adjust PIC-2018B SJAE "B" Main Stm Supply Pressure Control Valve, as necessary to control steam pressure 145 to 150 psig during warm-up.	
	⇒ OPEN HV-1962B-AIR EJECTOR "B" SECOND STAGE JET SUCT.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐
	⇒ OBSERVE SJAE 2nd Stage Suction pressure decreasing on PI-1966B SJAE TRAIN "B" PRESSURES STG 2 SUCT (10C650A).	
	⇒ OPEN HV-1967B - AIR EJECTOR "B" FIRST STAGE JET STM INLET.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	⇒ OPEN HV-1968B1, B2, B3, AIR EJECTOR "B" FIRST STAGE JET SUCT.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐
	⇒ DIRECT a Qualified Operator, or Maintenance (I&C) personnel to adjust PIC-2018B SJAE "B" Main Stm Supply Pressure Control Valve, as necessary, to control steam pressure 145 to 150 psig during warm-up.	
	NOTE: Closing the following valves will isolate the "A" SJAE from the Main Condenser. IF Condenser vacuum begins dropping rapidly, they may be re-opened to restore flow.	
	⇒ CLOSE HV-1968 A1, A2, A3 AIR EJECTOR "A" FIRST STAGE JET SUCT.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐
	NOTE: Gaseous Radwaste System flow may be monitored using the following indications: • A3431 RECMB OFF-GAS FLOW TO HOLD PIPE • 1HAFI-5665 HOLD UP PIPE OUT FLOW • A9343 OFF-GAS TREATMENT DISCHARGE FLOW	
	⇒ ADJUST PIC-1964B AIR EJECTOR "B" EXH PRESS, as necessary to maintain SJAE 3rd Stage Outlet < 11 psig, AND flow through the Gaseous Radwaste System < 75 scfm (1900 #/hr).	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
PT-N076D Failure: After the Crew assumes the watch and at the discretion of the Lead Examiner, **TRIGGER ET-2** ('D' NSSSS MSL Pressure Transmitter Fails High).	• Crew recognizes 'D' NSSSS instrument failure by: ⇒ OHA C8-B5 "NSSSS OUTBD ISLN SYS OUT OF SVCE" ⇒ Amber NSSSS CH D "TRIP UNIT IN CAL OR GROSS FAIL" light ⇒ CRIDS D2665 "MSIV INBD SYS OUT OF SVCE CH D" ⇒ CRIDS D2666 "NON-MSIV INBD SYS OUT OF SVCE CH D"	
	• RO/PO reference ARP.	
	• Crew inspects 10C611 panel trip units and finds B21-N676D is failed upscale with a Gross Fail Trip in.	This will prevent the 'D' NSSSS Channel from generating an MSIV isolation signal on Low Main Steam Line pressure.
Transmitter is located in TB Electrical Mezzanine. IF dispatched to transmitter, THEN **REPORT** there is no visible damage to transmitter.	• Crew contacts Maintenance to troubleshoot.	
	• CRS recognize the following T/S applies ⇒ Isolation Actuation Instrumentation 3.3.2 action b.1.c applies (24 hours to place in a tripped condition).	T/S Table 3.3.2-1 Trip Function 3c.
If requested, after an appropriate delay, support actions of placing trip units in tripped condition by changing **MALF MS09D** severity to **0**.	• Crew may implement HC.OP-GP.ZZ-0011 to place trip units into tripped condition.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
HV-2016B Failure Closed: After the B SJAE is in service and at the discretion of the Lead Examiner, **TRIGGER ET-3** (HV-2016B drives closed.) This renders B SJAE ineffective. Main condenser vacuum will slowly degrade.	• Crew recognizes 'B SJAE malfunction by: ⇒ OHA A4-D2 "SJAE B 3RD STAGE STM FLOW LO" • CRS implements AB.BOP-0006: ⇒ Condition A ⇒ Condition B • PO implements AB.BOP-0006: ⇒ Condition A ⇒ Condition B ⇒ Recognizes HV-2016B closed ⇒ NOTIFY The Radwaste Operator ⇒ VERIFY Offgas is in-service. ⇒ PLACE the standby SJAE in-service IAW EITHER of the following: ▪ AB-0001 ▪ SO.CG-0001. • CRS directs PO to place standby SJAE in -service. • PO opens HV-1968 A1, A2, A3.	**HPI USED:** STAR ☐

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of Vacuum: After A SJAE is placed in service, OR at the Lead Examiners discretion, **TRIGGER ET-7** (Main Condenser Exhaust Boot Leak).	• Crew recognizes elevated condenser in-leakage and degrading vacuum by: ⇒ Lowering Main Gen MWe ⇒ OHA A4-F3 "OFFGAS RECOMB PNL 00C327" ⇒ RM11 9AX343 Offgas Flow alarm ⇒ CRIDS A9343 "OFFGAS TREATMENT DISCHARGE FLOW" rising ⇒ Various Main Condenser vacuum indications degrading	
	• CRS implements AB.BOP-0006: ⇒ Condition A ⇒ Condition G	
IF dispatched to Off Gas, THEN **TRIGGER ET-8** to ACKNOWLEDGE the alarm AND **REPORT** there is a "High Gas Flow to Holdup Pipe" alarm in on 00C327. Flows and d/p's throughout the system are abnormally high.	• Crew dispatches RWEO to Off Gas.	
	• RO reduces power as necessary to maintain the MAIN CONDENSER VACUUM LO alarms clear IAW SPRI.	Immediate Operator Action IAW AB.BOP-0006. **HPI USED:** STAR ☐
IF directed to check Condensate Drain Tank level controllers, THEN **REPORT** Condensate Drain Tank level controllers are working properly.	• Crew verifies Condensate Drain Tank levels controlling properly. (Condensate Drain Tank Level can be seen on CRIDS Page 19)	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to check position of RC-V005, THEN **REPORT** it is aligned to CRW.	• Crew directs RBEO to verify the RC-V005 is aligned to CRW.	
IF directed to verify proper HWCI operation, THEN **REPORT** HWCI is operating properly.	• Crew directs Chemistry to verify proper operation of HWCI. (HWCI flows can be seen on CRIDS Page 231).	
IF directed to place a water seal on Vacuum Breakers and Condenser Neck Seals, THEN **OBTAIN** AB.BOP-0006 Att. 2 and **REPORT** actions after appropriate time delays.	• Crew directs NEO to place water seal on Vacuum Breakers and Condenser Neck Seals.	
	• CRS determines condenser pressure cannot be maintained < 6.5" HgA and directs: ⇒ Reducing recirc pumps to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	Retainment Override in AB.BOP-0006.
NOTE: When the reactor is scrammed, main condenser vacuum leak increases severity to 10% and Reactor Feed pumps will trip.	• RO ⇒ Reduces recirc pumps to minimum speed ⇒ Locks the Mode Switch in SHUTDOWN	**HPI USED:** STAR ☐
	• RO performs scram actions IAW AB.ZZ-0001 Attachment 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS implements EOP-101.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
LOP with EDG Failures: When the Main Generator output breakers are opened after the Main Turbine trip, OR, at the direction of the Lead Examiner, **TRIGGER ET-5**.	• 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 'A' EDG to start and load by: ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'A' Channel components	
	• RO/PO start the 'A' EDG and ensure it loads.	Immediate Operator Action IAW AB.ZZ-0135. **HPI USED:** STAR ☐
IF directed to locally start the 'A' EDG, THEN **DELETE** Malfunction **DG07A**.	* ***Crew starts the 'A' EDG by <u>EITHER</u>:*** ***Pressing the 'A' EDG START pushbutton in the Control Room,*** ***<u>OR</u>*** ***Directing an operator to locally start the 'A' EDG.***	
	• Crew recognizes failure of the 'B' EDG to start and load by: ⇒ Engine STOP light ⇒ Output breaker TRIP light ⇒ OVLD/PWR lights on 'B' Channel components	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to locally start the 'B' EDG, THEN REPORT 'B' EDG has a large lube oil pipe break and oil is all over the engine room floor.	• RO/PO attempt to start the 'B' EDG.	Immediate Operator Action IAW AB.ZZ-0135. **HPI USED:** STAR ☐
	• PO maintains RPV water level as directed by CRS IAW AB.ZZ-0001 Attachment 14.	**HPI USED:** STAR ☐ HARD CARD ☐
NOTE: MSIVs will close on the LOP.	• CRS directs maintaining reactor pressure below 1037 psig with SRVs.	
	• RO/PO control RPV pressure with SRVs as directed by CRS IAW AB.ZZ-0001 Att 13.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs RPV water level control with RCIC.	
RCIC Overspeed/HPCI F001 failure: When RCIC initiates either automatically or manually, RCIC turbine speed will increase until tripping on overspeed. HPCI F001 will not open.	• PO manually initiates RCIC IAW AB.ZZ-0001 Att. 6.	May have already initiated on RPV LVL 2 depending on power level at time of scram.

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes RCIC turbine trip by: ⇒ OHA B1-A1 "RCIC TURBINE TRIP" ⇒ OHA B1-E2 "RCIC PUMP DISCHARGE FLOW LO" ⇒ TURBINE TRIP SOLENOID ENGRZ status light ⇒ HV-4282 Valve position ⇒ CRIDS D2400 "RCIC TURBINE TRIP" ⇒ RCIC speed and flow indications	
IF dispatched to RCIC, THEN **REPORT** the overspeed trip linkage is tripped.	• Crew dispatches NEO and Maintenance to RCIC.	
IF dispatched to HPCI, THEN **REPORT** the F001 valve appears closed. IF directed to open HV-F001 locally, THEN **REPORT** the valve will not move by hand.	• Crew recognizes HPCI failure by: ⇒ HPCI F001 remains closed after an initiation signal.	
	• CRS orders injection with 'A' SLC pump.	
	• Crew starts 'A' SLC pump.	
Crew may request EOP-323 implementation. If so, **TRIGGER ET-10**.	• WHEN RPV water level drops to -129", THEN the Crew inhibits ADS.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF directed to align for two CRD pump injection, THEN **PERFORM** the following: **REFER** to SO.BF-0001 Sect 5.4. **TRIGGER ET-11** (Suction filter). **SET** Remote Function for Stby CRD pump discharge valve to 0% (**CD01/CD02**). **REPORT** Stby CRD pump ready for start. WHEN Stby CRD is running, THEN **RAMP** discharge valve to 100% open. IF directed to manually open HV-F003, THEN **REPORT** you have opened the valve. (There is no function for this.) AFTER HV-F003 is open, THEN **TRIGGER ET-12**. WHEN two minutes have elapsed, THEN **MODIFY** Malfunctions **CD09A/B** to control injection. IF instrument air pressure is zero, THEN **REPORT** the FCVs do not seem to be responding.	• CRS orders injection with two CRD pumps. • Crew aligns CRD for 2 pump injection.	CRD pumps will trip on low suction pressure due to suction filter clogging.
IF directed to reset the RCIC overspeed trip, AND after the Trip Throttle valve actuator has been closed, THEN after RPV Level 1 is reached, • **DELETE** Malfunction **RC01** • **TOGGLE** Remote Function **RC02** to RESET • **REPORT** the linkage has been re-latched.	• Crew attempts to reset overspeed trip IAW SO.BD-0001 Section 5.7.	

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***Before RPV water level reaches -185" Compensated RPV Level, and without Emergency Depressurization, Crew resets RCIC Overspeed trip and uses RCIC to inject to the reactor.***	
	• PO controls RPV water level with RCIC IAW AB.ZZ-0001 Att. 6.	**HPI USED:** STAR ☐ HARD CARD ☐
As ESOC, **REPORT** it will take at least 10 hours to restore Offsite power to Artificial Island.	• Crew contacts ESOC for estimated time to restoration of Offsite power.	
	• CRS implements AB.ZZ-0135.	
	• CRS enters EOP-102.	
	• Crew places 'B' RHR in Suppression Pool cooling to support RCIC/SRV operation IAW HC.OP-AB.ZZ-0001 Attachment 3.	**HPI USED:** STAR ☐ HARDCARD ☐
	• CRS directs restoring PCIG to SRVs and Rx Bldg to Torus Vac Bkrs.	
	• RO/PO restore PCIG to SRVs and Rx Bldg to Torus Vac Bkrs IAW AB.ZZ-0001 Att. 9.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐

Termination Requirement:

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

- RPV level is being maintained above –161"
- Suppression Pool Cooling is in service

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. OP-AA-101-111-1003 Use of Procedures
K. HU-AA-1081 Fundamentals Toolkit
L. HU-AA-1211 Briefing
M. OP-AA-101-111-1004 Operations Standards
N. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
O. OP-AA-106-101-1001 Event Response Guidelines
P. OP-AA-108-114 Post Transient Review
Q. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
R. OP-HC-108-106-1001 Equipment Operational Control
S. OP-AA-101-112-1002 On-Line Risk Assessment
T. HC.OP-AB.BOP-0006 Main Condenser Vacuum
U. HC.OP-AB.IC-0003 Reactor Protection System
V. HC.OP-AB.IC-0004 Neutron Monitoring
W. HC.OP-AB.ZZ-0001 Transient Plant Conditions
X. HC.OP-AB.ZZ-0135 Station Blackout //Loss Of Offsite Power// Diesel Generator Malfunction
Y. HC.OP-EO.ZZ-0101 RPV Control
Z. HC.OP-EO.ZZ-0102 Primary Containment Control
AA. HC.OP-EO.ZZ-0323 RHR Shutdown Cooling Injection Valve Isolation Override
BB. HC.OP-IO.ZZ-0003 Startup From Cold Shutdown to Rated Power
CC. HC.OP-SO.CG-0001 Condenser Air Removal System Operation
DD. HC.OP-SO.SF-0001 Reactor Manual Control

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S1 / 01

1.

* ***Crew starts the 'A' EDG by <u>EITHER</u>:***
  Pressing the 'A' EDG START pushbutton in the Control Room,
  <u>OR</u>
  Directing an operator to locally start the 'A' EDG.

K/A 2.0 Generic Knowledges and Abilities
2.1.8 Ability to coordinate personnel activities outside of the control room RO 3.8 SRO 3.6
K/A 295003 Partial or Complete Loss of A.C. Power
AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER
AA1.02 Emergency generators RO 4.2 SRO 4.3
AA1.03 Systems necessary to assure safe plant shutdown RO 4.4 SRO 4.4

The 'B' RHR pump is not available due to the failure of 'B' EDG. This leaves the 'A' 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. Energization of the 10A401 bus makes the 'A' SLC pump available for injection which will prolong the time before adequate core cooling will be lost and Emergency Depressurization is required.

2.

* ***Before RPV water level reaches -185" Compensated RPV Level, and without Emergency Depressurization, Crew resets RCIC Overspeed trip and uses RCIC to inject to the reactor.***

K/A 217000 Reactor Core Isolation Cooling System
A4 Ability to manually operate and monitor in the control room:
A4.02 Turbine Trip and Throttle valve reset RO 3.9 SRO 3.9
K/A 295031 Reactor Low Water Level
EA1. Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL:
EA1.05 Reactor Core Isolation Cooling System RO: 4.3 SRO 4.3

The RCIC Turbine has tripped on overspeed but is recoverable using the SOP and manual action from the control room. The loss of RPV water inventory is via SRVs cycling for pressure control. RCIC is the only High Pressure injection system that will be available with adequate capacity to maintain RPV water level. If RPV water level is allowed to drop below –185", the fuel will be uncovered and the fuel cladding will be challenged. This would escalate the event to a Site Area Emergency. HC.OP-SO.BD-0001 Section 5.7 has the necessary guidance to step the operator through resetting the RCIC Turbine with an Initiation Signal present. 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 RCIC without Emergency Depressurization.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

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

TRANSIENTS:

Y/N	
	Turbine Trip
Y	Loss of Condenser Vacuum
	Loss of Feedwater
	Inadvertent MSIV Closure
	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

Y/N	
	Loss of SSW
	Loss of SACS
	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
	Hard Torus Vent
Y	HPCI
	1E 4.16KV Bus
	SACS Hx/Pump
	EDG
	120VAC 481/482 Inverter
	A/B RHR
	RCIC
	SSW Pump
	SLC
	CRD
	1E 125VDC

KEY SYSTEMS

Y/N	
	500KV AC Power
	SRVs
	Condensate/Feedwater
	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Aligning RHR for Suppression Pool Cooling
	Emergency Venting of Primary Containment
	Emergency Depressurize RPV W/O High Pressure Injection
	Initiating LP ECCS with No High Pressure Injection Available
	Restoration of AC Power after a LOP (EDG / Offsite)
	Monitoring and Control of SACS heat loads
	Preventing LVL 8 trip of Feedwater during a transient
	Align Core Spray Suction to CST when at NPSH limits
	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: 90%
Work Week: A
Risk Color: Green

Activities Completed Last Shift:

- Startup to 90% power

Major Activities Next 12 Hours:

- Continue with Startup by withdrawing Control Rods then Reactor Recirc to 100% power.
- Place B SJAE in service; remove A SJAE from service for scheduled maintenance.
    - OP-SO.CG-0001 completed up step 5.4.3.I.
    - A SJAE has been warming >30 minutes.
    - Operators have been briefed and are standing by in the field.

Protected Equipment:

None

Tagged Equipment:

None

Reactivity:

- RE guidance: Rod pull Group 9B rods to 08, then use Reactor Recirc to 100% power at <1% per minute.
- Continuous rod withdraw is allowed.

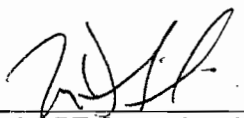
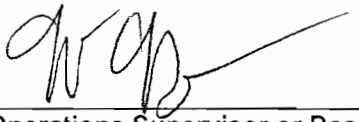
SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	NRC SCENARIO 2
SCENARIO NUMBER:	ESG-NRC-S2
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	50-60 minutes
REVISION NUMBER:	01
PROGRAM:	[ ] L.O. REQUAL
	[X] INITIAL LICENSE
	[ ] OTHER _____

REVISION SUMMARY:

1. Added 3 additional control rods stuck at position 48 per Chief Examiner request.
2. Added guidance for the simulator operator to maintain CRD Drive Water Pressure <100 psig while trying to drive rods post-scram per Chief Examiner request.

PREPARED BY:	Archie E. Faulkner **Instructor**	8/2/10 **DATE**
APPROVED BY:	 **LORT Group Lead or Designee**	8/4/10 **DATE**
APPROVED BY:	 **Shift Operations Supervisor or Designee**	8/4/10 **DATE**

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Turbine Bypass Valve Testing - Monthly
B. RRCS Pressure Transmitter Failure - Low
C. Loss Of Feedwater Heating
D. Feedwater Level Sensor Failure - High
E. Recirc Pump 'B' Dual Seal Failure
F. Recirc Pump 'B' Discharge Valve Failure To Close
G. Manual Scram With 5 Control Rods Not Full In
H. High Drywell Pressure
I. EHC Pressure Xmitter Fails

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. RCIC is tagged for scheduled maintenance. Turbine Bypass Valve Testing - Monthly HC.OP-ST.AC-0005 will be performed. The PT-N403A RRCS Pressure Transmitter will fail downscale. After Tech Specs for the failure are identified, the 6A feedwater heater will develop a tube rupture due to flow accelerated corrosion. The heater will require isolation and power reduction will be required. After the loss of FWH is addressed, The N004C DFCS level transmitter will fail high. DFCS will continue to operate in Three Element control on the remaining two transmitters. The SRO enter Tech Specs. After Tech Spec actions for the level sensor are identified, the 'B" Reactor Recirc pump will suffer a dual seal failure. When isolating the pump, the pump discharge valve will fail to close requiring a manual scram. When the plant is scrammed, 5 control rods will remain at their original positions, requiring EOP-101A entry. The unisolated recirc pump leakage will result in a high drywell pressure condition. After the main turbine trips, one EHC Pressure Xmitter will fail driving the crew to manually isolate the MSIVs for pressure control. The scenario ends when RPV water level is being maintained with HPCI, RPV pressure controlled with MSIVs closed, and all control rods inserted full in.

IV. INITIAL CONDITIONS:

I.C.	
Initial	

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

C/T RCIC as follows.

_____ 1. **CLOSE** the HV-4282

_____ 2. **CLOSE** the HV-F007

_____ 3. **CLOSE** the HV-F008

_____ 4. **ALLOW** RCIC supply pressure to decay to 0 psig

_____ 5. **CLOSE** the HV-F025

_____ 6. **CLOSE** the HV-F026

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

PLACE red bezel covers on the following RCIC controls:

_____ • HV-F007

_____ • HV-F008

_____ • HV-F076

_____ • HV-F045

_____ • HV-F025

_____ • HV-F026

ENSURE Data Collection is trending the following parameters as a minimum:

_____ • W/R Reactor Water Level

_____ • W/R RPV Pressure

_____ • Feedwater Temp to RPV: **c91a1744** and **c91a1746** or equivalent

_____ • Core Thermal Power 5 Minute Average: **c91ctp5m** or equivalent

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

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

EVENT TRIGGERS:

Initial	ET #	Description	
		EVENT ACTION: COMMAND: PURPOSE:	
		EVENT ACTION: COMMAND: PURPOSE:	
	6	EVENT ACTION: COMMAND: PURPOSE:	**msv13xxa(7) <= 0.95** // 6A FWH Extraction Steam Isolation **dmf fw366a2** Deletes failed shut dump valve to simulate sluggish operation
	7	EVENT ACTION: COMMAND: PURPOSE:	**fwvhr6oa <= 0.25** // HV-1753A valve position Triggers Cross Flow alarm trouble when 6A FWH valved out.
	9	EVENT ACTION: COMMAND: PURPOSE:	**et_array(9)** // Trigger ET-9 **dmf CD032231** Deletes stuck control Rod 22-31
	10	EVENT ACTION: COMMAND: PURPOSE:	**et_array(10)** // Trigger ET-10 **dmf CD033843** Deletes stuck control Rod 38-43
	14	EVENT ACTION: COMMAND: PURPOSE:	**et_array(14)** // Trigger ET-14 **dmf CD032227** Deletes stuck control Rod 22-27
	15	EVENT ACTION: COMMAND: PURPOSE:	**et_array(15)** // Trigger ET-15 **dmf CD033019** Deletes stuck control Rod 30-19
	16	EVENT ACTION: COMMAND: PURPOSE:	**et_array(16)** // Trigger ET-16 **dmf CD03827** Deletes stuck control Rod 38-27

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	FW366A2 6A FWH Dump Valve Failed Shut	---	---	NONE	---	0%
	CD032231 Control Rod 22-31 stuck	---	---	NONE	---	---
	CD033843 Control Rod 38-43 stuck	---	---	NONE	---	---
	CD032227 Control Rod 22-27 stuck	---	---	NONE	---	---
	CD033019 Control Rod 30-19 stuck	---	---	NONE	---	---
	CD033827 Control Rod 38-27 stuck	---	---	NONE	---	---
	RZ02E RRCS Pressure Transmitter PT-N403E Fails	---	---	ET-1	---	0
	AN-D1E1 Cry Wolf OHA D1-D1 RRCS Trouble	---	---	ET-1	---	---
	FW12A 6A FWH Tube Leak	---	4:00	ET-2	0%	80%
	AN-B3F2 Cry Wolf Cross Flow Alarm Trouble	---	---	ET-7	---	---
	RR05B BP201 Recirc Pump Inbd Seal Failure	---	---	ET-8	---	100%
	RR06B BP201 Recirc Pump Outbd Seal Failure	1:00	1:00	ET-8	---	100%
	RR31B1 B Recirc Loop Leak	3:00	10:00	ET-8	0%	20%
	FW29C DFCS Level Xmtr N004C Failure	---	---	ET-3	---	100%
	TU16A DEHC Pressure Transmitter CHPT-1001A	---	---	ET-5	---	1050
	TC01-1 BPV #1 Failure	---	1:30	ET-5	0%	100%
	TC01-2 BPV #2 Failure	---	1:30	ET-5	0%	100%

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	ET015 GROUP 6A HV-F007 RCIC Steam Supply Isol	---	---	NONE	---	RACK CLOSE
	ET016 GROUP 6A HV-F076 RCIC Steam Supply Isol	---	---	NONE	---	RACK CLOSE
	ET017 GROUP 6A HV-F008 RCIC Steam Supply Isol	---	---	NONE	---	RACK CLOSE
	HV12 Steam tunnel unit cooler BVH216	---	---	NONE	---	RUN
	PP04 OD-3 Cross Flow Correction Factor Applied	---	---	ET-4	---	NO
	AN28 OHA B3-F2 Cross Flow Alarm/Trbl	00:05	---	ET-4	---	NORM
	EP09 EOP 320 ARI Fuses	4 min	---	ET-11	---	REMOVE
	EP10 EOP 320 ARI Fuses	4 min	---	ET-11	---	REMOVE
	EP11 EOP 320 RPS Div 1	6 min	---	ET-11	---	INSTALL
	EP13 EOP 320 RPS Div 3	6 min	---	ET-11	---	INSTALL
	EP12 EOP 320 RPS Div 2	12 min	---	ET-11	---	INSTALL
	EP14 EOP 320 RPS Div 4	12 min	---	ET-11	---	INSTALL
	EP35 EOP-322 HPCI Core Spray Valve	3 min	---	ET-12	---	FAIL CLOSE

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	9S9 A LO RCIC HV-F045 OVLD/PWR FAIL	---	---	NONE	---	ON
	9S10 A DI RCIC HV-F045 OPEN Pb	---	---	NONE	---	OFF
	9S10 C LO HV-F045 OPEN light	---	---	NONE	---	OFF
	9S10 B LO RCIC HV-F045 CLOSED light	---	---	NONE	---	OFF
	9S8 A DI RCIC HV-F025 OPEN Pb	---	---	NONE	---	OFF
	9DS26 B LO RCIC HV-F025 CLOSED light	---	---	NONE	---	OFF
	9S16 A DI RCIC HV-F026 OPEN Pb	---	---	NONE	---	OFF
	9DS27 B LO RCIC HV-F026 CLOSED light	---	---	NONE	---	OFF
	9S45 A DI RCIC Manual Initiation Pb	---	---	NONE	---	OFF
	3A43 F DI HV-F031B CLOSED-DISCHARGE VALVE	---	---	ET-8	---	OFF

Event / Instructor Activity	Expected Plant/Student Response	Comments
Perform Turbine Bypass Valve Testing - Monthly:	• CRS directs Turbine Bypass Valve Testing - Monthly to be performed.	
	• PO performs Turbine Bypass Valve Testing - Monthly IAW HC.OP-ST.AC-0005 from the DEHC HMI screen as follows: • PO selects TESTS • PO selects BPV TEST • PO selects BYPASS VALVE #1 • PO selects TEST ON • After the valve reaches full open, PO selects TEST OFF. • PO verifies plant parameters stabilize and return to normal.	
NOTE: Only the first 2 valves need to be performed before moving on to the next event.	• PO repeats test for each of 8 other TBV's.	
RRCS Pressure Transmitter Fails Low: At the discretion of the Lead Examiner, **TRIGGER ET-1** (RRCS Pressure Transmitter PT-N403E Failure Low)	• Crew recognizes RRCS Failure by: ⇒ OHA D1-E1 "RRCS TROUBLE" ⇒ RRCS Channel A Logic B "RRCS LOGIC B TROUBLE" light	PT-N403E output can be seen on the SPDS Reactor Pressure Point Status display.

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to RRCS, THEN **REPORT** there is an "ATM CAL/GROSS FAILURE" light lit on 10C601 and PT-N403E is reading 0 psig. IF dispatched to RRCS to perform DL-26 Attach 1b Form 1, THEN **PROVIDE** DL-26 Attach 1b Form 1, filled out as provided on attached sheet. IF dispatched to transmitter at instrument rack C005, THEN **REPORT** no visible problem at instrument rack.	• Crew dispatches ABEO and/or Maintenance to RRCS cabinets 10C601/602.	
	• CRS/STA/IA recognize the following Tech Spec action applies: ⇒ ATWS Recirculation Pump Trip System Instrumentation 3.3.4.1 action b	Place the inoperable channel in a tripped condition within one hour.
6A FWH Tube Rupture: After the Crew completes Turbine Bypass Valve Testing - Monthly, OR at the discretion of the Lead Examiner, **TRIGGER ET-2** (6A FWH Tube Rupture with Sluggish Dump Valve response).	• Crew recognizes trip of 6A FWH and loss of feedwater heating by: ⇒ OHA A7-E2 "FEEDWATER HEATER TRIP" ⇒ 6A FWH Flashing HTR TRIP light ⇒ CRIDS D2996 "Feedwater Heater AE106" ⇒ 6A FWH Extraction Steam valve HV-1365A closing ⇒ Lowering feed water line temperatures	The 6A FWH dump valve will not open until after the feedwater heater trip setpoint is reached.
	• Crew announces trip of the 6A FWH on the plant page.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
Monitor Items: • FW Line Temp A **c91a1744** • FW Line Temp B **c91a1746**	• Crew recognizes leak in 6A FWH by: ⇒ RFPTs speed increasing ⇒ RFP discharge flows rising with lowering feed flow to reactor vessel ⇒ Total Condensate flow rising ⇒ 3/4/5A FWH drain flow rising ⇒ 6A FWH level rising	The tube leak will cause a small vessel level transient (≈2 inches).
	• RO reduces and maintains reactor power to establish less than 1185 MWe Main Turbine Load IAW the SPRI.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐ Immediate Operator Action IAW AB.BOP-0001.
	* ***Crew restores/maintains the Core Thermal Power 5 Minute Average to ≤ 3848 MWth.***	
IF dispatched to AC102, THEN **REPORT**: • 6A FWH level is high on all indicators • There is a 100% air signal on the drain valve • There is a 0% air signal on the dump valve	• Crew dispatched TBEO to AC102 panel.	
	• CRS implements AB.BOP-0001: ⇒ Condition A ⇒ Condition B	
	• Crew ensures automatic actions occur: ⇒ HV-1365A extraction steam isolation closes ⇒ HV-1366A/1367A/1359A drains open	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO performs the following: ⇒ Closes HV-1753A ⇒ Closes HV-1768A ⇒ Ensures extraction steam isolated to 6A FWH IAW SO.AF-0001 Section 5.6	**HPI USED:** STAR ☐ PEER CHECK ☐
	• IF feedwater temperature drops more than 10 degrees due to the Loss of Feedwater Heating, THEN CRS directs RO to reduce reactor power to 80% and maintain it there.	
IF directed to monitor/control recirc MG oil temps, THEN **MONITOR**: • **rrtoila(1)** for 'A' MG • **rrtoila(2)** for 'B' MG	• IF directed, THEN RO reduces and maintains reactor power 80% IAW SPRI.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• CRS implements AB.RPV-0001: ⇒ Condition A ⇒ Condition B	
IF directed to set Cross Flow to NOT APPLIED, THEN **TRIGGER ET-4**.	• Crew contacts RE.	
	• IF reactor power was reduced by 15%, THEN CRS 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)	

Event / Instructor Activity	Expected Plant/Student Response	Comments
DFCS Level Transmitter Failure: After the Crew assumes the watch **TRIGGER ET-3** (DFCS Level Transmitter PDT-N004C Fails Upscale) at the discretion of the Lead Examiner.	• Crew recognizes N004A failure by: ⇒ OHA B1-F5 "FEEDWATER 2/3 LOGIC SENSOR FAIL" ⇒ OHA B3-F1 "DFCS ALARM/TRBL" ⇒ DFCS "HIGH LVL TRIP C" status light ⇒ CRIDS D2100 "RFPT C HIGH REACTOR LEVEL 8" ⇒ CRIDS D5272 "A/B/C REACTOR LVL 8 SENSOR FAILURE" ⇒ DFCS "REACTOR LEVEL C HIABS" ⇒ DFCS "REACTOR LEVEL C IOBAD" ⇒ DFCS "REACTOR LEVEL C HIDEV" ⇒ LI-R608C indication on 10C650C.	
	• RO/PO validate current RPV level with redundant instruments.	
	• PO monitors DFCS and ensures it continues to control RPV water level.	
As RBEO, **REPORT** there are no visible problems at the 'C' Instrument rack.	• Crew dispatches RBEO to inspect the 'C' Instrument rack.	
	• Crew contacts Maintenance to troubleshoot.	
	• Crew contacts Operations Management.	
	• CRS recognize the following Tech Specs apply: ⇒ Feedwater/Main Turbine Trip System Actuation Instrumentation 3.3.9 action b	Must restore the N004C to OPERABLE within 7 days or be in at least STARTUP within the next 6 hours.

Event / Instructor Activity	Expected Plant/Student Response	Comments
Recirc Pump Dual Seal Failure: After the Crew addresses the DFCS Level Transmitter and at the discretion of the Lead Examiner, **TRIGGER ET-8**.	• Crew recognizes leak in the drywell by: ⇒ C1-F5 COMP PT IN ALARM ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD Floor Drain Flow alarm ⇒ Rising drywell pressure	
	• CRS implements AB.CONT-0006: ⇒ Condition A ⇒ Condition C	
	• CRS implements AB.CONT-0001: ⇒ Condition A	
	• RO/PO ensure drywell cooling is maximized. • RO/PO check: ⇒ SRV temperatures ⇒ Recirc pump seals	In this case, this is accomplished by opening cooling coil valves.
IF directed to report local seal pressures on the 'B' Recirc pump, THEN use the following Monitor Items: • 'B' Recirc #1 Seal **rrpsl1(2)** • 'B' Recirc #2 Seal **rrpsl2(2)**	• Crew recognizes 'B' Recirc pump dual seal failure by: ⇒ CRIDS D2925 "RECIRC PUMP B SEAL LKG FLOW HI" ⇒ Rising seal temperatures	
	• CRS references AB.RPV-0003: ⇒ Condition E	Due to the F031B failure to close, the recirc pump cannot be isolated.
	• RO implements AB.RPV-0003: ⇒ Condition E	**HPI USED:** STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to the breaker for HV-F031B, THEN REPORT the breaker looks normal.	• RO determines F031B did not close and the B recirc pump is not isolated and informs the CRS.	
	• CRS determines drywell pressure cannot be maintained < 1.5 psig and directs: ⇒ Reducing recirc pumps to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	Retainment Override in AB.CONT-0001.
	• RO ⇒ Reduces A recirc pump to minimum speed ⇒ Locks the Mode Switch in SHUTDOWN	**HPI USED:** STAR ☐ PEER CHECK ☐
Manual Scram with 5 Rods Stuck:	• RO recognizes 5 control rods are stuck at position 48 and informs the CRS that the reactor is not shut down.	
	• RO performs scram actions IAW AB.ZZ-0001 Att. 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS implements EOP-101A.	
	• PO stabilizes and maintains RPV level as directed by CRS.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
After scram actions are complete, **TRIGGER ET-9 and ET-10** to delete Malfunctions **CD032231** and **CD033443** to allow manual insertion of control rods.	• CRS directs bypassing the RWM and commencing manual rod insertion.	
	• RO/PO bypass RWM and insert control rods IAW RE.AB.ZZ-0001 Att. 2.	**HPI USED:** STAR ☐ HARD CARD ☐ OP BARRIERS ☐
REFER to the appropriate EOP and **SUPPORT** Crew requests for EOPs IAW with the following: EOP-320: **ET-11** EOP-322: **ET-12**	• CRS may direct performance of the following EOPs: ⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks" ⇒ EO.ZZ-0322 "Core Spray Injection Valve Override"	The timing, order, and priority of the EOP performance may vary.
<u>High Drywell Pressure</u>: The high drywell pressure will occur approximately 7 minutes after the seal failure is initiated.	• Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ OHA C5-B5 "DRYWELL PRESSURE HI" ⇒ Various system initiations and isolations.	
	• CRS enters EOP-102, re-enters EOP-101A.	
	• RO/PO verify automatic actions.	
	• CRS directs ensuring isolations occur IAW either: ⇒ SO.SM-0001 <u>OR</u> ⇒ AB.CONT-0002	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO ensure isolations occur IAW either: ⇒ SO.SM-0001 OR ⇒ AB.CONT-0002	
IF crew does not restore 1E breakers, THEN maintain Main Steam Tunnel Temps below 140F as necessary using Monitor Item **mstunl**.	• CRS directs restoring 1E 480 VAC breakers.	
	• RO/PO restore 1E 480 VAC breakers IAW AB.ZZ-0001 Att. 12.	
	• CRS directs placing A & B RHR pumps in Suppression Pool Cooling & Suppression Chamber Spray.	
	• RO/PO place A & B RHR pumps in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	
Uncontrolled Lowering of RPV Pressure: 5 minutes after the manual scram, OR, at the Lead Examiners discretion, **TRIGGER ET-5**.	• Crew recognizes uncontrolled lowering of pressure by: ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ OHA E1-F5 "COMPUTER PT IN ALARM" ⇒ OHA D3-D5 "EHC UNIT PANEL 10C363" ⇒ OHA C8-B3 "NSSSS ISLN SIG-MN STM PRESSURE LO" ⇒ Various reactor pressure indications ⇒ Bypass valves opening	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements AB.RPV-0005: ⇒ Retainment Override 2	
	• PO maintains RPV water level as directed by CRS IAW AB.ZZ-0001 Attachment 14.	
	• WHEN reactor pressure lowers to 550 psig, THEN CRS directs closing the MSIVs, HV-F016, and HV-F019.	
	• RO/PO closes the MSIVs, HV-F016, and HV-F019.	**HPI USED:** STAR ☐ PEER CHECK ☐ May cause RPV water level to shrink to LVL 2.
	* ***Crew closes at least one MSIV in each steam line before reactor pressure drops below 382 psig.***	**RECORD** the reactor pressure at which the steam lines were isolated. Pressure: _____
	• CRS directs RPV pressure control with HPCI and/or SRVs.	
	• RO/PO control RPV pressure as directed by CRS with: ⇒ HPCI IAW AB.ZZ-0001 Att 6 ⇒ SRVs IAW AB.ZZ-0001 Att 13	**HPI USED:** STAR ☐ HARD CARD ☐
NOTE: OVERRIDE BF-HV-F003 as necessary to maintain drive water pressure <100 psid while rods are being driven.	• Crew restarts a CRD Pump and sets up CRD to drive rods.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***CREW fully inserts control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320 to place the reactor in a shutdown condition.***	
	• CRS directs restoring PCIG to SRVs and Torus to Rx Bldg Vacuum breakers.	
	• RO/PO restore PCIG to SRVs and Torus to Rx Bldg Vacuum breakers IAW AB.ZZ-0001 Att. 9.	

Termination Requirement:

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

- RPV level is being maintained above –161"
- Suppression Pool Cooling is in service

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. HU-AA-1081 Fundamentals Toolkit
K. HU-AA-1211 Briefing
L. OP-AA-101-111-1003 Use of Procedures
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-101-111-1004 Operations Standards
O. OP-AA-101-112-1002 On-Line Risk Assessment
P. OP-AA-106-101-1001 Event Response Guidelines
Q. OP-HC-108-106-1001 Equipment Operational Control
R. OP-AA-108-114 Post Transient Review
S. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
T. OP-AA-106-101-1001 Event Response Guidelines
U. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
V. HC.OP-ST.AC-0005 Turbine Bypass Valve Testing - Monthly
W. HC.OP-SO.AF-0001 Extraction Steam, Heater Vents And Drains System Operation
X. HC.OP-SO.SM-0001 Isolation Systems Operation
Y. HC.OP-DL.ZZ-0026 Surveillance Log
Z. HC.OP-IO.ZZ-0006 Power Changes During Operation
AA. HC.OP-AB.ZZ-0001 Transient Plant Conditions
BB. HC.OP-AB.RPV-0001 Reactor Power
CC. HC.OP-AB.RPV-0003 Recirculation System
DD. HC.OP-AB.RPV-0004 Reactor Level Control
EE. HC.OP-AB.BOP-0001 Feedwater Heating
FF. HC.OP-AB.ZZ-000 Reactor Scram
GG. HC.OP-EO.ZZ-0101 RPV Control
HH. HC.OP-EO.ZZ-0101A ATWS
II. HC.OP-EO.ZZ-0102 Primary Containment Control

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S2 / 01

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.4.0 SRO 4.7

The loss of feedwater heating due to the trip of the 6A 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 closes at least one MSIV in each steam line before reactor pressure drops below 382 psig.***

K/A 241000 Reactor/Turbine Pressure Regulating System

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

A2.03 Failed open/closed bypass valve(s) RO: 4.1 SRO: 4.2

K/A/ 239001 Main and Reheat Steam System

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

A4.01 MSIVs RO:4.2 SRO: 4.0

Tech Spec 3.4.6.1, Reactor Coolant System Pressure/Temperature Limits, specifies a maximum allowable cooldown of 100 degF in any one hour period. HC.OP-AB.RPV-0005 Retainment Overrides require closing the MSIVs and HV-F016/F019 if reactor pressure reaches 550 psig during an uncontrolled depressurization with the reactor shutdown.

The scenario starts with reactor pressure at approximately 1004 psig. This equates to 1019 psia. This places saturation temperature between 544 (995 psia) and 548 (1028 psia) degF. The saturation pressure for 444 degF is 397 psia or 382 psig. Closing the MSIVs after pressure drops below 382 psig is certain to cause the Tech Spec cooldown limit to be violated.

The scenario is modeled such that it will take at least three minutes for pressure to drop from 785 psig to 382 psig. This provides ample time to implement the AB.RPV-0005 and close the MSIVs. Note that for purposes of satisfying the critical task, it is only necessary to close one valve in each flow path. Also, subsequent actions which may cause additional cooldown, such as overfeeding due to the pressure reduction, are not encompassed by this critical task. Other actions that may cause excessive cooldown should be evaluated under the various Crew and individual competencies.

3.

* ***CREW fully inserts control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320 to place the reactor in a shutdown condition.***

K/A 295006 SCRAM

AA1.01 Reactor Protection System RO 4.6 SRO 4.6

AA1.07 Ability to operate and/or monitor the following as they apply to SCRAM: Control rod position RO 4.1 SRO 4.1

AA2.02 Ability to determine and/or interpret the following as they apply to SCRAM Control rod position RO 4.3 SRO 4.4

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.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
____	Loss Of Offsite Power/SBO
Y	LOCA

Y/N	EVENT
____	Internal Flooding

TRANSIENTS:

____	Turbine Trip
____	Loss of Condenser Vacuum
____	Loss of Feedwater
____	Inadvertent MSIV Closure
____	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

____	Loss of SSW
____	Loss of SACS
____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
____	Hard Torus Vent
____	HPCI
____	1E 4.16KV Bus
____	SACS Hx/Pump
____	EDG
____	120VAC 481/482 Inverter
____	A/B RHR
Y	RCIC
____	SSW Pump

Y/N	KEY EQUIPMENT
____	SLC
____	CRD
____	1E 125VDC

KEY SYSTEMS

____	500KV AC Power
____	SRVs
____	Condensate/Feedwater
____	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Aligning RHR for Suppression Pool Cooling
____	Emergency Venting of Primary Containment
____	Emergency Depressurize RPV W/O High Pressure Injection
____	Initiating LP ECCS with No High Pressure Injection Available
____	Restoration of AC Power after a LOP (EDG / Offsite)
____	Monitoring and Control of SACS heat loads
____	Preventing LVL 8 trip of Feedwater during a transient
____	Align Core Spray Suction to CST when at NPSH limits
____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: 100%
Work Week: B

Activities Completed Last Shift:

Major Activities Next 12 Hours:
Perform HC.OP-ST.AC-0005 Turbine Bypass Valve Testing – Monthly.

Protected Equipment:
HPCI

Tagged Equipment:
RCIC

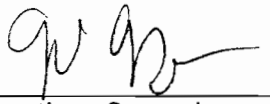
SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	**NRC SCENARIO 3**
SCENARIO NUMBER:	**ESG-NRC-S3**
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	50-60 minutes
REVISION NUMBER:	**01**
PROGRAM:	[X] **L.O. REQUAL**
	[X] **INITIAL LICENSE**
	[ ] **OTHER** _____

REVISION SUMMARY:

1. Added text to Stuck Open SRV event to trigger when power is stable.
2. Deleted generator MWe from Turnover.
3. Added drywell spray valve malfunction to summary description

PREPARED BY:	Archie E. Faulkner **Instructor**	8/4/10 **DATE**
APPROVED BY:	 **LORT Group Lead or Designee**	8/4/10 **DATE**
APPROVED BY:	 **Shift Operations Supervisor or Designee**	8/4/10 **DATE**

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Place H2/O2 Analyzer In Service
B. Raise Reactor Power Using Recirc
C. Stuck Open SRV
D. A SACS Pump Trip With D Failure to Auto Start
E. Spurious TACS Isolation
F. TACS Valve Failure To Reopen
G. HPCI Steam Line Leak In DW With Loss Of Feedwater
H. RCIC Flow transmitter failure
I. B RHR Pump Trip
J. Downcomer Break With Emergency Depressurization

III. SCENARIO SUMMARY:

The scenario begins with the plant at 84.5% power, with the 'A' RFPT OOS. Power was reduced to 84.5% to remove the 'A' RFPT from service due to speed oscillations. Power ascension is ready to begin. The PO will place the "A" Containment H2/O2 Analyzer in service for surveillance. The RO will begin power ascension to 89.5% using Recirc. After 89.5% power is reached, the "L" SRV will stick open. After the SRV is closed and Tech Specs are addressed, A SACS pump will trip. D SACS Pump will fail to automatically start. TACS will require manual action to complete the swap. After swap actions are completed, one TACS Isolation valve closes and cannot be opened, forcing a manual scram. After the scram, the 1&2 FWHs will isolate due to level ringing, and the bypass around them will fail to open. RCIC Flow transmitter fails when RCIC is started but RCIC can be controlled manually. A leak will develop on the HPCI Steam line inside of the drywell. B RHR Pump trips when automatically started on high drywell pressure. The Drywell to Suppression Chamber Downcomer is broken, and the remaining RHR Loop Drywell Spray valve will malfunction which will drive the crew into an Emergency Depressurization. The scenario ends when the reactor is depressurized.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL, EPU.
	REDUCE reactor power to 84.5%.
	REMOVE the 'A' RFPT from service IAW SO.AE-0001 Section 5.10 up through the point of reducing lube oil temperature to 90 degF.

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

Initial	Description
	INITIAL SO.AE-0001 Section 5.10 up through the point of reducing lube oil temperature to 90 degF.
	PREPARE an SO.AE-0001 Attachment 3 for 'A' RFPT pump casing d/t.
	PLACE an Operational Barrier on the 'A' RFPT RESET pushbutton.
	INITIAL IO.ZZ-0006 for the power reduction.
	At a minimum review the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)
	ENSURE Data Collection is trending the following parameters:
	• W/R RPV Pressure
	• W/R Reactor Water Level
	• Fuel Zone Reactor Water Level
	• Drywell Pressure
	• W/R Suppression Pool Level
	COMPLETE the Simulator Ready for Training/Examination Checklist.

EVENT TRIGGERS:

Initial	ET #	Description	
	5	EVENT ACTION: COMMAND: PURPOSE:	crqnmi <= 10 // Reactor power < 10% Initiates loss of feedwater.
	6	EVENT ACTION: COMMAND: PURPOSE:	rcnt >= 1000 // triggers RCIC flow transmitter failure Fails RCIC flow transmitter on pump startup
	7	EVENT ACTION: COMMAND: PURPOSE:	
	8	EVENT ACTION: COMMAND: PURPOSE:	pcpdw >= 16.7 // Triggers on DW pressure >2.0 psig mmf hp07 10 Trips B RHR Pump and increases drywell leak
	9	EVENT ACTION: COMMAND: PURPOSE:	rhv021(1) >= 0.01 // Drywell Spray Valve F021A opening Triggers failure of Drywell Spray valve
	10	EVENT ACTION: COMMAND: PURPOSE:	rrprv <= 750 // Reactor Pressure in psia Inserts downcomer break if Crew depressurizes to ensure PSP is reached.
	11	EVENT ACTION: COMMAND: PURPOSE:	

	12	EVENT ACTION:
		COMMAND:
		PURPOSE:
			zdads4(11) >= 1.0 // F013L control switches
			dmf ad02lo
			Deletes stuck open SRV when control switch is cycled.

	13	EVENT ACTION: COMMAND: PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	AD08L ADS/Relief valve F013L (MS LINE C) accoustic monitor failure	---	---	NONE	---	---
	AD02LO ADS/Relief valve F013L (MS LINE C) sticks open	---	---	ET-1	---	---
	CW15D DP210 SACS pump Auto-Start Failure	---	---	ET-2	---	---
	CW10A AP210 SACS Pump Trip	00:01	---	ET-2	---	---
	FW30A Heater 2A hi level switch failure	---	---	ET-5	---	---
	FW30B Heater 2B hi level switch failure	---	---	ET-5	---	---
	FW30C Heater 2C hi level switch failure	---	---	ET-5	---	---
	RC05 RCIC flow transmitter failure	---	---	ET-6	---	100
	HP07 HPCI steam line break inside the drywell	---	05:00	ET-7	---	0.5
	RH04B RHR pump BP202 trip	---	---	ET-8	---	---
	PC04 Downcomer break	---	---	ET-10	---	---

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	PP04 OD-3 Crossflow Applied	---	---	NONE	---	NO
	AN28 CROSSFLOW ALARM/TRBL	---	---	NONE	---	NORM
	NM04 APRM A gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.110
	NM06 APRM C gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.128
	NM08 APRM E gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.057
	NM05 APRM B gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.086
	NM07 APRM D gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.070
	NM09 APRM F gain (Range: 0.800 - 1.500)	---	---	NONE	---	1.095
	AN19 E1-B4 Isophase Bus Cooler Panel 10C116	---	---	ET-3	---	NORM
	RH20A Drywell Spray Valve HV-F021A	---	---	ET-9	---	RACK CLOSE

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	5A53 D DI HV-2522E OPEN-TACS ISLN VLVS	---	---	ET-4	---	OFF
	5A53 F DI HV-2522E FAST CLOSE-TACS ISLN VLVS	---	---	ET-4	---	ON
	5A159 C DI FWH 1&2 Bypass Valve OPEN Pb	---	---	ET-5	---	OFF
	5A159 D DI FWH 1&2 Bypass Valve RAISE Pb	---	---	ET-5	---	OFF

Event / Instructor Activity	Expected Plant/Student Response	Comments
Place "A" H2/O2 Analyzer In Service: Crew places H2/O2 Analyzer in service after assuming the watch.	• PO places "A" H2/O2 Analyzer in service IAW HC.OP-SO.GS-0002 Section 5.2.5 as follows: ⇒ OPEN one (1) of the following H_2/O_2 Analyzer 1AC200 suction valve combinations, RECORD component on Attachment 1 AND INITIAL: ⇒ HV-4959A AND HV-4965A H_2/O_2 ANLZR SUPP CHAMBER SUCT. ⇒ OPEN HV-4966A AND HV-5022A H_2/O_2 ANLZR RET AND INITIAL Attachment 1. ⇒ VERIFY HV-5741A H_2/O_2 ANLZR H_2 SUP HDR is open AND INITIAL Attachment 1. ⇒ VERIFY the FUNCTION SELECTOR Switch for H_2/O_2 Analyzer 1AC200 is in SAMPLE AND INITIAL Attachment 1. ⇒ PLACE the MODE Switch for H_2/O_2 Analyzer 1AC200 to ANALYZE AND INITIAL Attachment 1. ⇒ ENSURE the CONTROL AT THIS PNL light is on. IF not, PRESS REMOTE SELECTOR PB.	**HPI USED:** STAR ☐ PEER CHECK ☐ FLAGGING ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Ascension: Crew commences reactor power ascension after assuming the watch.	• CRS directs raising power to 89.5% using RE guidance and IO-0006.	
As RE **PROVIDE** the following guidance: • SPRI and Enhanced Stability Guidance are valid for the remainder of the maneuver • Power has been steady for the last hour. • Target rod line has been reached. • Raise power to 89.5% with reactor recirculation and hold for thermal limit checks.	• RO monitors the following when changing Recirc Pump speed: ⇒ XR-R603A,B,C,D - C51 (NEUTRON MONITORING) APRM ⇒ B31-FR-R614 RECIRC LOOP A(B) FLOW ⇒ FR-R611A(B) RECIRC LOOP A(B) JET PUMP FLOW ⇒ PDR-R613/FR- FR-R613 CORE PLATE DIFF PRESS/JET PUMP FLOW	
	• RO raises Reactor Recirc Pump speed by intermittently pressing INCREASE pushbutton on SIC-R621A(B) PUMP A(B) SPD CONT.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Stuck Open SRV: At the discretion of the Lead Examiner, **AND** when power is stable, **TRIGGER ET-1** (PSV-F013L Inadvertent Opening).	• Crew recognizes SRV open by: ⇒ OHA C1-A3 "ADS/SAFETY RELIEF VALVE NOT CLOSED" ⇒ Flashing red alarm light on TRR-614 ⇒ Acoustic Monitor open indication for "L" SRV ⇒ Lowering MWe ⇒ Steam Flow to Feed Flow mismatch ⇒ RPV level swell	**RECORD** time SRV open. TIME: _____

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• PO may check Acoustic Monitor Indication on 10C605 panel behind control console.	
Monitor Items: • PSV-F013L Position **advpos(11)**	• PO cycles SRV control switch in attempt to close the SRV.	Immediate Operator Action IAW AB.RPV-0006. **HPI USED:** STAR ☐
	* ***Before more than two minutes has elapsed from SRV opening, CREW closes F013L by cycling F013L AUTO/OPEN control switches to OPEN and back to AUTO.***	**RECORD** elapsed time SRV was open: TIME: _____
	• CRS implements AB.RPV-0006.	
	• Crew recognizes SRV is closed.	
	• Crew contacts Maintenance.	
	• CRS recognize the following Tech Spec action applies: ⇒ SRVs 3.4.2.1.b Tracking ⇒ 4.6.4.1.b Primary Containment Vacuum Breaker surveillance required.	Must restore within 30 days or initiate actions IAW T/S 6.9.2 Must close valve within 2 minutes Must perform surv within 2 hours.

Event / Instructor Activity	Expected Plant/Student Response	Comments
Loss of AP210 SACS pump: At the discretion of the Lead Examiner, **TRIGGER ET-2** (Trip of AP210 SACS pump w/Failure of DP210 to Auto-Start).	• Crew recognizes trip of AP210 SACS pump by: ⇒ OHA A1-E4 "SACS LOOP A TROUBLE" ⇒ CRIDS D4710 "SACS PUMP AP210 TRBL" ⇒ Flashing STOP light for AP210	
	• Crew recognizes loss of TACS by: ⇒ OHA A1-B4 "SACS/TACS LOOP PRESS LO" ⇒ Failure of DP210 to start ⇒ Status lights for HV-2522 and HV-2496 valves. ⇒ SACS loop flows	The DP210 SACS pump will fail to automatically start.
	• CRS directs ensuring TACS swaps to 'B' SACS loop IAW either: ⇒ AB.ZZ-0001 OR ⇒ AB.COOL-0002	
	• PO ensures TACS swaps to 'B' SACS loop IAW either: ⇒ AB.ZZ-0001 Att. 10 OR ⇒ AB.COOL-0002	**HPI USED:** STAR ☐ HARD CARD ☐
IF dispatched to investigate Iso-Phase Bus Duct Cooling Pnl 10C116 alarm, THEN **TRIGGER ET-3** to acknowledge the alarm AND **REPORT** alarm was LOW CLG WATER FLOW. (Local alarm will clear if TACS has been restored and still be in if TACS is NOT restored)	• CRS implements AB.COOL-0002: ⇒ Condition B	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF TACS is not restored, THEN CRS directs: ⇒ Reducing Recirc to minimum ⇒ Locking the Mode switch in SHUTDOWN * ***The Crew either swaps TACS to the 'B' SACS loop IAW AB.ZZ-0001 Attachment 10 or AB.COOL-0002 Condition B or Scrams the reactor.***	IF the Crew scrams, THEN the LOCA will automatically be inserted
	• PO starts second SSW pump in 'B' SSW loop.	**HPI USED:** STAR ☐ HARD CARD ☐
IF dispatched to AP210 SACS pump, THEN **REPORT** the following: • The motor is hot to the touch • There is charring around the motor vents • There is an acrid odor • There is no indication of fire	• Crew dispatches RBEO and/or Maintenance to investigate the loss of the AP210 SACS pump.	
IF dispatched to AP210 SACS pump breaker, THEN **REPORT** the 50A and 50B relays have target flags dropped.	• Crew dispatches ABEO and/or Maintenance to the breaker for the AP210 SACS pump (52-40104).	
	• Crew contacts maintenance to investigate the trip of the AP210 SACS pump AND the failure of the DP210 SACS pump to auto-start.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• IF TB Chillers are lost during TACS swap, THEN Crew recognizes loss by: ⇒ OHA E5-E1 "CHILLED WTR SYSTEM TROUBLE" ⇒ Rising drywell temperature and pressure ⇒ Rising steam tunnel temperature ⇒ Chilled water Supply/Return temperature on 10C651E	
IF dispatched to the TB Chilled Water Panel 10C152, THEN **REPORT** the Chillers tripped on low evaporator water flow.	• IF TB Chillers are lost, THEN CRS implements AB.CONT-0001: ⇒ Condition A ⇒ Condition E	If chillers are not restored, drywell pressure will rise by about 0.5 psig.
	• RO/PO ensures drywell cooling is maximized.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• Crew restores TB chillers to service.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• CRS recognize the following Tech Spec applies: ⇒ Safety Auxiliaries Cooling 3.7.1.1 Action a.1.a OR 3.7.1.1 Action a.3.a	Given the relatively short assessment period that will be observed during the scenario, the Crew may or may not declare the DP210 INOPERABLE.

Event / Instructor Activity	Expected Plant/Student Response	Comments
TACS Isolation/ Manual Scram: At the discretion of the Lead Examiner, **TRIGGER ET-4** (Closure of HV-2522E).	• Crew recognizes loss of TACS by: ⇒ OHA A1-B4 "SACS/TACS LOOP PRESS LO" ⇒ OHA A1-E5 "SACS LOOP B TROUBLE" ⇒ Status lights for HV-2522 and HV-2496 valves. ⇒ SACS loop flows	
IF dispatched to open HV-2522E locally, REPORT the valve will not open.	• PO attempts to re-open HV-2522E.	
	• CRS implements AB.COOL-0002: ⇒ Condition C ⇒ Retainment Override	
	• WHEN the Crew determines TACS cannot be restored, THEN CRS directs: ⇒ Reducing recirc pumps to minimum speed ⇒ Locking the Mode Switch in SHUTDOWN	
	• RO: ⇒ Reduces recirc pumps to minimum speed ⇒ Locks the Mode Switch in SHUTDOWN	
	• RO performs scram actions IAW AB.ZZ-0001 Att. 1	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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	
Loss of Condensate: When the reactor is scrammed, the 1&2 FWHs will isolate. The bypass valve around the 1&2 FWHs is failed. **ENSURE ET-5** activates.	• Crew recognizes 1&2 FWH trip by: ⇒ 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	
	• RO/PO attempt to open bypass around 1&2 FWHs IAW AB.ZZ-0001 Attachment 14.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐
	• RO/PO recognize HV-1625 will not open and inform CRS.	
	• CRS directs RPV water level control with RCIC and/or HPCI.	
	• RO/PO inject with RCIC and/or HPCI IAW AB.ZZ-0001 Attachment 6.	**HPI USED:** STAR ☐ HARD CARD ☐
RCIC Flow Transmitter Failure: When the RCIC is initiated, flow indication will peg high, resulting in speed oscillations.	• RO/PO recognizes RCIC flow transmitter failure and takes manual control of RCIC Flow Controller.	
	• RO/PO places RCIC Flow controller in Manual.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO uses UP/DOWN arrow pushbuttons to control RCIC speed and flow to maintain RPV water level.	
HPCI Steam Line Leak in Drywell: 5 minutes after the manual scram, OR, at the discretion of the Lead Examiner, **TRIGGER ET-7**.	• Crew recognizes LOCA condition: ⇒ OHA C6-B1 "DLD SYSTEM ALARM/TRBL" ⇒ RM11 9AX314 DLD FLOOR DRN FLOW alarm ⇒ RM11 9AX317/318/320 DLD CCM alarms ⇒ OHA D3-C3 "DRYWELL SUMP LEVEL HI/LO" ⇒ OHA A4-F5 "COMPUTER PT IN ALARM" ⇒ OHA A7-E4 "DRYWELL PRESSURE HI/LO" ⇒ Rising Drywell Pressure on various indicators	
	• CRS implements AB.CONT-0006: ⇒ Condition A ⇒ Condition B ⇒ Condition C	Based on the rate of drywell pressure rise (≈6 minutes to 1.68#), some or all of these Conditions may not be entered.
	• CRS implements AB.CONT-0001: ⇒ Condition A	
	• RO/PO ensures drywell cooling maximized.	
	• Crew checks ⇒ Recirc pump seal parameters ⇒ SRV temperatures	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes Drywell Pressure Above 1.68# EOP entry condition by: ⇒ OHA A7-D4 "DRYWELL PRESSURE HI/HI" ⇒ Various drywell pressure indications. ⇒ Various system initiations and isolations.	
	• CRS enters EOP-102, re-enters EOP-101.	
	• RO/PO verify automatic actions.	
B RHR Pump Trip: After the pump starts on High Drywell Pressure, **ENSURE ET-8** activates.	• RO/PO determines B RHR pump tripped after start.	
IF dispatched to investigate trip of B RHR Pump, THEN as ABEO, **REPORT** the breaker overcurrent flags are tripped.	• Crew dispatches NEO and/or Maintenance to breaker for B RHR pump (52-40206).	
IF dispatched to investigate trip of B RHR Pump, THEN as RBEO, **REPORT** there is an acrid odor in the pump room, but NO fire.	• Crew dispatches NEO and/or Maintenance to B RHR pump.	
	• CRS verifies isolations and monitors containment performance.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs placing AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray.	
	• RO/PO place AP202 RHR pump in Suppression Pool Cooling and Suppression Chamber Spray IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐
	• WHEN Suppression Chamber pressure exceeds 9.5 psig, THEN CRS directs initiating drywell spray.	
	• RO/PO place AP202 RHR pump in Drywell Spray IAW AB.ZZ-0001 Att. 2.	**HPI USED:** STAR ☐ HARD CARD ☐ BP202 is not available due to pump trip.
Containment Spray Valve Failure: After the HV-F021A Drywell Spray Valve open is attempted, **ENSURE ET-9** activates.	• Crew recognizes failure of HV-F021A by: ⇒ OHA A6-B1 "RHR LOOP A TROUBLE" ⇒ Flashing OVLD/PWR FAIL ⇒ Loss of position indication ⇒ No indication of drywell spray flow ⇒ CRIDS D4465 "RHR CONT SPY OUTBD HV-F021A OPF"	
IF dispatched to investigate trip of HV-F021A breaker, THEN **REPORT** the breaker is tripped and will not reset.	• Crew dispatches NEO and Maintenance to breaker for HV-F021A (52-451062).	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS recognizes containment not performing properly by: ⇒ Suppression Chamber pressure approaching Action Required area of PSP curve ⇒ Suppression Chamber airspace temperature significantly above water temperature ⇒ Drywell Pressure response	
IF necessary, THEN **REDUCE** the ramp time on malfunction **HP07** to raise Supp Pool pressure.	• WHEN the Crew determines Suppression Chamber pressure cannot be maintained below the Action Required region of the PSP curve, THEN the CRS implements EOP-202 to Emergency Depressurize.	
	• Crew prevents injection from Core Spray and LPCI pumps not required for adequate core cooling.	
	• RO/PO open ADS valves IAW AB.ZZ-0001 Attachment 13.	**HPI USED:** STAR ☐ HARD CARD ☐
	* ***Crew actuates five SRVs before Suppression Chamber pressure has been in the Action Required region of the PSP curve for over three minutes.*** NOTE: Preventing entry into the Action Required Region of the PSP curve satisfies this critical task.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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	
	• CRS re-enters EOP-102.	
	• CRS directs restoring PCIG to SRVs.	
	• RO/PO restore PCIG to SRVs IAW AB.ZZ-0001 Att. 9.	**HPI USED:** STAR ☐ HARD CARD ☐

Termination Requirement:

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

1. RPV level is being maintained above –129"
2. The reactor has been Emergency Depressurized

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. Emergency Plan (ECG)
G. Alarm Response Procedures (Various)
H. HU-AA-101 Human Performance Tools and Verification Practices
I. HU-AA-1081 Fundamentals Toolkit
J. HU-AA-104-101 Procedure Use and Adherence
K. HU-AA-1211 Briefing
L. OP-AA-106-101-1001 Event Response Guidelines
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-101-111-1004 Operations Standards
O. OP-AA-108-114 Post Transient Review
P. OP-HC-108-106-1001 Equipment Operational Control
Q. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
R. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
S. **HC.OP-AB.CONT-0001 Drywell Pressure**
T. **HC.OP-AB.CONT-0006 Drywell Leakage**
U. **HC.OP-AB.COOL-0002 SACS Malfunction**
V. **HC.OP-AB.RPV-0001 Reactor Power**
W. **HC.OP-AB.RPV-0006 Safety Relief Valve**
X. **HC.OP-AB.RPV-0004 Reactor Level Control**
Y. **HC.OP-AB.COOL-0002 Safety/Turbine Auxiliaries Cooling System**
Z. **HC.OP-AB.ZZ-000 Reactor Scram**
AA. **HC.OP-DL.ZZ-0026 Surveillance Log**
BB. **HC.OP-EO.ZZ-0101 RPV Control**
CC. **HC.OP-EO.ZZ-0102 Primary Containment Control**
DD. **HC.OP-EO.ZZ-0202 Emergency RPV Depressurization**
EE. **HC.OP-IO.ZZ-0006 Power Changes During Operation**
FF. **HC.OP-SO.GS-0002 Hydrogen/Oxygen Analyzer System Operation**
GG. HC.RE-IO.ZZ-0001 Core Operations Guidelines

ESG-NRC-S3 / 01

1.

* ***Before more than two minutes has elapsed from SRV opening, CREW closes F013L by cycling F013L 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.

* ***The Crew either swaps TACS to the 'B' SACS loop IAW AB.ZZ-0001 Attachment 10 or AB.COOL-0002 Condition B***
  <u>OR</u>
  Scrams the reactor.

K/A 295018 Partial or Complete Loss of Component Cooling Water

AA1 Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER:

AA1.01 Backup systems RO 3.3 SRO 3.4

AA2 Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER:

AA2.03 Cause for partial or complete loss

TACS has failed to automatically transfer to the 'B' SACS loop. Both AB.ZZ-0001 Attachment 10 and AB.COOL-0002 Condition A provide guidance on how to complete a transfer of TACS to the Standby SACS loop. Failure to complete the transfer will ultimately result in loss Stator Water Cooling Turbine Runback and main turbine trip. If TACS is not restored, AB.COOL-0002 directs scramming the plant. AB.BOP-0002 directs scramming the reactor if stator water cooling cannot be restored in two minutes. Since it takes about eighteen minutes for stator water to reach the Runback setpoint, ample time is provided to either restore TACS or direct scram actions. If TACS is NOT restored, the Crew must manually scram.

3.

* ***Crew actuates five SRVs before Suppression Chamber pressure has been in the Action Required region of the PSP curve for over three minutes.***

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

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

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
_____	Loss Of Offsite Power/SBO
Y	LOCA

Y/N	EVENT
_____	Internal Flooding

TRANSIENTS:

_____	Turbine Trip
_____	Loss of Condenser Vacuum
_____	Loss of Feedwater
_____	Inadvertent MSIV Closure
Y	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

_____	Loss of SSW
_____	Loss of SACS
_____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
_____	Hard Torus Vent
_____	HPCI
_____	1E 4.16KV Bus
_____	SACS Hx/Pump
_____	EDG
_____	120VAC 481/482 Inverter
_____	A/B RHR
_____	RCIC
_____	SSW Pump

Y/N	KEY EQUIPMENT
_____	SLC
_____	CRD
_____	1E 125VDC

KEY SYSTEMS

_____	500KV AC Power
_____	SRVs
_____	Condensate/Feedwater
_____	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
_____	Aligning RHR for Suppression Pool Cooling
_____	Emergency Venting of Primary Containment
_____	Emergency Depressurize RPV W/O High Pressure Injection
_____	Initiating LP ECCS with No High Pressure Injection Available
_____	Restoration of AC Power after a LOP (EDG / Offsite)
_____	Monitoring and Control of SACS heat loads
_____	Preventing LVL 8 trip of Feedwater during a transient
_____	Align Core Spray Suction to CST when at NPSH limits
_____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
_____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: ~84.5%

Activities Completed Last Shift:
Removed 'A' RFPT from service

Major Activities Next 12 Hours:
Complete troubleshooting activities on 'A' RFPT.
Raise power to 89.5% IAW IO-0006.
Place the "A" Containment H2/O2 Analyzer in service for weekly O2 concentration surveillance.

Protected Equipment:
None

Tagged Equipment:
None

Reactivity:
Raise power to 89.5% using Reactor Recirc at $\leq$1% per minute and hold for RE thermal limit checks.

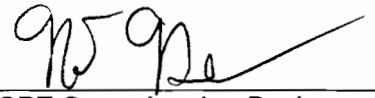
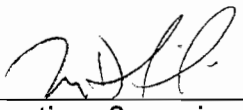
SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	NRC SCENARIO 4
SCENARIO NUMBER:	ESG-NRC-S4
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	60-70 minutes
REVISION NUMBER:	00
PROGRAM:	[X] L.O. REQUAL
	[X] INITIAL LICENSE
	[ ] OTHER _____

REVISION SUMMARY:

1.

PREPARED BY:	Archie E. Faulkner Instructor	7/1/10 DATE
APPROVED BY:	 LORT Group Lead or Designee	7/1/10 DATE
APPROVED BY:	 Shift Operations Supervisor or Designee	7/1/10 DATE

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Reduce Reactor Power With Reactor Recirc
B. Remove "A" RFPT From Service
C. Recirc Flow Unit Failure Downscale
D. Primary Condensate Pump Trip With Partial Runback Failure
E. Main Turbine Vibrations
F. Main Turbine Trip With Half Core ATWS
G. Start Up Level Control Valve Fails Closed
H. "A" SLC Pump Trips after Start.
I. MSIV Spurious Closure

III. SCENARIO SUMMARY:

The scenario begins with the plant at 90% power. After turnover, the power reduction from 90 to 84.5% will be accomplished using Recirc per RE instructions. "A" RFPT will be removed from service for planned maintenance on the oil system. The "C" Recirc Flow Unit will fail downscale resulting in rod blocks and ½ scram. After Tech Specs have been addressed, "B" Primary Condensate Pump trips with a failure of one Recirc Pump to runback. Once power has stabilized, Main Turbine vibrations will rise, requiring a reactor scram. The scram will result in a half-core ATWS. During the scram transient, the SULCV will fail closed, resulting in a loss of the ability to feed the reactor vessel with feedwater. "A" SLC Pump trips and is not recoverable. HPCI will be manually operated to maintain RPV level above –185". The MSIVs will spuriously close while EOP-301 is being implemented, forcing pressure control with SRV's. The scenario ends when the reactor is shutdown either by manual rod insertion, or implementation of EOP-0320.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	REDUCE Reactor Power to 90.0% with Recirc Pumps.

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

Initial	Description
	INITIAL IO-6 for the power reduction.
	At a minimum review the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)
	ENSURE Data Collection is trending the following parameters as a minimum:
	• W/R Reactor Water Level
	• W/R RPV Pressure
	• Fuel Zone Reactor Water Level
	• Suppression Pool temperature
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	5	EVENT ACTION: COMMAND: PURPOSE:	**slnpmpa >= 0.50** // SLC Pump 'A' Start Triggers Failure of AP208 SLC pump
	6	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 5** // Reactor Power <5% Closes MSIVs when Rx power <5%
	7	EVENT ACTION: COMMAND: PURPOSE:	
	8	EVENT ACTION: COMMAND: PURPOSE:	
	9	EVENT ACTION: COMMAND: PURPOSE:	
	10	EVENT ACTION: COMMAND: PURPOSE:	

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	FW10A 'A' RFPT Control Signal Failure	---	---	NONE	---	---
	RP07 Half-core ATWS - right side	---	---	NONE	---	---
	SL04B BP208 SLC Pump Failure to Auto Start	---	---	NONE	---	---
	RR30B Failure of Intrm Runback	---	---	NONE	---	---
	NM12C Recirc Flow Summer failure	---	---	ET-1	---	0%
	FW01B Condensate pump BP102 trip	---	---	ET-2	---	---
	TU1508 Turbine bearing #8 vibration high	---	15:00	ET-4	6	21
	TU1208 Turbine bearing #8 high temperature	---	15:00	ET-4	---	100
	SL01A AP208 SLC Pump Failure	00:30	---	ET-5	---	---
	MS15 Spurious group I isolation	---	---	ET-6	---	---
	FW11 Feedwater Bypass Level control valve	---	---	ET-14	0	0

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	PP04 OD-3 Crossflow Applied	---	---	NONE	---	NO
	AN28 CROSSFLOW ALARM/TRBL	---	---	NONE	---	NORM
	TU03 Main Turbine Lube Oil Temperature	---	---	NONE	115	AS DIRECTED
	CW15 TACS clg valve, AE-126, to recirc M/G set A (0-100%)	---	---	ET-3	48	25
	CW16 TACS clg valve, BE-126, to recirc M/G set B (0-100%)	---	---	ET-3	48	25
	EP01 EOP-301 MSIV LVL 1 Isolation	6 min	---	ET-12	---	BYPASS
	EP02 EOP-311 Restoring PCIG to MSIVs	8 min	---	ET-8	---	BYPASS
	EP38 EOP-319 Restoring Inst Air	3 min	---	ET-9	---	EMERG
	EP09 EOP 320 ARI Fuses	4 min	---	ET-10	---	REMOVE
	EP10 EOP 320 ARI Fuses	4 min	---	ET-10	---	REMOVE
	EP11 EOP 320 RPS Div 1	6 min	---	ET-10	---	INSTALL
	EP13 EOP 320 RPS Div 3	6 min	---	ET-10	---	INSTALL
	EP12 EOP 320 RPS Div 2	12 min	---	ET-10	---	INSTALL
	EP14 EOP 320 RPS Div 4	12 min	---	ET-10	---	INSTALL
	EP35 EOP-322 HPCI Core Spray Valve	3 min	---	ET-11	---	FAIL CLOSE

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
		---	---	---	---	---

V. SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Reduction: Crew continues reactor power reduction after assuming the watch.	• CRS directs reduction of Reactor power in accordance with HC.OP-IO.ZZ-0006.	
As RE **PROVIDE** the following guidance: • SPRI and Enhanced Stability Guidance are valid for the remainder of the maneuver • Power has been steady for the last hour • Lower power to 84.5% with Recirc.	• CRS directs continuing the power reduction to 84.5% using RE guidance.	
	• RO reduces power with Recirc using provided RE guidance.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Remove "A" RFPT From Service: After the Crew assumes the watch.	• CRS directs removal of "A" RFPT from service using HC.OP-SO.AE-0001.	
	• Crew removes "A" RFPT from service using HC.OP-SO.AE-0001 section 5.10.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
RECIRC LOOP FLOW SUMMER 'C' FAILURE: At the discretion of the lead Examiner, **TRIGGER ET-1** (RECIRC LOOP FLOW SUMMER FAILURE to 0 percent).	• Crew monitors Reactor power, pressure, and level and ensure plant conditions are stable. Ensures no scram setpoints have been exceeded.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes RPS ½ scram by: ⇒ OHA C3-A3 "REACTOR SCRAM TRIP LOGIC A2" ⇒ OHA C5-A1 "NEUTRON MONITORING SYSTEM" ⇒ RPS Trip Logic A2 NORMAL/RESET status lights extinguished ⇒ Pilot Scram Valve Solenoid LOGIC A NORMAL status lights for all four groups extinguished. ⇒ CRIDS D2125 NEUTRON MON SYST SCRAM W ⇒ CRIDS D2131 "REACTOR SCRAM W TRIP" ⇒ CRIDS D2132 "REACTOR SCRAM Y TRIP" • Crew recognizes 'A', 'C', and 'E' APRMs Upscale by: ⇒ OHA C3-C4 "APRM SYS A UPSCALE TRIP/INOP" ⇒ C3-D4 "APRM UPSCALE" ⇒ APRMs A,C, and E "UPSC TR OR INOP" status lights ⇒ APRM A,C, and E "UPSC ALARM" status lights ⇒ CRIDS D4303 "APRM CH A UPSCALE THERMAL TRIP" ⇒ CRIDS D4306 "APRM CH C UPSCALE THERMAL TRIP" • Crew recognizes 'C' RECIRC LOOP FLOW SUMMER FAILURE Downscale by: ⇒ FLOW UNIT C and A "COMPAR" status lights ⇒ APRM A, C, and E "UPSC ALARM" status lights ⇒ CRIDS C026 "EITHER RBM CHANNEL UPSCALE" ⇒ CRIDS C049 "RECIRC FLOW COMPR OUT LIMITS"	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS implements AB.IC-0004: ⇒ Condition F	
	• CRS references AB.IC-0003: ⇒ Condition B	
	• RO bypasses 'C' Flow Unit.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• CRS refers to DD.ZZ-0020 for a failed PPC Sensor.	
	• CRS directs Reactor Engineering to evaluate the flow unit failure on the PPC.	
IF directed to place the Flow Unit C MODE Switch in the unlabeled position, THEN **CHANGE** Malfunction NM12C Final value to 100%.	• RO directs I&C to place the MODE Switch, on the applicable flow unit, to the "UNLABELED" position between STANDBY and ZERO.	
	• RO verifies RPS trip clear.	
	• RO resets RPS trip as follows: ⇒ TURN the affected RPS Trip Logic key to RESET, AND RETURN to the NORMAL position. ⇒ VERIFY that RPS is reset.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• CRS determine no Tech Spec actions required. Enter Tracking Action statement for: ⇒ Table 3.3.6-1 Function 6	

Event / Instructor Activity	Expected Plant/Student Response	Comments
'B' PCP Trip: **TRIGGER ET-2** after the Crew assumes the watch at the discretion of the Lead Examiner.	• Crew recognizes BP102 PCP trip by: ⇒ OHA A6-F2 "CONDENSATE TRAIN B TROUBLE" ⇒ Flashing PRI CNDS PUMPS PUMP B STOP light ⇒ OVLD/PWR FAIL light ⇒ CRIDS D2302 "PRI CNDS PUMP BP102 MOTOR MALF"	
	• PO monitors feedwater response to PCP trip.	
	• RO verifies reactor recirc pump intermediate runbacks.	
	• RO determines intermediate runback did not occur on "B" Recirc pump and runs back speed manually to 45% speed.	
	• Crew announces trip of 'B' PCP on the plant page.	
	• CRS implements AB.RPV-0004: ⇒ Condition D	
	• PO closes HV-1680B PCP discharge valve.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• RO resets Feedwater PCP Runback.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• CRS implements AB.RPV-0003: ⇒ Condition B	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO monitors for power oscillations. • CRS implements AB.RPV-0001: ⇒ Condition B • CRS monitors: ⇒ Critical plant parameters ⇒ Location on Pwr/Flow map • RO/PO ensure Main Generator MWe and MVAR are within limits.	
IF directed to monitor/control recirc MG oil temps, THEN **TRIGGER ET-3** and **MONITOR**: • **rrtoila(1)** for 'A' MG • **rrtoila(2)** for 'B' MG	• RO/PO direct TBEO to monitor/control reactor recirc MG oil temps.	
IF dispatched to investigate the trip of BP102, THEN **REPORT**: • The pump motor is hot to the touch • The breaker (52-12005) has target flags up on 51A and 51B Time Overcurrent relays.	• Crew dispatches TBEO and Maintenance to investigate the trip of the BP102 PCP.	
As RE, **REPORT**: • Thermal Limits are SAT • If rodline needs to be reduced, use CRAM rods.	• Crew contacts RE. • CRS implements IO.ZZ-0006 for the power reduction.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew references Power Maneuvering Surveillance Requirements in OP-HC-108-115-1001.	
	• CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
Turbine High Vibrations: At the discretion of the Lead Examiner, **TRIGGER ET-4.**	• Crew recognizes Main Turbine High Vibration by: ⇒ OHA D3-C5 "TURBINE GENERATOR VIB HI" ⇒ CRIDS A2526 "MAIN TURB BRG 8 VIB X PROBE" ⇒ System 1 indication	#8 Bearing will reach 11 mils in about 8.5 minutes.
	• CRS implements AB.BOP-0002: ⇒ Condition B	
SUPPORT requests to raise MTLO temperature using Remote Function **TU03**.	• Crew directs TBEO to raise MTLO temperature (110 – 120°F)	
As System Operator, **PROVIDE** an acceptable band of 300-475 MVARS.	• Crew co-ordinates with System Operator to adjust Main Generator MVAR loading.	**HPI USED:** STAR ☐ PEER CHECK ☐
IF contacted as Engineering, THEN **REPORT** the vibration readings appear valid and the limitations in the abnormal should be followed.	• Crew contacts Engineering for additional guidance.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF contacted as Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004, THEN **CONCUR** with SM recommendation.	• Crew contacts Operations Manager for concurrence to commence a controlled shutdown IAW IO-0004.	
IF dispatched to check bearing drains, THEN wait until vibration reaches 15 mils and **REPORT** the floor was vibrating and it did not appear safe to approach the Main Turbine.	• WHEN bearing #8 reaches 11 mils, THEN Crew: ⇒ Reduces recirc pump speed to minimum. ⇒ Locks the Mode Switch in SHUTDOWN. ⇒ Immediately trips the Main Turbine.	**HPI USED:** STAR ☐ PEER CHECK ☐
ATWS >4%: The half core ATWS is already inserted on the right side of the core. B SLC Pump will fail to automatically start if needed. It will start manually from the Control Room.	• 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 Attachment 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS implements EOP-101A.	
	• PO stabilizes and maintains RPV level as directed by CRS.	
	• CRS directs: ⇒ Initiating SLC ⇒ Verifying RWCU Isolates	
	• RO/PO initiate SLC and verify RWCU isolates.	**HPI USED:** STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***Crew starts BP208 SLC pump before Suppression Pool temperature reaches 110 degrees.***	**ENTER** Supp Pool temp when BP208 SLC pump is started: Temp: _____
Trip of SLC Pump: The AP208 SLC pump will trip 30 seconds 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" ⇒ Flashing STOP light for AP208	
IF dispatched to investigate trip of AP208, THEN **REPORT** the motor is hot to the touch and the breaker will not reset. (52-212063)	• Crew dispatches NEO and Maintenance to investigate trip of AP208 SLC pump.	
	• CRS directs: ⇒ Verifying Recirc runback to minimum ⇒ Tripping reactor recirc pumps	
	• RO/PO: ⇒ Verify Recirc runback to minimum ⇒ Trip reactor recirc pumps	**HPI USED:** STAR ☐ PEER CHECK ☐ May already be tripped on EOC-RPT.
	• CRS directs inhibiting ADS.	
	• RO/PO inhibit ADS IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***CREW prevents an uncontrolled depressurization during ATWS conditions by preventing ADS ACTUATION.***	This Critical Task is not applicable if RPV level never reaches –129". See justification for failure criteria.
REFER to the appropriate EOP and **SUPPORT** Crew requests for EOPs IAW with the following. Validated execution time delays are built-in: EOP-311: **ET-8** EOP-319: **ET-9** EOP-320: **ET-10** EOP-322: **ET-11** IF EOP-301 is requested, THEN delay implementation until the MSIVs are closed and **TRIGGER ET-12.**	• CRS directs performance of the following EOPs: ⇒ EO.ZZ-0320 "Defeating ARI and RPS Interlocks" ⇒ EO.ZZ-0301 "Bypassing MSIV Isolation Interlocks" ⇒ EO.ZZ-0311 "Bypassing Primary Containment Instrument Gas Isolation Interlocks" ⇒ EO.ZZ-0319 "Restoring Instrument Air in an Emergency" ⇒ EO.ZZ-0322 "Core Spray Injection Valve Override"	The timing, order, and priority of the EOP performance may vary.
	• CRS directs terminating and preventing injection to the RPV with the exception of: ⇒ SLC ⇒ CRD ⇒ RCIC	
	• RO/PO terminate and prevent injection IAW AB.ZZ-0001: ⇒ Attachment 16 (10C651) ⇒ Attachment 17 (10C650)	**HPI USED:** STAR ☐ HARD CARD ☐
	• CRS directs maintaining RPV water level between –50" and -185".	Typically, the lower end of the level band is set above –129".

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO/PO control level as directed by CRS with: ⇒ Feedwater IAW AB.ZZ-0001 Att. 14 ⇒ RCIC IAW AB.ZZ-0001 Att. 6 ⇒ HPCI IAW EOP-322	**HPI USED:** STAR ☐ HARD CARD ☐ If the turbine trips before the reactor is scrammed, an RRCS feedwater runback may occur.
SULCV Fails Closed: The SULCV will fail closed after the scram.	• Crew recognizes SULCV will not re-open following "Terminate And Prevent" actions.	
	• RO/PO control level as directed by CRS with: ⇒ RCIC IAW AB.ZZ-0001 Att. 6 ⇒ HPCI IAW EOP-322	**HPI USED:** STAR ☐ HARD CARD ☐ If the turbine trips before the reactor is scrammed, an RRCS feedwater runback may occur.
	* ***Crew lowers RPV level to –50", and ensures adequate core cooling by maintaining or restoring RPV level above –185" without Emergency Depressurizing.***	
	• CRS directs bypassing the RWM and commencing manual rod insertion.	
	• RO/PO align CRD for ATWS operation IAW AB.ZZ-0001 Attachment 18.	**HPI USED:** STAR ☐ HARD CARD ☐
	• RO/PO bypass RWM and insert control rods IAW RE-AB.ZZ-0001 Attachment. 1.	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• CRS directs stabilizing pressure 800 to 1000 psig with EHC IAW AB.ZZ-0001 Attachment 15.	
	• RO/PO control pressure as directed by CRS with: ⇒ EHC	**HPI USED:** STAR ☐ HARD CARD ☐
Spurious MSIV Closure: When power lowers to 5 percent, all MSIVs will close, forcing pressure control with SRVs. **ENSURE ET-6** becomes active.	• Crew recognizes the MSIV Closure by: ⇒ OHA C8-A1 "NSSSS MSIV LOGIC A INITIATED" ⇒ OHA C8-A2 "NSSSS MSIV LOGIC C INITIATED" ⇒ OHA C8-A3 "NSSSS MSIV LOGIC B INITIATED" ⇒ OHA C8-A4 "NSSSS MSIV LOGIC D INITIATED" ⇒ MSIV valve position indicator lights	
	• CRS directs stabilizing pressure 800 to 1000 psig with: ⇒ SRVs	When pressure control swaps to SRVs, maintaining RPV water level between –50" and –129" will be challenging due to shrink and swell and changing reactor pressure.
	• RO/PO control pressure as directed by CRS with: ⇒ SRVs IAW AB.ZZ-0001 Att. 13	**HPI USED:** STAR ☐ HARD CARD ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• 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	
	• CRS implements EOP-102.	
	• CRS directs placing RHR in Suppression Pool Cooling.	
	• RO/PO place RHR in Supp Pool Cooling IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐
	• IF Suppression Pool temperature is >110 degrees, AND Reactor power is >4%, AND SRVs are open or cycling, THEN Crew terminates and prevents injection to the RPV with the exception of SLC, CRD, and RCIC, UNTIL Reactor power is <4%, OR RPV level reaches –129", OR SRVs remain closed.	
	• IF RPV level reaches –129", THEN RO/PO terminate and prevents injection from Core Spray IAW AB.ZZ-0001 Attachment 16.	**HPI USED:** STAR ☐ HARD CARD ☐
WHEN the Crew has reset RPS, THEN **DELETE** Malfunction **RP07** to allow full rod insertion on the next scram.	• WHEN EOP-320 Section 5.1 and 5.2 are complete, THEN the Crew implements EOP-320 Section 5.3 and reset RPS.	**HPI USED:** STAR ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
At the Lead Examiners discretion, **MODIFY** Monitor Item **lclsdv** to accelerate draining of the SDV.	• WHEN OHA C6-E4 clears, THEN the Crew initiates a manual scram IAW EOP-320 Section 5.3. * ***CREW fully inserts all control rods via RMCS and/or manual scram(s) IAW HC.OP-EO.ZZ-0320.*** • Crew recognizes the reactor is shutdown by: ⇒ SPDS ALL RODS IN ⇒ RWM Confirm Shutdown ⇒ CRIDS Rod positions • CRS directs terminating SLC injection. • RO/PO terminate SLC injection.	**HPI USED:** STAR ☐ **HPI USED:** STAR ☐
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when: • RPV Level is being maintained above –185" AND • All rods are fully inserted	• CRS exits EOP-101A, enters EOP-101.	

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. **Emergency Plan (ECG)**
G. **Alarm Response Procedures (Various)**
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. HU-AA-1081 Fundamentals Toolkit
K. HU-AA-1211 Briefing
L. OP-AA-101-111-1004 Operations Standards
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-106-101-1001 Event Response Guidelines
O. OP-AA-108-114 Post Transient Review
P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
Q. OP-HC-108-106-1001 Equipment Operational Control
R. **HC.OP-SO.AE-0001 Feedwater System Operation**
S. **HC.OP-SO.BB-0001 Reactor Recirculation System Operation**
T. HC.OP-DD.ZZ-0020 Review of Core Performance Information
U. **HC.OP-DL.ZZ-0026 Surveillance Log**
V. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
W. **HC.OP-AB.RPV-0001 Reactor Power**
X. **HC.OP-AB.RPV-0003 Recirculation System**
Y. **HC.OP-AB.RPV-0004 Reactor Level Control**
Z. **HC.OP-AB.BOP-0002 Main Turbine**
AA. **HC.OP-AB.IC-0004 Neutron Monitoring**
BB. **HC.OP-AB.ZZ-000 Reactor Scram**
CC. **HC.OP-EO.ZZ-0101 RPV Control**
DD. **HC.OP-EO.ZZ-0101A ATWS-RPV Control**
EE. **HC.OP-EO.ZZ-0102 Primary Containment Control**
FF. HC.RE-RA.BB-0002 Core Flow Determination
GG. **HC.RE-AB.ZZ-0001 Transient Plant Conditions**
HH. **HC.RE-AB.ZZ-0001 Insertion of Control Rods in Response to an ATWS**
II. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
JJ. **HC.OP-IO.ZZ-0004 Power Changes During Operation**
KK. **HC.OP-IO.ZZ-0006 Shutdown From Rated Power To Cold Shutdown**

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S4 / 00

1.

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

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

Given the current ATWS conditions of this scenario, preventing ADS automatic operation and potential uncontrolled reactor level flood up prevents a significant transient and subsequent positive reactivity addition to the reactor. EOPs direct this action under the current conditions. This critical task is only applicable if RPV water level goes below –129". Failure to satisfactorily complete the task is demonstrated by an automatic ACTUATION of ADS such that the ADS SRVs open and reduce reactor pressure to less than 700 psig.

2.

* ***Crew starts 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%. The MSIVs spuriously close resulting in rejection of all heat to containment. The AP208 SLC pump fails trips on start, and the BP208 SLC pump fails to auto start. Crew action is required to commence SLC injection before the BIIT is reached.

3.

* ***Crew lowers RPV level to –50", and 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 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.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
_____	Loss Of Offsite Power/SBO
_____	LOCA

Y/N	EVENT
_____	Internal Flooding

TRANSIENTS:

Y/N	
_____	Turbine Trip
_____	Loss of Condenser Vacuum
Y	Loss of Feedwater
Y	Inadvertent MSIV Closure
Y	Inadvertent SRV Opening
_____	Manual Scram

LOSS OF SUPPORT SYSTEMS:

Y/N	
_____	Loss of SSW
_____	Loss of SACS
_____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
_____	Hard Torus Vent
_____	HPCI
_____	1E 4.16KV Bus
_____	SACS Hx/Pump
_____	EDG
_____	120VAC 481/482 Inverter
_____	A/B RHR
_____	RCIC
_____	SSW Pump

Y/N	KEY EQUIPMENT
_____	SLC
_____	CRD
_____	1E 125VDC

KEY SYSTEMS

_____	500KV AC Power
_____	SRVs
_____	Condensate/Feedwater
Y	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
_____	Aligning RHR for Suppression Pool Cooling
_____	Emergency Venting of Primary Containment
_____	Emergency Depressurize RPV W/O High Pressure Injection
_____	Initiating LP ECCS with No High Pressure Injection Available
_____	Restoration of AC Power after a LOP (EDG / Offsite)
_____	Monitoring and Control of SACS heat loads
_____	Preventing LVL 8 trip of Feedwater during a transient
_____	Align Core Spray Suction to CST when at NPSH limits
_____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
_____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: 90%
Work Week: A
Risk Color: Green

Activities Completed Last Shift:
Entered AB.RPV-0004 Condition C due to control signal failure on "A" RFPT.
Reduced power to 90%.

Major Activities Next 12 Hours:
Continue power reduction to 84.5% with Recirc IAW R.E. SPRI guidance and IO-6
Remove "A" RFPT from service.
Troubleshoot 'A' RFPT control signal failure.

Protected Equipment:
None

Tagged Equipment:
None

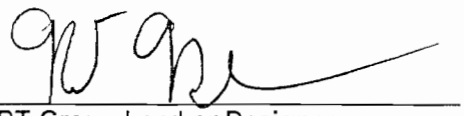
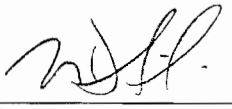
SIMULATOR

EXAMINATION SCENARIO GUIDE

SCENARIO TITLE:	NRC SCENARIO 5
SCENARIO NUMBER:	ESG-NRC-S5 (Spare)
EFFECTIVE DATE:	Effective when approved.
EXPECTED DURATION:	60-75 minutes
REVISION NUMBER:	00
PROGRAM:	[X] L.O. REQUAL
	[X] INITIAL LICENSE
	[ ] OTHER _____

REVISION SUMMARY:

1.

PREPARED BY:	Archie E. Faulkner Instructor	7/1/10 DATE
APPROVED BY:	 LORT Group Lead or Designee	7/1/10 DATE
APPROVED BY:	 Shift Operations Supervisor or Designee	7/1/10 DATE

I. OBJECTIVE(S):

Enabling Objectives

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

II. MAJOR EVENTS:

A. Power Reduction (Optional).
B. Swap SSW Pumps
C. SSW Pump Malfunction (TS SRO)
D. Single Reactor Recirc Pump Runaway
E. Reactor Recirc Pump Trip (TS SRO)
F. Fuel Failure with Manual Scram
G. Torus Leak / Emergency Depressurization

III. SCENARIO SUMMARY:

The scenario begins with the plant at 100% power. 'B' EHC Pump is tagged for maintenance. After turnover, the power reduction from 100 to 95% will be accomplished using Recirc per RE instructions (Optional). SSW Pumps will be swapped for planned maintenance. After pump swap, "D" SSW pump will malfunction requiring entering Tech Spec LCO. After Tech Specs have been addressed, the 'B' Reactor Recirculation pump will runaway to it's upper mechanical stops. Operator action will be necessary to reduce reactor power to less than or equal to original power level. After AB-RPV-0001/003 actions are taken and Tech Specs have been addressed, "B" Recirc Pump vibrations will climb into the Danger level. This will require a manual pump trip. Once power has stabilized, fuel damage symptoms will begin and increase in magnitude, requiring a reactor scram. After the MSIV's are closed, an unisolable leak will develop on the Torus requiring an Emergency Depressurization. The scenario ends when the reactor is depressurized by the SRVs, and reactor level stabilized between RPV Level 2 and 8.

IV. INITIAL CONDITIONS:

I.C.

Initial	
	INITIALIZE the simulator to 100% power, MOL.
	"B" EHC Pump tagged for scheduled Maintenance.
	ENSURE 'A' EHC pump is in service.
	C/T 'B' EHC pump as follows:
	1. **INSERT** Malfunction **TC07B**
	2. **PLACE** 'B' EHC pump in MAN
	1. **START** 'B' EHC pump and allow it to trip

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

Initial	Description
	PLACE red bezel cover on 'B' EHC pump.
	INITIAL IO-6 for the power reduction. (Optional)
	Prepare a REMA for the power reduction evolution. (Optional)
	At a minimum review the Scenario Reference section and **CLEAN** the bolded EOPs, ABs and SOPs listed. (80091396 0270)
	ENSURE Data Collection is trending the following parameters as a minimum:
	• W/R Reactor Water Level
	• W/R RPV Pressure
	• Suppression Pool level
	• Suppression Pool temperature
	COMPLETE "Simulator Ready-for-Training/Examination Checklist".

EVENT TRIGGERS:

Initial	ET #	Description	
	8	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 25** // Reactor Power <25% **mmf cr01 50** Inserts Fuel Cladding failure if Crew scrams during Recirc Runaway
	9	EVENT ACTION: COMMAND: PURPOSE:	**msvf022(1) <= 0.0 || msvf028(1) <= 0.0** // 'A' MSL isolated Detects 'A' MSL isolation
	10	EVENT ACTION: COMMAND: PURPOSE:	**msvf022(2) <= 0.0 || msvf028(2) <= 0.0** // 'B' MSL isolated Detects 'B' MSL isolation

	11	EVENT ACTION: COMMAND: PURPOSE:	**msvf022(3) <= 0.0 || msvf028(3) <= 0.0** // 'C' MSL isolated Detects 'C' MSL isolation
	12	EVENT ACTION: COMMAND: PURPOSE:	**msvf022(4) <= 0.0 || msvf028(4) <= 0.0** // 'D' MSL isolated Detects 'D' MSL isolation
	13	EVENT ACTION: COMMAND: PURPOSE:	**msvfdrn1(1) <= 0.0 || msvfdrn1(2) <= 0.0** // F016 or F019 shut Detects MSL drain isolation
	14	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 7** // Reactor Power <7% **imf rm9509 118 180** Ramps MSL rad to 3xNFPB after reactor scrammed.**
	15	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 7** // Reactor Power <7% **imf rm9510 127 180** Ramps MSL rad to 3xNFPB after reactor scrammed.**
	16	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 7** // Reactor Power <7% **imf rm9511 119 180** Ramps MSL rad to 3xNFPB after reactor scrammed.**
	17	EVENT ACTION: COMMAND: PURPOSE:	**crqnmi <= 7** // Reactor Power <7% **imf rm9512 122 180** Ramps MSL rad to 3xNFPB after reactor scrammed.**
	18	EVENT ACTION: COMMAND: PURPOSE:	**et_array(9) >= 1.0 && et_array(13) >= 1.0** **imf rm9509 19 60** Removes high radiation from 'A' MSL
	19	EVENT ACTION: COMMAND: PURPOSE:	**et_array(10) >= 1.0 && et_array(13) >= 1.0** **imf rm9510 19 60** Removes high radiation from 'B' MSL
	20	EVENT ACTION: COMMAND: PURPOSE:	**et_array(11) >= 1.0 && et_array(13) >= 1.0** **imf rm9511 15 60** Removes high radiation from 'C' MSL
	21	EVENT ACTION: COMMAND: PURPOSE:	**et_array(12) >= 1.0 && et_array(13) >= 1.0** **imf rm9512 18 60** Removes high radiation from 'D' MSL
	22	EVENT ACTION: COMMAND: PURPOSE:	**Pclsp <= 119** // Indicated SP level **dmf pc06** Removes torus leak at 25" to prevent reaching Simulator Limits

** Value to be 12 mr/hr above ***current*** 3xNFPB Hi-Hi Alarm setpoint for I.C.

MALFUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	TC07B EHC pump B trip	---	---	NONE	---	---
	CW11D Service water pump D marsh grass intrusion	---	---	ET-1	---	50
	RR08B Recirc system B speed controller fails high	---	---	ET-2	---	---
	RR26B2 Recirc pump BP201 elevated (added to calc) Pump Vib	---	00:05:00	ET-4	---	20
	CW05D SSW Pump D trip	---	---	ET-6	---	---
	PC06 Suppression pool break	---	---	ET-7	---	50
	RH09A 'A' RHR pump Room Flooded	00:02:10	---	ET-7	---	---
	CR01 Fuel Cladding Leak	---	00:05:00	ET-8	---	30%
	RM9509 MSL 'A' Radiation	---	00:05:00	ET-8	35.4*	118**
	RM9510 MSL 'B' Radiation	---	00:05:00	ET-8	38.5*	127**
	RM9511 MSL 'C' Radiation	---	00:05:00	ET-8	35.8*	119**
	RM9512 MSL 'D' Radiation	---	00:05:00	ET-8	36.8*	122**

* Initial Value to be ***current*** 100% power reading for I.C.
** Final Value to be 12 mr/hr above ***current*** 3xNFPB Hi-Hi Alarm setpoint for I.C.

REMOTE/FIELD FUNCTION SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val
	PP04 OD-3 Crossflow Applied	00:00:00	---	ET-3	---	NO
	AN28 CROSSFLOW ALARM/TRBL	00:00:05	---	ET-3	---	NORM

I/O OVERRIDE SUMMARY:

Initial	Description	Delay	Ramp	Trigger	Init Val	Final Val

Event / Instructor Activity	Expected Plant/Student Response	Comments
Power Reduction (Optional): Call as System Operator for Hope Creek Station to perform an emergency load reduction to 1200 MWe as rapidly as possible without exceeding limits for grid stability.	• CRS directs reduction of Reactor power in accordance with HC.OP-IO.ZZ-0006.	
IF contacted as RE THEN **PROVIDE** the following guidance: • Use SPRI for the maneuver	• CRS directs continuing the power reduction to 95% using RE guidance.	
	• RO reduces power with Recirc using provided RE guidance.	**HPI USED:** STAR ☐ PEER CHECK ☐ OP BARRIERS ☐
Swap Service Water Pumps: After the Crew assumes the watch.	• CRS directs removal of "B" SSW from service using HC.OP-SO.EA-0001.	
	• PO removes "B" SSW from service using HC.OP-SO.EA-0001 section 5.6.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• PO places "D" SSW in service using HC.OP-SO.EA-0001 section 5.6.	
SSW Pump "D" Malfunction: At the discretion of the lead Examiner, **TRIGGER ET-1** (Service water pump D marsh grass intrusion to 50%).	• Crew recognizes D SSW strainer Hi DP to the strainer by: ⇒ A1-C3 SSWS INTAKE D TROUBLE ⇒ D3974 SSW STRAINER D DIFF HI HI STRAINER PRESSURE D/P ⇒ D5526 SSW STRAINER D DRIVE OPF	

Event / Instructor Activity	Expected Plant/Student Response	Comments
WHEN requested as Yard Operator, **REPORT** "D" SSW pump strainer is not rotating and the screen is covered with grass. The breaker for the strainer is tripped and will not reset.	• CRS implements AB.COOL-0001: ⇒ Condition A ⇒ Condition D	
IF the crew does not remove the "D" SSW pump from service, THEN **TRIGGER ET-6** to trip the pump.	• Crew removes "D" SSW pump from service IAW: ⇒ AB.ZZ-0001 Att 19	**HPI USED:** STAR ☐
	• Crew places "B" SSW pump in service IAW: ⇒ AB.ZZ-0001 Att 19	**HPI USED:** STAR ☐
	• CRS recognize the following Tech Spec applies: ⇒ Station Service Water 3.7.1.2 Action a	30 day LCO
	• Crew contacts maintenance.	
"B" Reactor Recirc Pump runaway: **TRIGGER ET-2,** five minutes after Tech Specs have been addressed OR at the discretion of the Lead Examiner.	• Crew recognizes "B" Reactor Recirculation pump runaway by: ⇒ OHA C3-D4 "APRM UPSCALE" ⇒ Reactor power >100% ⇒ CRIDS D2900 "RECIRC MG B SPEED CONTROL SIG FAIL" ⇒ CRIDS D2931 "RECIRC MG B DRIVE TUBE LOCK TRBL" ⇒ SIC-R621B SPEED DEMND and SPEED Upscale ⇒ 10C650C Recirc and Jet pump indications	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• RO performs the following: ⇒ Presses SCOOP TUBE TRIP for "B" Recirc Pump ⇒ Reduces "A" Recirc Pump speed to reduce power to pre-transient value	**HPI USED:** STAR ☐ PEER CHECK ☐ Immediate Operator Action IAW AB.RPV-0001. (Recirc pumps are already in manual.)
	* ***Crew reduces power to ≤ 3840 MWt within two minutes of recirc pump runaway.***	**RECORD** the time that power was above 3840 MWt. TIME: _____
	• CRS implements AB.RPV-0001: ⇒ Condition F	
SUPPORT requests for local operation of 'B' Recirc MG scoop tube using Remote Function **RR10**.	• Crew checks Recirc Loop Flow mismatch IAW ST.BB-0001.	
IF called as RE to determine maximum thermal power reached, THEN **REPORT** thermal power peaked at 101.2% (3887 MWth).	• Crew determines peak thermal power during the transient.	
	• CRS recognize the following Tech Specs/actions apply: ⇒ 2.C(1) Maximum Power Level ⇒ 2.F Reporting 2.C Violations ⇒ 3.4.1.3 Action a. Recirculation Loop Flow	Must restore recirc loop flow mismatch within two hours or declare the B loop not in operation.
IF directed to monitor/control recirc MG oil temps, THEN **MONITOR**: • **rrtoila(1)** for 'A' MG • **rrtoila(2)** for 'B' MG	• RO/PO direct TBEO to monitor/control reactor recirc MG oil temps.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
As RE, **REPORT**: • Thermal Limits are SAT • If rodline needs to be reduced, use CRAM rods.	• Crew contacts RE.	
	• CRS implements IO.ZZ-0006 for the power reduction.	
	• Crew references Power Maneuvering Surveillance Requirements in OP-HC-108-115-1001.	
	• CRS notifies Shift Rad Pro and Shift Chem Tech to take samples IAW: ⇒ Reactor Coolant System Specific Activity T/S Table 4.4.5-1 Item 4(b) ⇒ ODCM Table 4.11.2.1.2-1 Items (c) & (f)	
Reactor Recirculation Pump High Vibrations: At the discretion of the Lead Examiner, **TRIGGER ET-4.**	• Crew recognizes 'B' Recirc Pump high vibrations by: ⇒ OHA C1-E4 "REACTOR RECIRC PUMP VIB HI" ⇒ OHA C1-F5 "COMPUTER PT IN ALARM" ⇒ CRIDS D5352 "RECIRC PUMP B VIBRATION HI" ⇒ CRIDS D2921 "RECIRC PMP MOTOR B VIBRATION HI" ⇒ CRIDS A2603 "RECIRC PMP B SHAFT RADIAL"	
	• CRS implements AB.RPV-0003: ⇒ Condition F	
	• Crew implements AB.RPV-0003: ⇒ Condition F	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew evaluates the following Recirc Pump parameters for degradation of the pump(s) in ALARM to validate the condition. ⇒ Seal Parameters (Temperature, Pressure, Flow) ⇒ Pump Parameters (Temperature, Vibration) ⇒ Motor Parameters (Temperature, Vibration)	
	• Crew contacts Engineering Duty Manager to obtain and assess vibration data.	
IF requested, as RE **PROVIDE** guidance to the CRS to reduce reactor power IAW the Standard Power Reduction Instructions (SPRI). IF crew manually scrams, THEN **TRIGGER ET-8** (Fuel cladding failure).	• Crew determines "B" Recirc Pump Vibration points cannot be maintained below the DANGER limit and performs the following to remove A(B) Recirc Pump from service: ⇒ Press PUMP B MOTOR BRKR TRIP push button	**HPI USED:** STAR ☐ PEER CHECK ☐
	• PO verifies the Feedwater system is responding automatically and is restoring RPV level between level 4 and 7. • CRS implements AB.RPV-0003: ⇒ Condition A ⇒ Condition B	
As TBEO, **ADJUST** temperature for the Recirc MG Sets as directed.	• Crew implements AB.RPV-0003: ⇒ Condition A ⇒ Condition B • CRS implements AB.RPV-0001: ⇒ Condition B	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew implements AB.RPV-0001: ⇒ Condition B	
	• RO/PO monitors and reports power, pressure and level parameters.	
	• CRS verifies core parameters are within the OPRM Enable Region of the Power to Flow Map.	
	• RO/PO closes HV-F031B Recirc pump discharge valve for 5 minutes and then re-opens.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• Crew directs the following TS requirements for >15% power change in 1 hour: ⇒ Chem Tech for T.S. 3.4.5.c.1 ⇒ Rad Pro Tech for ODCM 3.11.2.1.	
	• CRS directs the following TS requirements: ⇒ 3.4.1.1 Action a. within 4 hours of entering Single Loop Operations.	
	• CRS implements IO-0006 for the power reduction and Single Loop Operations.	
When requested, remove Cross Flow from service, **TRIGGER ET-3**.	• CRS directs the Cross Flow Correction Factor to "Not Applied".	
	• CRS directs implementation of DL.ZZ-0026 Att.3v.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew implements DL.ZZ-0026 Att.3v.	
As Chemistry **REMOVE** condensate demins from service as required. Notify the Crew prior to removing Beds from service. **TRIGGER** Remote Malfunction FW01-FW07 (A-G accordingly).		
When requested, as the RE **REPORT** that TS actions will be taken. IF requested, as RE **PROVIDE** guidance to the CRS to reduce reactor power IAW the SPRI.	• CRS directs the RE to perform TS actions to ⇒ Raise the MCPR safety limit, ⇒ Reduce MAPLHGR limit ⇒ Reduce LHGR to the value specified in the COLR Operating Limits Report.	
Fuel Cladding Failure: 10 minutes after the Recirc Pump Trip, OR, at the Lead Examiners discretion, **TRIGGER ET-8** (Fuel cladding failure).	• Crew recognizes fuel clad damage by: ⇒ RM11 9RX621/622 Offgas Pretreatment Alarms ⇒ OHA C6-A3 "MN STM LINE RADIATION HI" ⇒ RM11 9RX509/510/511/512 Alert alarms and readings ⇒ CRIDS Page 37 MSL Radiation readings	IF the Crew scrams during the Recirc Runaway, THEN the Fuel Failure will automatically be inserted. MSL Radiation levels will reach 3xNFPB approximately 4 minutes after the failure begins.
	• CRS implements AB.RPV-0008: ⇒ Condition A ⇒ Condition B ⇒ Condition C	If the plant is shutdown, Condition B actions are not applicable.
	• RO reduces power IAW Standard Power Reduction Instructions.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• Crew recognizes HI-HI MSL Radiation levels by: ⇒ OHA C6-B2 "MN STM LINE RAD HI HI OR INOP" ⇒ RM11 9RX509/510/511/512 High alarms ⇒ CRIDS Page A037 MSL Radiation readings	
	• CRS directs: ⇒ Locking the Mode Switch in SHUTDOWN ⇒ Closing MSIVs, HV-F016 and HV-F019 steam line drains.	
	• RO locks the Mode Switch in SHUTDOWN.	**HPI USED:** STAR ☐ PEER CHECK ☐
	• RO performs scram actions IAW AB.ZZ-0001 Attachment 1.	**HPI USED:** STAR ☐ HARD CARD ☐
	• PO controls level as directed by CRS with: ⇒ Feedwater IAW AB.ZZ-0001 Attachment 14 ⇒ HPCI/RCIC IAW AB.ZZ-0001 Attachment 6	**HPI USED:** STAR ☐ HARD CARD ☐
ENSURE MSL Radiation Malfunctions **RM9509-RM9512** ramp down to <20 when the Main Steam Lines AND drain lines are isolated.	• RO/PO close MSIVs, HV-F016 and HV-F019 steam line drains.	**HPI USED:** STAR ☐ PEER CHECK ☐

Event / Instructor Activity	Expected Plant/Student Response	Comments
	* ***The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line and the HV-F016 or F019 drain valve before MSL radiation has been above the Hi-Hi setpoint for three minutes.***	The Critical Task is satisfied as long as all lines are isolated. For instance, closing the HV-F016, but NOT the HV-F019 satisfies isolation of the F016/F019 drain line. **RECORD** time (if any) between OHA C6-B2 and reactor scrammed with main steam and drain lines isolated: TIME: _____
	• CRS implements AB.RPV-0003: ⇒ Condition G	
	• IF directed by the CRS, THEN RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐
Unisolable Torus Leak: The Torus Leak will begin three minutes after the MSIVs are isolated or at the Examiners descretion.	• Crew recognizes torus leak by: ⇒ OHA D3-C2 "REACTOR BLDG SUMP LVL HI/LO" ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO" ⇒ Various Suppression Pool level indicators lowering	It will take approximately 12.5 minutes for Supp Pool level to reach 38.5".
IF dispatched to the Torus Room to look for a leak, THEN **REPORT** there is a large, unisolable leak at on the bottom of the torus at Az. 180. There is about one inch of water on the torus room floor.	• Crew dispatches personnel to inspect Rx Bldg '54 and Torus Room for leak.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF asked, THEN **REPORT** both sump pumps are running in both the North and South RB Floor Drain sumps.	• Crew contacts RWEO and informs them of leak.	
	• Crew recognizes Supp Pool Level Below 74.5 In EOP entry condition by: ⇒ OHA B1-C3 "SUPPRESSION POOL LEVEL HI/LO" ⇒ Various Suppression Pool level indicators	
	• CRS implements EOP-102.	
IF directed to implement EOP-315 then, WHEN torus level reaches 45", **MODIFY** Remote Functions **CS01-CS04** to make-up as directed. Do *NOT* open more than two valves.	• CRS directs M/U to the torus IAW EOP-315.	
	• RO/PO coordinate implementation of EOP-315 with NEO.	
RHR Pump Room Flooded: The 'A' RHR Room flooded alarm will be received about 4 minutes after the Torus Leak starts.	• Crew recognizes Reactor Bldg Room Floor Level Above Max Normal Op EOP Entry Condition by: ⇒ OHA A6-A5 "RHR PUMP ROOM FLOODED" ⇒ CRIDS D2891 "RHR PMP ROOM 4113 LSH-4403A1" ⇒ CRIDS D2892 "RHR PMP ROOM 4113 LSH-4403A2" ⇒ SPDS RB LV/TE indication	

Event / Instructor Activity	Expected Plant/Student Response	Comments
IF dispatched to 'A' RHR room, THEN, AFTER OHA A6-A5 "RHR ROOM FLOODED" is received, **REPORT** there is about two inches of water on the floor and it appears to be coming up through a floor drain.	• CRS implements EOP-103.	
	• WHEN it is determined that Supp Pool level cannot be maintained above 38.5", THEN CRS determines Emergency Depressurization is required.	
	• CRS implements EOP-202.	
	• RO/PO opens five ADS SRVs IAW AB.ZZ-0001 Att. 13.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐
	* ***Crew determines that Suppression Pool water level cannot be maintained above 38.5" and initiates opening of five SRVs before Suppression Pool level reaches 30".***	**RECORD** Supp Pool level at which ADS was initiated. LEVEL: _____
	• RO/PO maintain RPV level as directed by CRS.	
	• IF Supp Pool level drops to 30", THEN the Crew ensures HPCI is secured.	

Event / Instructor Activity	Expected Plant/Student Response	Comments
	• WHEN Suppression Pool temperature reaches 95 degrees, THEN Crew recognizes Supp Pool Temp Above 95°F EOP entry condition by: ⇒ OHA C8-F1 "SUPPR POOL TEMP HIGH" ⇒ Flashing 95 degree status light on 10C650C ⇒ RM11 9AX833 alarm ⇒ Various Suppression Pool temperature indicators	
	• WHEN Suppression Pool temperature reaches 95 degrees, THEN the CRS re-enters EOP-102.	
Termination Requirement: The scenario may be terminated at the discretion of the Lead Examiner when the RPV has been depressurized IAW EOP-202.	• WHEN directed by the CRS, THEN RO/PO place RHR in Suppression Pool Clg IAW AB.ZZ-0001 Att. 3.	**HPI USED:** STAR ☐ HARD CARD ☐ PEER CHECK ☐ FLAGGING ☐

VI. SCENARIO REFERENCES:

A. TQ-AA-106-0304 Licensed Operator Requal Training Exam Development Job Aid
B. NUREG 1021 Examiner Standards
C. JTA Listing
D. Probabilistic Risk Assessment
E. Technical Specifications
F. **Emergency Plan (ECG)**
G. **Alarm Response Procedures (Various)**
H. HU-AA-101 Performance Tools and Verification Practices
I. HU-AA-104-101 Procedure Use and Adherence
J. HU-AA-1081 Fundamentals Toolkit
K. HU-AA-1211 Briefing
L. OP-AA-101-111-1004 Operations Standards
M. OP-AA-101-111 Roles and Responsibilities of On Shift Personnel
N. OP-AA-106-101-1001 Event Response Guidelines
O. OP-AA-108-114 Post Transient Review
P. OP-HC-108-115-1001 Operability Assessment and Equipment Control Program
Q. OP-HC-108-106-1001 Equipment Operational Control
R. **HC.OP-SO.BB-0001 Reactor Recirculation System Operation**
S. HC.OP-DD.ZZ-0020 Review of Core Performance Information
T. **HC.OP-DL.ZZ-0026 Surveillance Log**
U. **HC.OP-AB.ZZ-0001 Transient Plant Conditions**
V. **HC.OP-AB.RPV-0001 Reactor Power**
W. **HC.OP-AB.RPV-0003 Recirculation System**
X. **HC.OP-AB.RPV-0008 Reactor Coolant Activity**
Y. **HC.OP-AB.CONT-0004 Radioactive Gaseous Release**
Z. **HC.OP-AB.ZZ-000 Reactor Scram**
AA. **HC.OP-EO.ZZ-0101 RPV Control**
BB. **HC.OP-EO.ZZ-0102 Primary Containment Control**
CC. **HC.OP-EO.ZZ-0103 Reactor Building Control**
DD. HC.RE-RA.BB-0002 Core Flow Determination
EE. **HC.OP-IO.ZZ-0004 Power Changes During Operation**
FF. **HC.OP-IO.ZZ-0006 Shutdown From Rated Power To Cold Shutdown**

VII. ESG CRITICAL TASK RATIONAL

ESG-NRC-S5 (Spare) / 00

1.

* ***Crew reduces power to ≤ 3840 MWt within two minutes of recirc pump runaway.***

K/A 2.4.49 Conduct of Operations
Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. RO: 4.0 SRO: 4.0
K/A 202002 Recirculation Flow Control System
A4 Ability to manually operate and/or monitor in the control room:
A4.04 Reactor Power RO: 3.8 SRO: 3.8
K/A 295014 Inadvertent Reactivity Addition
AA1 Ability to operate and/or monitor the following as they apply to Inadvertent Reactivity Addition:
AA1.02 Recirculation Flow Control System RO: 3.8 SRO: 3.8

The 'A' Reactor Recirculation Pump runaway results in the reactor power exceeding the licensed limit. Without operator action, power will stabilize at or slightly above 100.5%. This exceeds the 100% power limitation of 3840 MWth specified in Technical Specification 2.C. Operator action is required to restore reactor power to within licensed limits. The transient will be immediately annunciated by the LPRM UPSCALE OHA. Two minutes is adequate time to recognize the condition and take the appropriate Immediate Operator Actions to reduce power to within licensed limits.

2.

* ***The Crew inserts a manual scram and closes at least one MSIV in each Main Steam Line <u>and</u> the HV-F016 <u>or</u> F019 drain valve before MSL radiation has been above the Hi-Hi setpoint for three minutes.***

K/A 239001 Main Steam and Reheat Steam System
A2 Ability to (a) predict the impacts of the following on the MAIN AND REHEAT STEAM SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
A2.05 †Main steam line high radiation RO 3.9 SRO 4.2

Hope Creek was originally designed with an automatic reactor scram and MSIV isolation on Hi-Hi MSL Radiation levels. This was designed to limit the release to the public during a Control Rod Drop Accident. As part of an industry effort to reduce spurious MSIV isolations, the automatic scram and MSIV isolations were removed in Tech Spec Amendment 54. One of the three conditions for approval of this amendment was that we would have procedures to expeditiously control significant increases in MSL radioactivity to limit both occupational doses and environmental releases. To meet this requirement, AB.RPV-0008 directs scramming the reactor and closing the MSIVs if a valid MSL Hi-Hi radiation condition exists. In this scenario, three minutes provides adequate time to initiate a manual scram and close the MSIVs and drains. This includes the valve stroking time. In order to accomplish isolation of the release, only one valve in each line need be closed. For instance, closing all valves but the F019 would meet the Critical Task. The failure to close this valve would be applied to the overall performance evaluation. Isolating the lines BEFORE receiving the Hi-Hi alarms is a conservative action that also satisfies this Critical Task. Scramming prior to the fuel cladding failure and subsequently closing the MSIVs IAW the above requirements also satisfies this Critical Task.

3.

* ***Crew determines that Suppression Pool water level cannot be maintained above 38.5" and initiates opening of five SRVs before Suppression Pool level reaches 30".***

K/A 295030 Low Suppression Pool Water Level
EA2 Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL
EA2.01 Suppression Pool level RO 4.1 SRO 4.2
K/A 218000 Automatic Depressurization System
A.4 Ability to manually operate and/or monitor in the control room:
A4.01 ADS Valves RO 4.4 SRO 4.4

If Suppression Pool Level drops below 38.5", the downcomer pipes are uncovered and the Pressure Suppression function of the Primary Containment is lost. EOPs direct Emergency Depressurizing if Suppression Pool level cannot be maintained above 38.5". Requiring the Emergency Depressurization to be initiated before Supp Pool Level reaches 30" allows the Crew three minutes to implement this action in this scenario.

HOPE CREEK ESG - PRA RELATIONSHIPS EVALUATION FORM

INITIATING EVENTS THAT LEAD TO CORE DAMAGE

Y/N	EVENT
_____	Loss Of Offsite Power/SBO
_____	LOCA

Y/N	EVENT
_____	Internal Flooding

TRANSIENTS:

Y/N	
_____	Turbine Trip
_____	Loss of Condenser Vacuum
_____	Loss of Feedwater
_____	Inadvertent MSIV Closure
_____	Inadvertent SRV Opening
Y	Manual Scram

LOSS OF SUPPORT SYSTEMS:

Y/N	
Y	Loss of SSW
_____	Loss of SACS
_____	Loss of Instrument Air

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	KEY EQUIPMENT
_____	Hard Torus Vent
_____	HPCI
_____	1E 4.16KV Bus
_____	SACS Hx/Pump
_____	EDG
_____	120VAC 481/482 Inverter
_____	A/B RHR
_____	RCIC
_____	SSW Pump

Y/N	KEY EQUIPMENT
_____	SLC
_____	CRD
_____	1E 125VDC

KEY SYSTEMS

_____	500KV AC Power
_____	SRVs
_____	Condensate/Feedwater
Y	PCIG

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
Y	Aligning RHR for Suppression Pool Cooling
_____	Emergency Venting of Primary Containment
_____	Emergency Depressurize RPV W/O High Pressure Injection
_____	Initiating LP ECCS with No High Pressure Injection Available
_____	Restoration of AC Power after a LOP (EDG / Offsite)
_____	Monitoring and Control of SACS heat loads
_____	Preventing LVL 8 trip of Feedwater during a transient
_____	Align Core Spray Suction to CST when at NPSH limits
_____	Cross-Tie De-Energized B/D 125VDC Battery Charger to Energized Bus
_____	Inhibit ADS during ATWS

Complete this evaluation form for each ESG.

VIII. TURNOVER SHEET:

Rx Power: 100%
Work Week: A
Risk Color: Green

Activities Completed Last Shift:
None

Major Activities Next 12 Hours:
Swap in service SSW pumps from "B" to "D".
The "D" SSW Traveling Screen has been run for >30 minutes.
SSW Chlorination has been removed from service.

Protected Equipment:
None

Tagged Equipment:
'B' EHC Pump is tagged for maintenance.