Final Submittal
(Blue Paper)

FINAL JPMS

1. ADMINISTRATIVE JPMs
2. IN-PLANT JPMs
3. SIMULATOR JPMs (CONTROL ROOM)

CRYSTAL RIVER OCTOBER 2007

EXAM NO. 50-302/2007-301

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

AdminCO1 (2K7) NRC [Modified Bank #282] (ADMINISTRATIVE)

PERFORM A DAILY HEAT BALANCE COMPARISON, SP-312A

PREPARED/REVIEWED BY: Floyd Lawrence Date: 7/23/07

VALIDATED BY: David Garlitz Date: 7/27/07

APPROVAL BY: Mark Vansicklen Date 9/5/07
(Nuclear Training Supervisor)

ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: RO/SRO - Perform a Daily Heat Balance Power Comparison, SP-312A

Alternate Path: No

JPM #: AdminC01 (2K7) NRC [Modified Bank #282]

K/A Rating/Importance: G2.1.23 RO 3.9 SRO 3.1
G2.1.12 SRO 4.0

Task Number/Position: 0150202003 RO
1190101029 SRO

Task Standard: Perform a Daily Heat Balance Power Comparison, SP-312A

Preferred Evaluation Location:

Simulator In Plant _____ Admin ___X___

Preferred Evaluation Method:

Perform ___X___ Simulate _____

References:

SP-312A

Validation Time: 29 min.

Time Critical: No

Candidate: _____
Printed Name

Time Start: _____

Time Finish:

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner:
Printed Name Signature Date

Comment: _____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of SP-312A
2. Consumable copies of ITS and ITS Basis

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator
SP-312A is being done to comply with the daily 0200 requirements.
SP-312A Report was obtained and all points are displaying good data.
The plant has been at steady state conditions for > 15 minutes.
The plant computer and AUID are operable.
Control Console NI power is as follows: NI-5, 100; NI-6, 100; NI-7, 100; NI-8, 100.
Core Delta T (R718) is 45.7 °F
I&C is NOT available to make any necessary adjustments

INITIATING CUES:

You are requested to perform SP-312A. Circle (on Enclosure 1) any calculations which are unacceptable and record the step numbers for any required actions and or reviews below.

Group 59 attached.

Upon completion of the above, evaluate your results and list any actions required per Technical Specifications. Include applicable time requirements.

Per TS (TS number) the actions below must be completed within hours.

STEP 1:	(step 4.1) If the plant computer is available, then go to Step 4.2.	SAT ___ UNSAT ___
STANDARD:	Plant computer is available per the cue. Candidate moves to Step 4.2	
COMMENTS:		
STEP 2:	(step 4.2) Obtain an SP-312A Report.	SAT ___
STANDARD:	N/A. Per the cue the SP-312A Report was already obtained.	UNSAT ___
COMMENTS:		
STEP 3:	(step 4.3) Compare the following points to the SP-312A Report	SAT ___
STANDARD:	N/A. SP-312A report is satisfactory per the cue.	UNSAT ___
COMMENTS:		
STEP 4:	(step 4.4) Obtain Group 59, "Reactor Core Parameters" from the plant computer	SAT ___
STANDARD:	N/A. Group 59 was supplied to the candidate	UNSAT ___
COMMENTS:		

STEP 5:	(step 4.5) Record the % RTP on Enclosure 1 under Column A using the following information: %RTP = (Core Power$_{(AULD)}$ / 2568) * 100 - AULD Instantaneous Core Power from Group 59 - QCORE = Backup Ref. Core Power from Group 59 SP-312D STANDARD: Candidate selects the AULD value and calculates %RTP. %RTP = (2569.7 / 2568) * 100 = **100.07** *(Allowable band of 100.06 to 100.07 based on possible rounding errors.)* COMMENTS:	SAT ____ UNSAT
STEP 6:	(step 4.6) Record the NI power values for NI-5, NI-6, NI-7, and NI-8 from Group 59 or SP-312D on Enclosure 1 under Column B designated "NI power." STANDARD: Candidate accurately transfers data from the group 59 printout to Enclosure 1 COMMENTS:	SAT ____ UNSAT
STEP 7:	(step 4.7) Record Control Console indications for NI-5, NI-6, NI-7, and NI-8 on Enclosure 1 under Column C designated "Control Console NI Power." STANDARD: Candidate accurately transfers data from information supplied in initial conditions to Enclosure 1. COMMENTS:	SAT ____ UNSAT

STEP 8: (step 4.8) **Critical Step**

Perform the calculations for comparing the heat balance power to the NI power for each channel on Enclosure 1.

Basis: Accurately determine that values are out of spec to allow accurate TS call and proper calibration.

STANDARD: Candidate accurately calculates values indicated on Enclosure 1. Candidate identifies that NI-7 meets Criteria #2 and refers to Step 5.2.2 and candidate also identifies that NI-6 meets Criteria #3 and refers to Step 5.2.1 for required actions. Limits are as follows (based on potential rounding error for %RTP):

NI-5: 0.77 to 0.78
NI-6: 2.05 to 2.06
NI-7: 1.28 to 1.29
NI-8: 0.69 to 0.70

SAT ____

UNSAT

COMMENTS:

STEP 9: (step 4.9)

Perform the calculations for comparing the Control Console NI power to the heat balance power and the NI power on Enclosure 1.

SAT ____

UNSAT

STANDARD: Candidate accurately calculates values indicated on Enclosure 1. Limits are as follows (based on potential rounding error for %RTP):

	(E)	(F)	(G)
NI-5:	-0.77 to -0.78	0.71	-0.07 to -0.06
NI-6:	-2.05 to -2.06	1.99	-0.07 to -0.06
NI-7:	-1.28 to -1.29	1.22	-0.07 to -0.06
NI-8:	-0.69 to -0.70	0.63	-0.07 to -0.06

COMMENTS:

STEP 10: (step 4.10)

If Core Delta T (R718) is available then record Core Delta T on Enclosure 2.

SAT ____

UNSAT

STANDARD: Candidate accurately records value indicated on Enclosure 2.

COMMENTS:

STEP 11: (step 4.10.1) Using the values recorded in Step 4.10. and Heat Balance power from Enclosure 1, determine if Core Delta T versus Power is ≤ the Restricted curve of Enclosure 2 STANDARD: Candidate accurately determines that the value is greater than the Restricted curve but less than the HB Uncertainty Limit. Per Step 5.2.6.3 the candidate should notify the CRS-SSO and Reactor Engineering. COMMENTS:	SAT __ UNSAT
STEP 12: (step 4.11) NOTIFY the CRS-SSO of the results. STANDARD: SRO candidates determine that TS 3.3.1 Condition A requires the affected RPS channel (H) be placed either in trip or bypass within one hour. COMMENTS:	**Critical Step (SRO ONLY)** **Basis: Accurate TS call based on out of spec data.** SAT __ UNSAT __
END OF TASK	

ADMINISTRATIVE JOB PERFORMANCE MEASURE

KEY - DAILY NI POWER TO HEAT BALANCE POWER COMPARISON

Performance of this evaluation in order the daily requirement should be in close to 0200 hours, if reasonably possible. If it is performance is delayed by more than 2 hours the CRS SRO should refer to the completion time recorded for the last shift performance to determine the allowable window. Steps 5.2.1 through 5.2.5 specify which heat balance to use.

A		B	C	COMPARISON		
Heat Balance Power	Detector	NI Power	Control Console NI Power	Heat Balance (A) - NI Power (B) = (D)		
100.07 % RTP	NI-5	99.29	100	100.07 - 99.29 = 0.78	1.	IF (D) ≤ 0.8% RTP, THEN (D) is acceptable.
Verified:	NI-6	98.01	100	100.07 - 98.01 = 2.06	2.	IF 0.8% RTP ≤ (D) ≤ 2.0% RTP. THEN refer to Step 5.2.2.
AULD X	NI-7	98.78	100	100.07 - 98.78 = 1.29	3.	IF (D) > 2.0% RTP. THEN refer to Step 5.2.1.
QCORE:	NI-8	99.37	100	100.07 - 99.37 = 0.70		
SP-3'2D						

NI Power - Heat Balance

	(B)		(A)		(E)
NI-5	99.29	-	100.07	=	-0.78
NI-6	98.01	-	100.07	=	-2.06
NI-7	98.78	-	100.07	=	-1.29
NI-8	99.37	-	100.07	=	-0.70

IF (E) > 2.0% RTP, THEN refer to Step 5.2.3.

Comparison

(Control Console) NI Power - NI Power

(C)		(B)		(F)
100	-	99.29	=	0.71
100	-	98.01	=	1.99
100	-	98.78	=	1.22
100	-	99.37	=	0.63

IF |(F)| > 5.0% RTP, THEN refer to Step 5.2.4.

(Control Console) NI Power - Heat Balance

(C)		(A)		(G)
100	-	100.07	=	-0.07
100	-	100.07	=	-0.07
100	-	100.07	=	-0.07
100	-	100.07	=	-0.07

IF |(G)| > 5.0% RTP, THEN refer to Step 5.2.5.

|GRP 59 QCORE – AULD power| = |100.03 - 100.07| = 0.04 < 0.5%FP ? **Yes** No (circle one)

Computed Group 59 Loss Of 312A Reason Reached? Yes No (circle one)

Performed By: _____ Date: _____ Time: _____

Verified By: _____ Date: _____ Time: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
SP-312A is being done to comply with the daily 0200 requirements
SP-312A Report was obtained and all points are displaying good data.
The plant has been at steady state conditions for > 15 minutes.
The plant computer and ACLD are operable.
Control Console NI power is as follows; NI-5, 100; NI-6, 100; NI-7, 100; NI-8, 100
Core Delta T (R718) is 45.7 °F
I&C is NOT available to make any necessary adjustments.

INITIATING CUES:

You are requested to perform SP 312A. Circle (on Enclosure 1) any calculations which are unacceptable and record the step numbers for any required actions and or reviews below.

Group 59 attached.

Upon completion of the above, evaluate your results and list any actions required per Technical Specifications. Include applicable time requirements

Per TS (TS number) the actions below must be completed within _ _ _ _ hours.

10/22/07 GROUP 59 REACTOR CORE PARAMETERS 10:19:00 AM

CORE POWER IMBALANCE = TOP - BOTTOM, %FP

	INCORE	NI-5	NI-6	NI-7	NI-8
NI POWER, %	N/A	99.29	98.01	98.78	99.37
IMBALANCE, %FP	-3.60	-4.56	-4.20	-4.01	-3.65

CALC IMBALANCE LIMITS NEG=-18.29 POS=15.54

CORE POWER TILT ((QUAD POW/AVG QUAD POW)-1)*100=%

	WX QUAD	XY QUAD	YZ QUAD	ZW QUAD
INCORE SYM DET, %=	-1.56	-1.19	1.92	1.07
OUTCORE IN DET, %=	.26	.14	-.35	-.05

CALC TILT LIMITS, %= 4.16 STEADY STATE, 10.03 TRANSIENTS

CONTROL ROD WITHDRAWAL INDEXES, %WD = 289.97 GPS 5, 6, 7
CALC GP 5, 6, 7 INDEX LIMITS, %WD MIN = 266.71 MAX = 305.00
%WD = 100.00 GP 8 (APSR)
CALC GP 8 INDEX LIMIT, %WD MIN = -1.00 MAX = 105.00

BACKUP REF. CORE POWER (PPCS QCORE)=2568.8 MWT=100.03% FP (2 MIN)
BACKUP (PPCS) SHIFT AVG CORE POWER (ANY POWER) = 2564.8 MWT

AULD INSTANTANEOUS CORE POWER = 2569.7 MWT
AULD SHIFT AVG CORE POWER = 2568.0

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

AdminCO2 (2K7) NRC [Bank #232] (ADMINISTRATIVE)

PERFORM AN ECP (OP-210)

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/1/07

VALIDATED BY: John Wilcox / William G Carr Date: 8/13/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: Perform and Estimated Critical Position Calculation (OP-210)

Alternate Path: ☐ YES ☒ NO

JPM #: AdminCO1 (2K7) NRC [Bank #232]

K/A Rating/Importance: 001A4.10 (3.5 / 3.9)

Task Number: 1150102010, 1150102011

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Perform an ECP calculation.

Preferred Evaluation Location:

☐ SIM ☐ PLANT ☒ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

OP-210
OP-103C

Validation Time: 30 min **Time Critical:** No

Candidate: _____ **Time Started:** _____
Printed Name **Time Finished:** _____

Performance Rating: SAT ____ UNSAT ____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Calculator
2. Copies of OP-210
3. Copies of OP-103C

READ TO THE OPERATOR

Initial Conditions:

You are the Reactor Operator.
Initial Plant Conditions will be supplied to you by a separate attachment

Initiating Cues:

A plant startup is in progress. Plant conditions are as described on the attachments you have been given. The CRS has directed you to complete step 4.2.6 of OP-210, Reactor Startup. You are to perform an estimated critical position calculation. Complete all enclosure requirements of the ECP and give to your examiner when complete. An independent ECP is being calculated by another operator. ECP OP210.XLS is not available.

TIME START: ____

STEP 1: Candidate obtains copy of OP-210 and OP-103C. **STANDARD:** Candidate identifies where he/she would obtain the procedures **EXAMINER'S NOTE**. Once the candidate has identified where he/she would find the procedures, provide the candidate with a copy of OP-210 and OP-103C. **COMMENTS:**	SAT ____ UNSAT
STEP 2: (OP-210 Step 4.2.6) PERFORM Two (2) Independent ECP Calculations and ENSURE both ECP Calculations are in agreement prior to submittal to the CRS. **STANDARD:** Candidate uses Enclosure 2 and Enclosure 3 to perform the ECP calculation. **COMMENTS:**	SAT ____ UNSAT ___
STEP 3: (OP-210 Enclosure 2 Step 1) Determine fuel reactivity. **STANDARD:** Candidate completes Step 1 of Enclosure 2 per the attached key. The acceptance range for Fuel Worth is 11.4 to 11.6 % Δ K/K (based on readability of the curve). **COMMENTS:**	**Critical Step:** **BASIS:** **Reactivity Management** SAT UNSAT ___

STEP 4: (OP-210 Enclosure 2 Step 2) Determine boron reactivity. **STANDARD:** Candidate completes Step 2 of Enclosure 2 per the attached key. The acceptance range for B-10 adjusted Boron Concentration is 1371 to 1372 ppmB (based on potential rounding errors). The acceptance range for Boron Worth is 140 to 141 ppm/% Δ K/K (based on readability of the curve) The acceptance range for Boron Worth is 9.7 to 9.8 % Δ K/K (based on error ranges of previous steps). **COMMENTS:**	**Critical Step:** **BASIS: Reactivity Management** SAT UNSAT ___
STEP 5: (OP-210 Enclosure 2 Step 3) Determine reactivity effect from temperature. **STANDARD:** Candidate completes Step 3 of Enclosure 2 per the attached key. **COMMENTS:**	SAT ____ UNSAT ___
STEP 6: (OP-210 Enclosure 2 Step 4) Determine APSR worth. **STANDARD:** Candidate completes Step 4 of Enclosure 2 per the attached key. **COMMENTS:**	SAT ____ UNSAT ___

STEP 7: (OP-210 Enclosure 2 Step 5)

Add all previous reactivity components.

STANDARD:

Candidate completes Step 5 of Enclosure 2 per the attached key.

The acceptance range for this sum is 1.63 to 1.83 % Δ K/K (based on acceptance criteria specified in procedure).

COMMENTS:

Critical Step:

BASIS: Reactivity Management

SAT ___

UNSAT ___

STEP 8: (OP-210 Enclosure 2 Step 6)

Determine predicted rod heights.

STANDARD:

Candidate completes Step 6 of Enclosure 2 per the attached key.

The acceptance ranges are as follows (based on allowable error from previous step and readability of the curve)

Total (Xenon and Samarium adjusted): -1.48 to -1.68 % Δ K/K

	Group 5	Group 6	Group 7
-1.0% Δ K/K	19 to 36	0	0
ECP	91-100	16 to 36	0
+1.0% Δ K/K	100	100	26 to 55

COMMENTS:

Critical Step:

BASIS: Reactivity Management

SAT ____

UNSAT ___

STEP 9: (OP-210 Enclosure 3 Step 1)

Transfer data from Enclosure 2 Step 5.

STANDARD:

Candidate completes Step 1 of Enclosure 3 per the attached key.

COMMENTS:

SAT ____

UNSAT ___

STEP 10: (OP-210 Enclosure 3 Step 2) Transfer data from Enclosure 2 Step 6. **STANDARD:** Candidate completes Step 2 of Enclosure 3 per the attached key. **COMMENTS:**	SAT ____ UNSAT ___
STEP 11: (OP-210 Step 4.2.6) Ensure results are within +/- 0.1 % Δ K/K of the second ECP. **STANDARD:** N/A **EXAMINER'S NOTE:** Inform the candidate that the CRS will perform this comparison. **COMMENTS:**	SAT ____ UNSAT ___
END OF TASK	

TIME STOP:_____

ANSWER KEY

ENCLOSURE 2

ESTIMATED CRITICAL POSITION
-WORKSHEET I-

REFERENCE CONDITIONS: 532°F, 0% FP, No Xenon, Control Rods Fully Withdrawn, Equilibrium Samarium

NOTE

This ECP and the time table at step 6 are based on current boron concentration, RCS temperature and Axial Power Shaping Rod positions and will be invalid if these parameters change.

1. Fuel Reactivity

   a Core Burnup = SAXON FFPD 297.86

   b Read Curve 1 of OP-103C, Reactivity Worth Curves

   Fuel Worth = + 11.49 % Δ K/K

2 Boron Reactivity

   a Measured RCS Boron Concentration is 1400 ppmB

NOTE

The reference Boron 10 (B-10) atom percent (a/o) is 19.8 for all calculations used in deriving the reactivity curves in OP-103C. B-10 a/o can be obtained from the Rx Engineer. If the B-10 a/o is unknown, use the reference value of 19.8.

   b B-10 atom percent of RCS Boron is 19.4 a/o

   c. B-10 adjusted Boron Concentration is [(Step 2(a))*(Step 2(b))] ÷ 19.8 = 1371.72 ppmB. Record on Section 2 of Enclosure 3

   d Using core burnup from Step 1(a), find the Hot Zero Power inverse boron worth from Curve 4 of OP-103C, Reactivity Worth Curves. 140.52 ppm/% Δ K/K

   e. Divide Step 2(c) by the inverse boron worth in Step 2(d).

   Boron Worth = - 9.76 % Δ K/K

3. Reactivity Effect From Temperature

   a. Average RC Temperature 532 °F

   b. Reference temperature is 532°F

NOTE

Interpolate Curve 5 of OP-103C based on anticipated critical conditions. (The graph may be used for this interpolation.)

   c. Temperature coefficient at 1371.72 ppmB from Step 2(c) is obtained from Curve 5 of OP-103C, Reactivity Worth Curves, to be -0.7 x 10^{-2} % Δ K/K/°F

   d. Reactivity = [T(ave) - 532] (Temp. Coeff.)

   e. Reactivity = (532 - 532) (-0.7 x 10^{-2} % Δ K/K/°F).

   Temperature Worth = - 0.0 % Δ K/K

ANSWER KEY

ENCLOSURE 2

ESTIMATED CRITICAL POSITION
-WORKSHEET I-

4. Axial Power Shaping Rod Worth

   a. Worth of Group 8 at _100_% WD from Curve 9 of OP-103C, Reactivity Worth Curves.

APSR Worth = - _0.0000_ % Δ K/K

5. Sum of Previous Reactivity Components (Use absolute values for Boron Worth and APSR Worth)

Sum = Fuel Worth - |Boron Worth| +/- Temperature Worth - APSR Worth

= (+ 11.49 - 9.76 +/- 0.0 - .0000)% Δ K/K.

Sum = + 1.73 % Δ K/K

6. ECP Table

NOTE

If boron concentration, RCS temperature, or APSR positions change, this ECP and table will need to be re-performed.

NOTE

Following an extended mid-cycle shutdown (greater than 1 month), all ECPs should consider Plutonium build-in effect. Reactor Engineering should be contacted for guidance. [NRC 99729]

Complete the following table for ECPs as a function of time. Use Curves 8 & 8A of OP-103C, Reactivity Worth Curves, to determine critical rod positions. Obtain Xenon and Differential Samarium reactivity values from SAXON I (submit printout). Record results on Section 2 of Enclosure 3. Use absolute values for Xenon and Differential Samarium.

Total = (Sum - Samarium Differential - Xenon) x (-1)

= (+ 1.73 - 0.15 - 0) x (-1) % Δ K/K.

Total = - 1.58 % Δ K/K

Time	?Sm	Xe	Total	Corresponding ECPs								
				-1.0 % Δ K/K			ECP			11.0 % Δ K/K		
				Grp 5	Grp 6	Grp 7	Grp 5	Grp 6	Grp 7	Grp 5	Grp 6	Grp 7
1700	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
1800	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
1900	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
2000	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
2100	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
2200	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45
2300	-0.15	0.00	-1.58	25	0	0	100	25	0	100	100	45

Calculated By _____ Date _____ Time _____

Reactor Startup No. 07-01

ANSWER KEY

ENCLOSURE 3

DATA SHEET-
ESTIMATED CRITICAL POSITION

1 From Step 4.2.6

Startup Time: 2000

Reactor Startup #: 07-01

From Worksheet I Step 5 (results must agree ± 0.1% Δ K/K)

ECP #1. 1.73 % Δ K/K

ECP #2. _____ % Δ K/K

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2 From Worksheet I Step 6, ECP Table

GROUPS	-1.0 % Δ K/K	Just Critical	% WITHDRAWN +1.0 % Δ K/K
1-4	100 %	100 %	100 %
5	25 %	100 %	100 %
6	0 %	25 %	100 %
7	0 %	0 %	45 %
8	100 %	100 %	100 %

B-10 Adjusted Boron Concentration (Step 2c of ENCL 2) 1371.72 ppmB

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3. From Step 4.2.21
Time Criticality Condition Established _____

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4 From Step 4.2.23

NI-1 = _____ CPS
NI-2 = _____ CPS
NI-14 = _____ CPS
NI-15 = _____ CPS

NI-3 = _____ AMPS
NI-4 = _____ AMPS

---

5. From Step 4.2.27 (Not required if startup physics testing was performed during this startup)

ROD POSITIONS

Group 5 _____%

Group 6 _____%

Group 7 _____%

Group 8 _____%

Measured Boron Concentration _____ ppm

RCS Average Temperature _____ °F

Data Recorded By:_____ Date_____

CANDIDATE CUE SHEET

(THIS SHEET TO BE RETURNED TO EXAMINER WHEN JPM IS COMPLETE)

Initial Conditions:

You are the Reactor Operator.
Initial Plant Conditions are attached.

Initiating Cues:

A plant startup is in progress. Plant conditions are as described on the attachments you have been given. The CRS has directed you to complete step 4.2.6 of OP-210, Reactor Startup. You are to perform an estimated critical position calculation. Complete all enclosure requirements of the ECP and give to your examiner when complete. An independent ECP is being calculated by another operator. ECP OP210.XLS is not available.

PLANT CONDITIONS

The plant is conducting a startup following a two week outage. Plant conditions for the startup are as listed below. The current time is 1700 and the anticipated startup time is at 2000 today. All data is constant for the next 8 hours. The startup number is 07-01.

RX POWER/MODE	MODE THREE (3)
RCS TEMPERATURE	532 ° F
RCS PRESSURE	2155 PSIG
BORON CONC	1400 ppmB
B-10 a/o	19.4
SAXON EFPD	297.86
XENON REACTIVITY	0.0 % ΔK/K
Δ SAMARIUM REACTIVITY	-0.15 % ΔK/K

CONTROL ROD POSITIONS

GROUP ONE	100%	GROUP FIVE	0%
GROUP TWO	100%	GROUP SIX	0%
GROUP THREE	100%	GROUP SEVEN	0%
GROUP FOUR	100%	GROUP EIGHT	100.0%

RESULTS

INDICATE BELOW THE RESULTS OF YOUR CALCULATION. LIST ANY NOTIFICATIONS YOU WOULD MAKE OR ACTIONS YOU WOULD TAKE BASED UPON YOUR CALCULATIONS.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

Admin EC1 (2K7) NRC [NEW] (ADMINISTRATIVE)

DEVELOP AN OPERATIONS CLEARANCE FOR FWP-7

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/9/07

VALIDATED BY: William G Carr / John Wilcox Date: 8/13/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

Task: Develop an Operations Clearance for FWP-7.

Alternate Path: No

JPM #: AdminECI (2K7) NRC [NEW]

K/A Rating/Importance: G2.2.13 RO 3.6 SRO 3.8

Task Number/Position: 1190100009

Task Standard: Develop an Operations Clearance for FWP-7 per OPS-NGGC-1301

Preferred Evaluation Location:

Simulator _ In-Plant _ ____ Admin ___X__

Preferred Evaluation Method:

Perform ___X__ Simulate __ ___

References:

OPS-NGGC-1301

Validation Time: 25 min.

Time Critical: No

Candidate: _____
Printed Name

Time Start: _____

Time Finish:

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____
Printed Name Signature Date

Comment

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of OPS-NGGC-1301
2. Copy of AI-500
3. Flow diagrams:
   - 302-081 Sheets 1-4
   - 302-082 Sheets 1-3
   - 302-101 Sheets 1-3
4. Electrical Dragrams:
   - 206-078
   - 207-034
   - 208-032 FW-055
   - 208-032 FW-056

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator
Passport Equipment Tag Out module is unavailable.

INITIATING CUES:

You are requested to develop Operations Clearance boundaries for FWP-7 to allow for replacement of FWV-250 (FWP-7 Pump Drain Valve)

Use the table on the attached page to identify the following:

- Components to be operated or tagged
- The required position
- The order in which they should be performed

When passport is restored, another operator will enter the clearance into passport.

SPECIAL INSTRUCTIONS (IF ANY):

SEQUENCE	TAG TYPE (IF APPLICABLE)	POSITION	COMPONENT

STEP 1:

Obtain required reference material.

STANDARD:

Provide candidate with copies of the following:

- Flow diagrams:
  - 302-081 Sheets 1-4
  - 302-082 Sheets 1-4
  - 302-101 Sheets 1-3
- Electrical Diagrams:
  - 206-078
  - 207-034
  - 208-032 FW-055
  - 208-032 FW-056

COMMENTS:

SAT ___

UNSAT

STEP 2:

Determine required clearance boundaries.

STANDARD:

See key for boundaries. Items designated with ** are critical.

COMMENTS:

Critical Step (personnel protection)

SAT

UNSAT ___

END OF TASK

KEY

NOTE: Items designated 3a, 3b, 3c, 3d may be performed in any order, provided they are after the item designated 2 and before the items designated with a 4. Items designated 4a and 4b may be performed in any order provided they are performed after the items designated with a 3 and before the item designated 5. The candidate may use the term "Red" or "Red Tag" in place of Clearance Tag. Any components that provide equivalent personnel protection to those listed below may be used; the items selected below were identified as those most likely to be used. Not using double isolation is acceptable provided candidate notes in Special Instructions section that SSO permission must be obtained and the work group must be notified. Not including a vent or drain is acceptable provided the candidate notes such in the Special Instructions section.

SEQUENCE	TAG TYPE (IF APPLICABLE)	POSITION	COMPONENT
1	CLEARANCE INFORMATION TAG	OFF (or Normal After Stop or STONOR)	FWP-7 CONTROL SWITCH
2**	CLEARANCE TAG	RACKED OUT (or REMOVE)	MTSW-2G BREAKER 3-1
3a**	CLEARANCE TAG	CLOSED	FWV-222
3b**	CLEARANCE TAG	CLOSED	FWV-223
3c**	CLEARANCE TAG	CLOSED	FWV-215
3d**	CLEARANCE TAG	CLOSED	FWV-231
3d (alternative)	CLEARANCE TAG	CLOSED	FWV-225 AND FWV-226
4a**	CLEARANCE TAG	CLOSED	FWV-213
4b**	CLEARANCE TAG	CLOSED	FWV-214
5**	CLEARANCE TAG	OPEN (AND UNCAPPED IF NECESSARY)	ANY VENT AND/OR DRAIN VALVE INSIDE CLEARANCE BOUNDARY

KEY

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
Passport Equipment Tag Out module is unavailable.

INITIATING CUES:

You are requested to develop Operations Clearance boundaries for FWP-7 to allow for replacement of FWV-250 (FWP-7 Pump Drain Valve).

Use the table on the attached page to identify the following:

- Components to be operated or tagged
- The required position
- The order in which they should be performed

When passport is restored, another operator will enter the clearance into passport.

SPECIAL INSTRUCTIONS (IF ANY):

SEQUENCE	TAG TYPE (IF APPLICABLE)	POSITION	COMPONENT

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

AdminRC1 (2K7) NRC [NEW] (ADMINISTRATIVE)

DETERMINE REGULATORY REQUIREMENTS BASED ON A RADIOLOGICAL SURVEY MAP

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/9/07

VALIDATED BY: William G Carr / John Wilcox Date: 8/13/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

Task: Given a survey map, determine regulatory requirements.

Alternate Path: No

JPM #: AdminRC1 (2K7) NRC [NEW]

K/A Rating/Importance: G2.3.1 RO 2.6 SRO 3.0

Task Number/Position: 1190102008

Task Standard: Given a survey map, determine regulatory requirements per ITS Section 5.8.

Preferred Evaluation Location:

Simulator ____ In-Plant: ____ Admin ___X___

Preferred Evaluation Method:

Perform ___X___ Simulate _____

References: ITS Section 5.8
HPS-NGGC-0003

Validation Time: 16 min.

Time Critical: No

Candidate: _____
Printed Name

Time Start:

Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of ITS
2. Copy of HPS-NGGC-0003
3. Copy of HPP-221

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
An accident has occurred resulting in a change in radiological conditions in the Sea Water Room

INITIATING CUES:

Using the new survey map, determine the following:

- The posting requirements for the Sea Water Room
- Any required access controls for the Sea Water Room
- Any required radiation monitoring for an operator required to perform a valve line up on the service water demineralizer

STEP 1:

Candidate obtains required reference material.

STANDARD:

Candidate obtains the required reference material. Either Technical Specifications Section 5.8 or HPS-NGGC-0803 will allow the candidate to obtain the correct answer.

COMMENTS:

SAT _ ..

UNSAT

STEP 2.

Determine required posting for the Sea Water Room.

STANDARD:

Candidate determines that the Sea Water Room should be a locked high radiation area:

- SWDM-1 has a hot spot label of 2R – 1.5R.
- The remainder of the room has dose rates < 100 mr general area. This meets the requirements for a radiation area.
- The candidate may label the entire room as a locked high radiation area, as long as the boundaries in the next step support it

COMMENTS:

Critical Step (radiation control)

SAT ____

UNSAT

STEP 3:	**Critical Step (radiation control)**
Determine required controls for the Sea Water Room	
STANDARD:	SAT
Candidate determines that the Sea Water Room (or just the area around SWDM-1) will need to be controlled as a locked high radiation area. Acceptable methods of control are: • Establish boundaries around the SWDM and use a red flashing warning device in lieu of a lock. **OR** • Construct a lockable barrier that prevents access to the >1R area and lock it	UNSAT ___
COMMENTS:	
STEP 4:	**Critical Step (radiation control)**
Determine dose monitoring requirements for an operator to perform a valve lineup on SWDM-1.	SAT ___
STANDARD:	UNSAT ___
Any of the following are adequate controls: • A radiation monitoring device that continuously indicates the dose rate • A radiation monitoring device that continuously integrates dose and alarms when a high threshold is reached • A radiation protection technician provides positive control and periodic surveys	
COMMENTS:	
END OF TASK	

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
An accident has occurred resulting in a change in radiological conditions in the Sea Water Room.

INITIATING CUES:

Using the new survey map, determine the following:

- The posting requirements for the Sea Water Room
- Any required access controls for the Sea Water Room
- Any required radiation monitoring for an operator required to perform a valve line up on the service water demineralizer.

Progress Energy

SEA WATER ROOM

SURVEY # 123

PAGE 1 of 1

UNLESS OTHERWISE NOTED
- ALL DOSE-RATES IN MREM/HR
- ALL DOSE-RATES @ 1 METER
- NO BETA RADIATION DETECTED

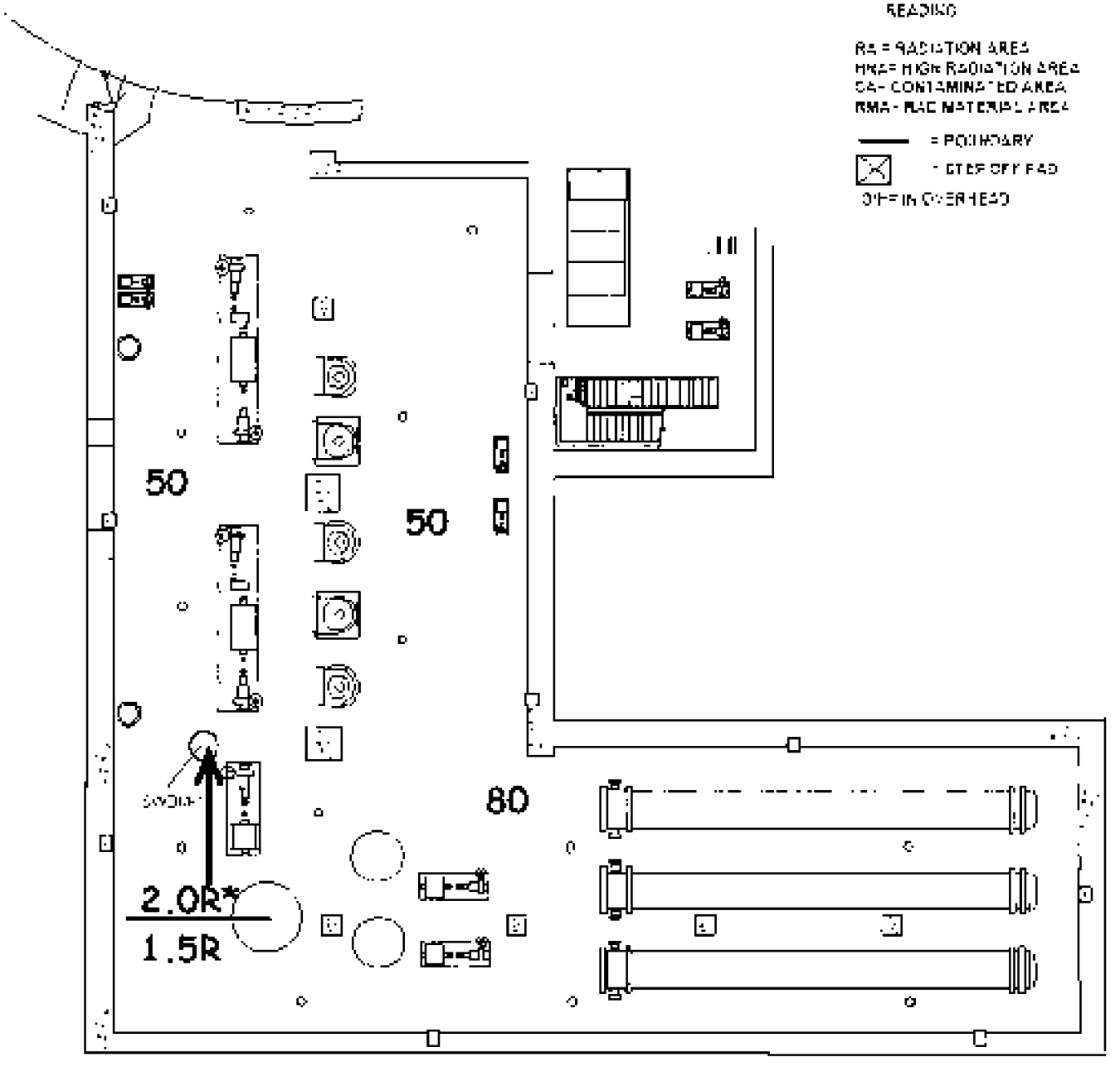
* DENOTES CONTACT READING

RA = RADIATION AREA
HRA = HIGH RADIATION AREA
CA = CONTAMINATED AREA
RMA = RAD MATERIAL AREA

= BOUNDARY

= STEP OFF PAD

OHF = IN OVERHEAD



CRYSTAL RIVER UNIT 3

JPM COVER SHEET

AdminEP1 (2K7) NRC [Bank #401] (Administrative)

DETERMINE PROTECTIVE ACTION RECOMMENDATIONS

PREPARED/REVIEWED BY: Floyd Lawrence Date: 10/9/07

VALIDATED BY: Andrew Barnes / Mary Bracewell Date: 10/9/07

APPROVAL BY Mark Vansicklen Date: 10/10/07
(Nuclear Training Supervisor)

ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: Determine Protective Action Recommendations

Alternate Path: No

JPM #: AdminEP1 (2K7) NRC [Bank #401]

K/A Rating/Importance: G2.4.41 RO 2.3 SRO 4.1
G2.4.44 RO 2.1 SRO 4.0

Task Number: SSO-24.a

Position: ☒ **SRO ONLY** ☐ **RO/SRO** ☐ **NLO/RO/SRO**

Task Standard: Determine Emergency Action Level and Protective Action Recommendations to protect the pubic.

Preferred Evaluation Location:

Simulator____ Plant ____ Admin_X_

Preferred Evaluation Method

Perform _X_ Simulate ____

References:

EM-202
EOP-7

Validation Time: 17 Minutes

Time Critical: Yes:
15 minutes to classify
14 minutes to complete form

Candidate: _____ **Time Started:** _____
Printed Name **Time Finished:** _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. EM-202
2. EOP-7

ADMINISTRATIVE JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Superintendent, Shift Operations.

The Plant has experienced an RCS leak with the following plant conditions present:

Subcooling Margin has been lost for 10 minutes.
T_{incore} is 800°F.
RCS pressure is 1800 psig.
RM-G29 and RM-G30 are reading 85 R/hr.
RB Spray is ON.
Prior to the event, the personnel airlock failed SP-430 Containment Air Locks Seal Leakage Test
RM-A2 is in high alarm with counts still rising.
Wind direction is from 220 degrees.

INITIATING CUE:

This JPM has two parts. EACH PART IS TIME CRITICAL.

1. You are requested to classify the event for the conditions given above. **NOTIFY THE EXAMINER ONCE YOU HAVE DETERMINED THE CLASSIFICATION.**

2. Complete the Florida Nuclear Plant Emergency Notification Form for the given conditions. Determine the Protective Action Recommendations required, if any.

_____

_____

_____

_____

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TIME START:_____

STEP 1: Obtain a copy of the correct procedure.

STANDARD: Candidate obtains a copy of EM-202 and EOP-7. SAT_____

EXAMINER'S NOTE: **Provide candidate with a copy of EM-202 and EOP-7 when requested.** UNSAT ___

COMMENTS:

STEP 2: Candidate determines classification for the data provided. **Critical Step**

STANDARD:

Basis: Protection of the Public.

Candidate determines a General Emergency classification is required using the Fission Product Barrier Matrix:

POTENTIAL LOSS OF FUEL CLAD: +3
(Tincore > 700°F)

SAT_____

UNSAT_____

LOSS OF REACTOR COOLANT SYSTEM: +4
(Loss of adequate SCM)

LOSS OF CONTAINMENT: +2
(Containment isolation incomplete and release path to environment exists)

Total is 9, which exceeds the General Emergency criteria of 8.5.

COMMENTS:

TIME EVENT CLASSIFIED:_____

This classification must be completed within 15 minutes.

STEP 3: Candidate determines the Protective Action Recommendations. STANDARD: Using EOP-7 curves the candidate will determine that the plant is region 2 of the ICC curves. The candidate determines the need to **evacuate Zone 1** using Enclosure 7 of EM-202. COMMENTS	**Critical Step** **Basis: Protection of the Public.** SAT_____ UNSAT_____
STEP 4: Candidate completes the notification form. STANDARD Candidate completes notification form per attached key. Items 4, 5, 6, 8, 9 and 11 are critical. Item 6 may be met satisfactorily by selecting Item A and listing the EAL Numbers specified on the key. Alternatively, Item 6 may be met satisfactorily by selecting Item B and providing a description that reflects the status of the 3 fission product barriers. COMMENTS:	**Critical Step** **Basis: Protection of the Public.** SAT_____ UNSAT_____

TERMINATION CUE:

Notification form filled out.

END OF TASK

TIME STOP:_____

The form must be completed within 14 minutes of classification.

FLORIDA NUCLEAR PLANT EMERGENCY NOTIFICATION FORM

1. THIS IS CRYSTAL RIVER UNIT 3. A. ☒ This Is A Drill B. ☐ This Is An Emergency I HAVE A MESSAGE.
ENSURE: ☐ STATE ☐ CITRUS ☐ LEVY ☐ RADIATION CONTROL-ORLANDO (M-F ONLY) ARE ON LINE.

2. A. Date: ____/____/____ B. Contact Time: _____ C. Reported By. (Name)_____
D. Message Number: _____ E. Reported From: ☑ Control Room ☐ TSC ☐ EOF

3. SITE: A. ☒ CR UNIT 3 B. ☐ SL UNIT 1 C. ☐ SL UNIT 2 D. ☐ TP UNIT 3 E. ☐ TP UNIT 4

4. EMERGENCY CLASSIFICATION A. ☐ Notification Of Unusual Event B. ☐ Alert
C. ☐ Site Area Emergency D. ☒ General Emergency

5. A. ☒ EMERGENCY DECLARATION. B. ☐ EMERGENCY TERMINATION. Date: ____/____/____ Time: _____

6. REASON FOR EMERGENCY DECLARATION: A. ☒ EAL Number(s). 5.2 6.1, 7.1 OR B. ☐ Description:

7. ADDITIONAL INFORMATION OR UPDATE: A. ☒ None OR B. ☐ _____

8. WEATHER DATA: A. Wind direction from 220 degrees B. Downwind Sectors affected B, C, D

9. RELEASE STATUS: A. ☐ None (Go to Item 11) B. ☒ Is occurring C. ☐ Has occurred, but stopped

10. RELEASE SIGNIFICANCE CATEGORY: (at the Site Boundary)
A. ☐ Information not available at this time B. ☐ Release within Normal Operating Limits (Tech Specs)
C. ☐ Non-Significant (Fraction of PAG Range) D. ☒ PAG Range (Protective Actions required)

11. UTILITY RECOMMENDED PROTECTIVE ACTIONS FOR THE PUBLIC:
A. ☐ No recommended actions at this time. B. ☑ The utility recommends the following protective actions:
EVACUATE ZONES: 1
SHELTER ZONES:
C. Consider Issuance of KI: ☒ YES ☐ NO

If form is completed in the Control Room, go to item 15. If completed in the TSC or EOF, continue with item 12.

12. PLANT CONDITIONS:
A. Reactor Shutdown? ☐ YES ☐ NO B. Core Adequately Cooled? ☐ YES ☐ NO
C. Containment Intact? ☐ YES ☐ NO D. Core Condition: ☐ Stable ☐ Degrading

13. WEATHER DATA: A. Wind Speed_____ mph B. Stability Class_____

14. ADDITIONAL RELEASE INFORMATION:
A. Noble Gases_____ Curies per second B. Iodines_____ Curies per second
C. Airborne: Date Started ___/___/___ Time Started_____ Date Stopped ___/___/___ Time Stopped_____
D. Liquid: Date Started ___/___/___ Time Started_____ Date Stopped ___/___/___ Time Stopped _____

Distance	Projected Thyroid Dose (CDE) for 1 Hour	Projected Total Dose (TEDE) for 1 Hour
1 Mile (Site Boundary)	E._____mrem	F._____mrem
2 Miles	G._____mrem	H._____mrem
5 Miles	I._____mrem	J._____mrem
10 Miles	K._____mrem	L._____mrem

15. MESSAGE RECEIVED BY: (Name) _____ Date ___/___/___ Time _____
THIS IS CRYSTAL RIVER UNIT 3. ☒ This Is A Drill ☐ This Is An Emergency END OF MESSAGE.
ECL NTIFIED: _____

☐ Form Faxed

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Superintendent, Shift Operations.

The Plant has experienced an RCS leak with the following plant conditions present:

Subcooling Margin has been lost for 10 minutes.
T_{hot-e} is 800°F.
RCS pressure is 1800 psig.
RM-G29 and RM-G30 are reading 85 R/hr.
RB Spray is ON.
Prior to the event, the personnel airlock failed SP-430 Containment Air Locks Seal Leakage Test.
RM-A2 is in high alarm with counts still rising.
Wind direction is from 220 degrees

INITIATING CUE:

This JPM has two parts EACH PART **IS** TIME CRITICAL.

1. You are requested to classify the event for the conditions given above. **NOTIFY THE EXAMINER ONCE YOU HAVE DETERMINED THE CLASSIFICATION.**

2. Complete the Florida Nuclear Plant Emergency Notification Form for the given conditions. Determine the Protective Action Recommendations required, if any.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SimA (2K7) NRC [BANK #27] (SIMULATOR)

SAFETY FUNCTION 1

LATCH ROD GROUP 1

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY: William G Carr / John Wilcox Date: 8/12/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Latch Rod Group 1.

Alternate Path: No

JPM #: SimA (2K7) NRC [Bank #27]

K/A Rating/Importance: 001A4.03 RO 4.0 SRO 3.7

Task Number: 0010102009

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Latch Control Rod Group 1 per OP-502.

Preferred Evaluation Location:

Simulator _X_ Plant _____ Admin_____

Preferred Evaluation Method

Perform _X_ Simulate ___

References: OP-502

Validation Time: 15 min

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Initialize previous stored IC# **103 (FATHER)**.
2. Freeze the simulator and notify the examiner.

OR

1. Initialize a 0% power reactor startup IC
2. Trip the reactor.
3. Perform OP-502 to latch rod groups 4, 3, and 2.
4. Ensure group 1 API and RPI are in agreement.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. **Copy of OP-502 Section 4.2 with the steps for latching rod group 4, 3, and 2 already signed off**

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3.
A plant Startup is in progress.
Control Rod Drive Groups 4, 3 and 2 have already been latched and PI aligned.

INITIATING CUE:

You are requested to latch and PI align Control Rod Drive Group 1.

For the purposes of this JPM, assume the SRO concurs with each rod manipulation.

***EXAMINER'S NOTE:* FOR STEPS DENOTED AS "CRITICAL STEP", WHICH HAVE MULTIPLE ACTIONS, THE INDIVIDUAL REQUIRED ACTION WILL BE DENOTED "CS". IF NO INDIVIDUAL ACTIONS ARE DENOTED AS SUCH THEN ALL ACTIONS WITHIN THE STEP ARE DEEMED "CRITICAL".**

TIME START:_____

NOTE: APPLICANTS MAY BE PROVIDED COPIES OF OP-502 PRIOR TO ENTERING THE SIMULATOR TO ALLOW FOR PRE-JOB PROCEDURE REVIEW.

SAT_____

UNSAT_____

STEP 1:

Obtain a copy of the correct procedure.

STANDARD:

Candidate is provided with a copy of OP-502 Section 4.2 with the steps for latching rod group 4, 3, and 2 already signed off and a copy of OP-502 Section 4.16.

EXAMINER'S NOTE:

Provide candidate with a copy of OP-502 Section 4.2 with the steps for latching rod group 4, 3, and 2 already signed off.

Notify simulator operator when candidate is ready to perform the JPM.

COMMENTS:

STEP 2: (4.2.4)

Transfer rod group 1 to the Auxiliary Power Supply.

SAT_____

UNSAT_____

STANDARD:

Candidate transitions to step 4.16 to transfer group 1.

COMMENTS:

STEP 3: (4.16.1)

PLACE Reactor Diamond in MANUAL

SAT_____

STANDARD:

UNSAT_____

Candidate verifies "MAN" light ON and "AUTO" light OFF

EXAMINER'S NOTE:

Reactor Diamond will already be in MANUAL

COMMENTS:

STEP 4: (4.16.2)

PLACE Reactor Demand control station in HAND

SAT_____

STANDARD:

UNSAT_____

Candidate verifies Reactor Demand in Mini Track:

- "AUTO" light ON
- "HAND" light ON

EXAMINER'S NOTE:

Reactor Demand will already be in HAND

COMMENTS:

STEP 5: (4.16.3)

Critical Step

SELECT desired group on "GROUP SELECT" Switch

(required to select correct rods)

STANDARD:

Candidate selects Group 1

COMMENTS:

SAT_____

UNSAT_____

STEP 6: (4.16.4) SELECT desired rod or ALL on "SINGLE SELECT" Switch **STANDARD:** Candidate rotates switch to select ALL **COMMENTS:**	**Critical Step** **(required to select correct rods)** SAT_____ UNSAT_____
STEP 7: (4.16.5) SELECT "SEQ OR." **STANDARD:** Candidate depresses "SEQ/SEQ OR." pushbutton and verifies both the "SEQ" and "SEQ OR." lights come on. **COMMENTS:**	**Critical Step** **(required to transfer rods)** SAT_____ UNSAT_____
STEP 8: (4.16.6) SELECT "AUXIL" **STANDARD:** Candidate depresses the GROUP/AUXIL pushbutton and verifies the following indications: • "AUXIL" light ON • "GROUP" light OFF • "TRANS RESET" light OFF • "CONTROL ON" white light for group 1 ON **COMMENTS:**	**Critical Step** **(required to transfer rods)** SAT_____ UNSAT_____

STEP 9: (4.16.7) PLACE "SPEED SELECTOR" switch in "JOG" **STANDARD:** Candidate selects "JOG" and verifies the 'SY" light ON **COMMENTS:**	**Critical Step** **(required to transfer rods)** SAT_____ UNSAT_____
STEP 10: (4 16.8) SELECT "CLAMP" **STANDARD:** Candidate depresses the CLAMP/CLAMP RELEASE pushbutton and verifies the following indications: • "CLAMP" light ON • "CLAMP REL" light OFF **COMMENTS:**	**Critical Step** **(required to transfer rods)** SAT_____ UNSAT_____
STEP 11: (4.16.9) DEPRESS "MAN TRANS" **STANDARD:** Candidate depresses the MAN TRANS pushbutton and verifies the following indications • VERIFY " TR CF " light on the Diamond Control Panel ON • VERIFY Amber "CONTROL ON" light(s) on the **PI** Panel for only Group 1 ON **COMMENTS:**	**Critical Step** **(required to transfer rods)** SAT_____ UNSAT_____

STEP 12: (4.16.10)

SELECT "CLAMP REL"

SAT_____

STANDARD:

UNSAT_____

Candidate depresses the CLAMP/CLAMP RELEASE pushbutton and verifies the following indications:

- "CLAMP REL" light ON
- "CLAMP" light OFF

COMMENTS:

STEP 13: (4.16.11)

Critical Step (required to transfer rods)

SELECT "GROUP"

STANDARD:

Candidate depresses the GROUP/AUXIL pushbutton and verifies the following indications:

- "GROUP" light ON
- "AUXIL" light OFF
- "SY" light OFF

SAT_____

UNSAT_____

COMMENTS:

STEP 14: (4.16.12)

Return to step 4.2.5.

SAT_____

STANDARD:

UNSAT_____

Candidate transitions back to step 4.2.5

COMMENTS:

STEP 15: (4.2.5) PERFORM Latch and PI Alignment **STANDARD:** Candidate performs the following details • SELECT "JOG" • DEPRESS and HOLD "LATCH" pushbutton and INSERT group/rod for 15 sec **[CS]** • WITHDRAW group/rod until all PI Panel "ZONE REF 0%" lights of selected group/rod are OFF **[CS]** • INSERT group/rod until GROUP "IN LIMIT" light comes ON **[CS]** • COMPARE absolute and relative readings on PI Panel • IF reset of RPI is required, THEN ROTATE "SINGLE SELECT" switch to desired CRD and RESTORE using "POSITION RESET RAISE/LOWER" switch **COMMENTS:**	**Critical Step** **(required to latch rods)** SAT_____ UNSAT_____
STEP 16: (4.2.6) TRANSFER Safety Group/Rod to DC Hold Bus **STANDARD:** Candidate transitions to step 4.17 **EXAMINER'S NOTE:** **When candidate recognizes the need to transition to step 4.17, terminate the JPM.** **COMMENTS:**	SAT_____ UNSAT_____

END OF TASK

STOP TIME:___. __. __.

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3.
A plant Startup is in progress.
Control Rod Drive Groups 4, 3 and 2 have already been latched and PI aligned

INITIATING CUE:

You are requested to latch and PI align Control Rod Drive Group 1.

For the purposes of this JPM, assume the SRO concurs with each rod manipulation.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

Sim~~B~~ (2K7) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 2

PERFORM EQUILIBRIUM FEED TO RAISE MUT LEVEL

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY: William G Carr / John Wilcox Date 8/12/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform an equilibrium feed to raise MUT level.

Alternate Path: No

JPM #: SimB (2K7) NRC [NEW]

K/A Rating/Importance: 004A4.13 RO 3.3 SRO 2.9

Task Number: 0040102002

Position: ☐ **SRO ONLY** ☒ **RO/SRO** ☐ **NLO/RO/SRO**

Task Standard: Perform an equilibrium feed to raise MUT level per OP-402.

Preferred Evaluation Location:

Simulator X Plant Admin

Preferred Evaluation Method

Perform X Simulate

References: OP-402
OP-304

Validation Time: 18 min

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Initialize previous stored IC# **108 (FATHER)** .
2. Freeze the simulator and notify the examiner.

OR

1. Initialize normal 100% power IC.
2. Establish a bleed and lower MUT level to - 85".
3. Ensure MUT pressure and level are within the limits of OP-103B Curve 8C.
4. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Ensure Total Inhibit is not selected on MU-12-FIC
2. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. **Copy of OP-402 Section 4.6**
2. **Copy of OP-304 Section 4.1**

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to raise MUT level by performing an equilibrium addition of 250 gallons using a combination of the B RC Bleed Tank and DW. Per the SQWL B OP304.XLS program (see attached print out) the add should be as follows

B RC Bleed Tank	165 gallons
Demin Water	85 gallons

All independent and concurrent verifications are to be simulated.

***EXAMINER'S NOTE:* FOR STEPS DENOTED AS "CRITICAL STEP", WHICH HAVE MULTIPLE ACTIONS, THE INDIVIDUAL REQUIRED ACTION WILL BE DENOTED "CS". IF NO INDIVIDUAL ACTIONS ARE DENOTED AS SUCH THEN ALL ACTIONS WITHIN THE STEP ARE DEEMED "CRITICAL".**

TIME START:_____

NOTE: APPLICANTS MAY BE PROVIDED COPIES OF THE PROCEDURES PRIOR TO ENTERING THE SIMULATOR TO ALLOW FOR PRE-JOB PROCEDURE REVIEW.

SAT_____

UNSAT_____

STEP 1:

Obtain a copy of the correct procedure.

STANDARD:

Candidate obtains a copy of OP-402 Step 4.6. Candidate may obtain a copy of OP-304 at this time, or may wait until directed by OP-402.

EXAMINER'S NOTE:

When candidate locates the correct procedure provide him with a copy of OP-402 Section 4.6.

If candidate locates OP-304 at this time, provide him with a copy of OP-304.

Notify simulator operator when candidate is ready to perform the JPM.

COMMENTS:

STEP 2: (4.6.1)

If feeding with a BAST Ensure letdown flow exists.

SAT_____

UNSAT_____

STANDARD:

Candidate should N/A this step since feed will be combination RCBT and DW.

COMMENTS:

STEP 3: (4.6.2) Determine required amount of feed. **STANDARD:** Per the attached SQWL B OP304.XLS printout ~ 165 gallons of water from the B RCBT and ~ 85 gallons of water from DW are required. **EXAMINER'S CUE:** **If candidate requests that chemistry verify boron concentrations role play as chemistry and report that the boron concentrations are as reported on the cue sheet.** **COMMENTS:**	SAT_____ UNSAT_____
STEP 4: (4.6.3) If this guidance is being made using guidance of a current OC verify correct boron concentrations. **STANDARD:** Candidate should N/A this step since the cue reports a current OC is not available. **COMMENTS:**	SAT_____ UNSAT_____
STEP 5: (4.6.4) Setup batch controller for feed. **STANDARD:** Candidate performs the following details • Press BATCH SET **[CS]** • Enter batch size of ~ 165 gallons and press ENTER **[CS]** • Press upper DISPLAY button • Press TOTAL and ensure TOT GAL is displayed **COMMENTS:**	**Critical Step** **(required to perform add)** SAT_____ UNSAT_____

STEP 6: (4.6.5) Ensure MUV-108 demand is set to 0% (CLOSED) on MU-12-FIC **STANDARD:** Candidate performs the following details • Press VALVE SET • Depress VALVE CE • Press "0" • Press "ENTER" • Press "RUN" **[CS]** **COMMENTS:**	**Critical Step** **(required to perform add)** SAT_____ UNSAT_____
STEP 7: (4.6.6) Select FEED SELECTOR SW to desired feed source and pull handle up **STANDARD:** Candidate selects BLEED TANK 3B and pulls handle up **COMMENTS:**	**Critical Step** **(required for proper reactivity)** SAT _____ UNSAT_____

STEP 8: (4.6.7 and 4.6.8) If selected feed source is a BAST open discharge valve and start a Boric Acid Pump If both post filters are desired to be placed in service then place both in service. **STANDARD:** Candidate N/As both steps. The add is not from a BAST and both post filters are already in service. **EXAMINER'S NOTE:** **COMMENTS:**	SAT_____ UNSAT_____
STEP 9: (4.6.9) When FEED PERMIT light is on open MUV-541 **STANDARD:** Candidate opens MUV-541. **EXAMINER'S NOTE:** **If the candidate performed preceding steps incorrectly, the FEED PERMIT light may not come on.** **COMMENTS:**	**Critical Step** **(required to perform add)** SAT_____ UNSAT_____

STEP 10: (4.6.10)
 	
Start feed by adjusting MUV-108 to desired flow.
 	
STANDARD:
 	
Candidate performs the following details
• Open valve to desired position **[CS]**
  ○ Enter desired valve position and press ENTER
  OR
  ○ Adjust valve position using the up and down arrow keys
• Press lower display
• Select desired display
 	
COMMENTS:
	Critical Step
	
	(required to perform add)
	
	SAT_____
	
	UNSAT_____

STEP 11: (4.6.11) When desired batch size has been obtained secure feed. **STANDARD:** Candidate ensures MUV-541 closed at the completion of the add. **COMMENTS:**	SAT_____ UNSAT_____
STEP 12: (4.6.12) Place feed selector switch to pushed in position. **STANDARD:** Candidate places the feed selector switch to the pushed in position. **COMMENTS:**	SAT_____ UNSAT_____

STEP 13: (4.6.13) If CAV-57 was opened, close CAV-57 and stop running boric acid pump. **STANDARD:** Candidate should N/A this step. **COMMENTS:**	SAT_____ UNSAT_____
STEP 14: (4.6.14) Reset the batch controller. **STANDARD:** Candidate performs the following details. • Press STOP • Press VALVE SET • Press 0 • Press ENTER • Press BATCH SET • Press 0 • Press ENTER • Press upper DISPLAY • Press TOTAL RESET **[CS]** **COMMENTS:**	**Critical Step** **(required to perform add)** SAT_____ UNSAT_____

STEP 15: (4.6.15)

If the previous addition was the first part of a multiple source addition, perform the following details.

STANDARD:

Candidate performs the following details

- Press BATCH SET **[CS]**
- Enter batch size of ~ 85 gallons and press ENTER **[CS]**
- Press upper DISPLAY button
- Press TOTAL and ensure TOT GAL is displayed
- Press VALVE SET
- Depress VALVE CE
- Press "0"
- Press "ENTER"
- Press "RUN" **[CS]**
- Select Feed Selector Switch to DW and pull handle up **[CS]**
- When feed permit light is on Open MUV-541 **[CS]**
- Open valve to desired position **[CS]**
    - Enter desired valve position and press ENTER
      OR
    - Adjust valve position using the up and down arrow keys
- Press lower display
- Select desired display
- When batch size has been obtained ensure MUV-541 is closed
- Place feed selector switch to pushed in position

COMMENTS:

Critical Step

(required to perform add)

SAT_____

UNSAT_____

STEP 16: (4.6.16) Reset the batch controller. **STANDARD:** Candidate performs the following details: • Press STOP • Press VALVE SET • Press 0 • Press ENTER • Press BATCH SET • Press 0 • Press ENTER • Press upper DISPLAY • Press TOTAL RESET **COMMENTS:**	SAT_____ UNSAT_____
STEP 17: (4.6.17) Restore post filter lineup as desired. **STANDARD:** Candidate should N/A this step. **COMMENTS:**	SAT_____ UNSAT_____
END OF TASK	

STOP TIME:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to raise MUT level by performing an equilibrium addition of 250 gallons using a combination of the B RC Bleed Tank and DW. Per the SQWL B OP304.XLS program (see attached print out) the add should be as follows:

B RC Bleed Tank	165 gallons
Demin Water	85 gallons

All independent and concurrent verifications are to be simulated.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SimC (2K7) NRC [Bank #108] (SIMULATOR)

SAFETY FUNCTION 3

PORV EXERCISE TEST

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY: John Wilcox Date 8/13/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform PORV Exercise Test

Alternate Path: Yes

JPM #: SimC (2K7) NRC [Bank #108]

K/A Rating/Importance: 010A3.01 RO 3.0 SRO 3.2

Task Number/Position: 0020401005 RO

Task Standard: Perform PORV Exercise Test per SP 379.

Preferred Evaluation Location:

Simulator_x_ Plant__ Admin_____

Preferred Evaluation Method

Perform _X_ Simulate_____

References:

SP-379

Validation Time: 15 Minutes

Time Critical: No

Candidate: _____
Printed Name

Time Started: _____
Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** __ __

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# **104 (FATHER)** developed for this JPM.
2. This IC has a pending failure to fail the PORV open when RCV-11 red light is lit and the PORV is selected to OPEN.
3. Place cover over Tave meter due to Tave < 520°F

SIMULATOR OPERATOR INSTRUCTIONS:

1. Role play as operator at Remote Shutdown Panel

Tools/Equipment/Procedures Needed:

Radio
Consumable copies of SP-379
Stop watch

READ TO THE OPERATOR:

INITIAL CONDITIONS:

You are the Balance of Plant Operator.
A plant heatup is in progress with RCS pressure at approximately 625 psig.

INITIATING CUES:

The Control Room Supervisor has directed you to perform an operability test on the PORV in accordance with SP-379. Step 4.1.2 will be used to verify RCV-11, PORV Block valve operability.

TIME START:_____

NOTE: APPLICANTS MAY BE PROVIDED COPIES OF THE PROCEDURE PRIOR TO ENTERING THE SIMULATOR TO ALLOW FOR PRE-JOB PROCEDURE REVIEW. STEP 1: Obtain copy of SP-379 STANDARD: Candidate obtains a copy of SP-379. **EXAMINER'S NOTE:** **Once candidate indicates where he/she would acquire the working copy of SP-379, provide them with a copy.** COMMENTS:	SAT_____ UNSAT_____
STEP 2: Step 4.1.2.1 Close RCV-11 STANDARD: Candidate locates control switch for RCV-11, selects RCV-11 to CLOSE position and observes the RED light OFF and GREEN light ON. COMMENTS:	**Critical Step (prevent loss of RCS pressure control)** SAT_____ UNSAT_____

STEP 3:	Step 4.1.2.2 Open RCV-10 and OBSERVE no changes to any of the following. • PZR level • RCS pressure • Tailpipe temperature • RCV-10 open monitor • RCDT level, temperature and pressure	SAT_____ UNSAT
STANDARD:	Candidate locates all indications for the listed parameters, locates control switch for RCV-10, selects to OPEN and observes GREEN light OFF and RED light ON. Candidate verifies no change in the listed parameters.	
EXAMINER'S NOTE:	**Candidate may display individual computer points for the listed parameters.**	
COMMENTS:		
STEP 4:	Step 4.1.2.3 If any changes are noted in the above parameters then perform the following: • Close RCV-10 • Refer to TS 3.4.10 • Refer to Contingencies in Step 5.2	SAT_____ UNSAT_____
STANDARD:	Candidate verifies no changes to parameters noted in step 3.	
COMMENTS:		

STEP 5:	Step 4.1.2.4 Close RCV-10	**Critical Step (prevent loss of RCS pressure control)**
STANDARD:	Candidate locates control switch for RCV-10, selects to CLOSE position and verifies RED light OFF and GREEN light ON.	SAT _____
COMMENTS:		UNSAT_____
STEP 6:	Step 4.1.2.5 Open RCV-11	**Critical Step (provide for valid test lineup)**
STANDARD:	Candidate locates control switch for RCV-11, selects to OPEN position and verifies GREEN light OFF and RED light ON.	SAT _____
COMMENTS:		UNSAT_____
STEP 7:	Step 4.2 Station an operator at the RSP, in communication with the Control Room, to observe RCV-10 position indication.	SAT _____ UNSAT_____
STANDARD:	Candidate communicates with simulator operator, stations auxiliary operator at RSP, and gives instructions to observe RCV-10 position indication.	
COMMENTS:		

STEP 8: Step 4.3 Record the following data. • RCS pressure • PZR level • Tailpipe temperature • RCDT pressure • RCDT level • RCDT temperature STANDARD: Candidate locates MCB and or computer points for the listed parameters and records data. COMMENTS:	SAT_____ UNSAT_____
STEP 9: Step 4.4 **PROCEDURE CAUTION: The following step will result in a blowdown of the PZR steam space. The blowdown time should be minimized.** Open and Time RCV-10 STANDARD: Candidate locates control switch for RCV-10, selects to OPEN position and verifies GREEN light OFF and RED light ON. COMMENTS:	**Critical Step (provide valid test of valve)** SAT_____ UNSAT_____
STEP 10: Step 4.5 Record time STANDARD: Candidate records stroke time for RCV-10. COMMENTS:	SAT UNSAT_____

STEP 11: Step 4.6

Verify the following open indications for RCV-10:

- Indicates open on the ICS panel
- Indicates open on the RSP
- ICS alarm for EP 1959 (I-5-1)
- Meter for ultrasonic indication is in the "Valve Open" region

STANDARD: Candidate locates and verifies the above indications.

EXAMINER'S CUE: RCV-10 indicates OPEN at on the RSP.

COMMENTS:

SAT_____

UNSAT_____

STEP 12: Step 4.7

Verify RCV-10 is opened by a change in the system parameters below:

- RCS pressure decreasing
- PZR level decreasing
- Tailpipe temperature increasing
- RCDT level increasing
- RCDT pressure increasing
- RCDT temperature increasing

SAT_____

UNSAT_____

STANDARD: Candidate locates and verifies changes in the above parameters

COMMENTS:

STEP 13: Step 4.8

Close and Time RCV-10

SAT_____

UNSAT_____

STANDARD: Candidate locates control switch for RCV-10, selects to CLOSE position and verifies RED light OFF and GREEN light ON

EXAMINER'S NOTE: **RCV-10 will fail to close.**

COMMENTS:

STEP 14: Step 4.9

Record time

SAT_____

UNSAT_____

STANDARD: Candidate records stroke time for RCV-10.

EXAMINER'S NOTE: **RCV-10 will fail to close.**

COMMENTS:

STEP 15:	Step 4.10 Observe that RCS pressure stabilizes and no other significant changes occur to system parameters	SAT_____ UNSAT _____
STANDARD:	Candidate observes that the PORV has failed to close.	
COMMENTS:		
STEP 16:	Step 4.11 IF there is evidence that RCV-10 did NOT close, then perform the following: • Close RCV-11 • Refer to TS 3.4.10 • Refer to Contingencies in Step 5.2	**Critical Step (stop loss of RCS pressure and inventory)** SAT _____ UNSAT_____
STANDARD:	RCV-11 control switch should be located and closed while observing the RED light OFF and the GREEN light ON. Candidate notifies CRS to refer to TS 3.4.10 and refers to Contingencies in Step 5.2	
COMMENTS:		

TERMINATION CUE: **Terminate JPM when candidate notifies CRS.**

STOP TIME:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Balance of Plant Operator.
A plant heatup is in progress with RCS pressure at approximately 625 psig.

INITIATING CUES:

The Control Room Supervisor has directed you to perform an operability test on the PORV in accordance with SP-379. Step 4.1.3 will be used to verify RCV-11, PORV Block valve operability.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SimD (2K7) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 4 (Primary)

START DHP-1A FOR SURVEILLANCE TESTING

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/2/07

VALIDATED BY: William G Carr / John Wilcox Date: 8/12/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Start DHP-1A for surveillance testing.

Alternate Path: No

JPM #: SimD (2K7) NRC [NEW]

K/A Rating/Importance: 005A4.01 RO 3.6 SRO 3.4

Task Number: 0050202004

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Start DHP-1A for surveillance testing per SP-340B.

Preferred Evaluation Location:

Simulator X Plant _____ Admin _____

Preferred Evaluation Method

Perform X Simulate ___

References: SP-340B

Validation Time: 18 min

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Initialize normal 100% power IC.
2. These valve manipulations will be directed by the candidate per Step 4.2.1. They are transparent to the control room and should be performed during setup. Perform the following valve manipulations (Page DH)
   - Open DHV-9 *(label tabd9)*
   - Close DHV-48 *(label tabd48)* [Should be normally closed, but verify anyway]
3. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.
2. When directed by candidate, energize and de-energize DHV-105 (label TCB1BA5)

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. **Consumable copy of SP-340B.**
2. **Engineering Data Sheet for DHP-1A. (Document type: MDES, subtype: EDS, document number: DHP1A**

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Nuclear Operator.
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to perform quarterly surveillance testing for DHP-1A per SP-340B Sections 4.2 and 4.3.

***EXAMINER'S NOTE*: FOR STEPS DENOTED AS "CRITICAL STEP", WHICH HAVE MULTIPLE ACTIONS, THE INDIVIDUAL REQUIRED ACTION WILL BE DENOTED "CS". IF NO INDIVIDUAL ACTIONS ARE DENOTED AS SUCH THEN ALL ACTIONS WITHIN THE STEP ARE DEEMED "CRITICAL".**

TIME START:_____

NOTE: APPLICANTS MAY BE PROVIDED COPIES OF THE PROCEDURE PRIOR TO ENTERING THE SIMULATOR TO ALLOW FOR PRE-JOB PROCEDURE REVIEW. **STEP 1:** Obtain a copy of the correct procedure. **STANDARD:** Candidate obtains a copy of SP-340B. **EXAMINER'S NOTE:** **When candidate locates the surveillance procedures provide him with a copy of SP-340B.** **COMMENTS:**	SAT_____ UNSAT_____

STEP 2: (Steps 3.0 through 3.7)

Review Personnel Indoctrination information.

SAT_____

UNSAT_____

STANDARD:

Candidate reviews all applicable portions of the Personnel Indoctrination.

EXAMINER'S CUE:

If the candidate asks, all required personnel have been informed and appropriate personnel are standing by in the field.

EXAMINER'S NOTE:

In the interest of time, the candidate may have been provided the procedure before coming into the simulator and may have completed everything except Step 3.7.4 prior to entering the simulator.

COMMENTS:

STEP 3: (Step 4.2.1)

Ensure DHV-9 is open and DHV-48 is closed.

SAT_____

UNSAT_____

STANDARD:

Candidate notifies PPO to position the following valves:

DHV-9 OPEN
DHV-48 CLOSED

EXAMINER'S CUE

Role play as PPO and respond that the valves are properly aligned.

EXAMINER'S NOTE:

These valves were already positioned by the setup steps.

COMMENTS:

STEP 4: (Step 4.2.2) Start DCP-1A. **STANDARD:** Candidate starts DCP-1A. **COMMENTS:**	**Critical Step** **(required to provide proper equipment cooling)** SAT_____ UNSAT_____
STEP 5: (Step 4.2.3) If required, start RWP-3A. **STANDARD:** Candidate may choose to start RWP-3A. Choosing to not start RWP-3A is also acceptable **COMMENTS:**	SAT_____ UNSAT_____
STEP 6: (Step 4.2.4 and 4.2.5) Ensure DHP-1A oil levels are acceptable. Ensure DHV-123 is open **STANDARD:** Candidate notifies PPO to perform steps 4.2.4 and 4.2.5. **EXAMINER'S CUE:** **Role play as PPO and report that DHP-1A oil levels are acceptable and DHV-123 is open.** **COMMENTS:**	SAT_____ UNSAT_____

STEP 7: (Step 4.2.6) Notify CRS/SSO to review ITS 3.5.2 Condition A. **STANDARD:** Candidate notifies CRS/SSO of TS applicability. **EXAMINER'S CUE** **Role play as the CRS and respond that ITS 3.5.2 Condition A has been reviewed.** **COMMENTS:**	SAT _____ UNSAT_____

STEP 8: (Step 4.2.7) Ensure the following valves are closed: • DHV-75 • DHV-42 • DHV-39 • DHV-120 • DHV-7 • DHV-11 • DHV-105 • DHV-5 **STANDARD:** Candidate verifies all valves except DHV-120 are closed. Candidate notifies PPO to ensure DHV-120 is closed. **EXAMINER'S CUE:** **Role play as PPO and report that DHV-120 is closed.** **EXAMINER'S NOTE:** **The simulator does not model DHV-120. All valves are normally closed.** **BOOTH OPERATORS CUE:** **When directed by candidate, energize and de-energize DHV-105 (label TCB1BAS)** **COMMENTS:**	SAT_____ UNSAT_____
STEP 9: (Step 4.2.8) Ensure the following valves are open: • DHV-34 • DHV-8 **(CS)** **STANDARD:** Candidate ensures the valves listed above are open **COMMENTS:**	**Critical Step** **(required to establish proper test lineup)** SAT_____ UNSAT_____

STEP 10: (Step 4.2.9)

Ensure DHV-110 MAN/AUTO controller is in manual

SAT_____

STANDARD:

UNSAT_____

Candidate places DHV-110 MAN/AUTO controller in manual.

COMMENTS:

STEP 11: (Step 4.2.10)

Record initial suction pressure for DHP-1A.

SAT_____

STANDARD:

UNSAT_____

Candidate requests that the PPO report DHP-1A suction pressure and records it.

EXAMINER'S CUE:

Role play as PPO and report that DHP-1A suction pressure is 32 psig.

COMMENTS:

STEP 12: (Step 4.2.11)

Critical Step

(required to establish proper test lineup)

Prepare DHV-210 for DHP-1A start as follows:

- Close DHV-210.
- Throttle open DHV-210 for 16 seconds.

STANDARD:

Candidate closes DHV-210 and then throttles it open for ~ 16 seconds.

SAT_____

COMMENTS:

UNSAT_____

STEP 13: (Step 4.2.12) If DHP-1A response time is required, assign one person to obtain the response time. **STANDARD:** Candidate should N/A this step. **EXAMINER'S CUE:** **If asked, role play as CRS and inform candidate that response time testing is not required.** **COMMENTS:**	SAT_____ UNSAT_____
STEP 14: (Step 4.2.13) Start DHP-1A as follows • Start DHP-1A • Record start time • Verify remote shutdown panel indication. **STANDARD:** Candidate starts DHP-1A (**CS**) Candidate records start time. Candidate checks N/A for remote shutdown panel indication. **EXAMINER'S CUE:** **If candidate asks if remote shutdown panel indication verification is required, role play as the CRS and state that it is not.** **COMMENTS:**	**Critical Step** **(required to establish proper test lineup)** SAT_____ UNSAT_____

STEP 15: (Step 4.2.14 and 4.2.15)

If DHV-210 throttled position did not provide adequate flow to obtain time response data, take appropriate contingency steps.

If DHP-1A response time was obtained, record required information.

SAT_____

UNSAT_____

STANDARD:

Candidate N/As these steps.

COMMENTS:

STEP 16: (Step 4.2.16)

Critical Step

(required to establish proper test lineup)

Ensure DHV-210 is adjusted for 3000 gpm.

STANDARD:

Candidate adjusts DHV-210 to obtain 2970 to 3030 gpm.

COMMENTS:

SAT_____

UNSAT_____

STEP 17: (Step 4.2.17)

Ensure proper oil levels and observe sling rings for proper bearing lubrication.

SAT_____

UNSAT_____

STANDARD:

Candidate contacts PPO to verify proper lubrication

EXAMINER'S CUE:

Role play as PPO and acknowledge direction.

Inform candidate that this concludes this JPM.

COMMENTS:

END OF TASK

STOP TIME:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Nuclear Operator.
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to perform quarterly surveillance testing for DHP-1A per SP-340B Sections 4.2 and 4.3.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

SimE (2K7) NRC [Bank #362] (SIMULATOR)

SAFETY FUNCTION 5

INITIATE BUILDING SPRAY

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY: John Wilcox Date: 8/13/07

APPROVAL BY: Mark Vansicklen Date 9/5/07
(Nuclear Training Supervisor)

SIMULATOR JOB PERFORMANCE MEASURE

Task: Ensure Building Spray (BS) actuation.

Alternate Path: No

JPM #: SimE (2K7) NRC [Bank #362]

K/A Rating/Importance: 026A3.01 (4.3 / 4.5)

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Number: 0260502001

Task Standard: Initiate Building Spray for high Reactor Building temperature using EM-225C

Preferred Evaluation Location:

Simulator _X_ In-Plant ___ Admin ___

Preferred Evaluation Method:

Perform _X_ Simulate ___

References:

EM-225C

Validation Time: 7 min.

Time Critical: No

Candidate: _____ **Time Start:** _____
Printed Name **Time Finish:**

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____ _____ /___
Printed Name Signature Date

Comment: _____

_____

_____

_____

_____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Restore simulator to IC # **105 (FATHER)** prepared for this JPM.

2. If creating this IC perform the following:

   A LOCA is in progress.
   Reactor Building pressure is < 30 psig.
   BSP-1A will not start in manual.
   The BWST level is > 20 ft.
   Use EOP-03 for setup conditions.
   Input "enc1" and "enc2".
   Acknowledge SCM alarm.
   Check CRTs to ensure RB temperatures (if displayed) are high.
   Set BSV-4 to local.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Booth operator will take the roles for the various operators for notifications

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EM-225C completed through step 4 5

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

Initial Conditions:

You are the Reactor Operator.
A LOCA is in progress.
The Control Room Supervisor has entered EOP-03.
Reactor Building (RB) temperatures are high.
The Emergency Coordinator (EC) has given concurrence to start Building Spray to reduce RB temperatures.

Initiating Cues:

You are requested to start Building Spray (BSP-1A preferred) per Step 4.6 of EM-225C

SIMULATOR JOB PERFORMANCE MEASURE

TIME START:_____

STEP 1: Obtain a copy of appropriate procedure.

STANDARD: Candidate obtains a copy of EM-225C.

EXAMINER'S NOTE: Provide student a copy of EM-225C.

COMMENTS:

SAT_____

UNSAT_____

STEP 2: (step 4.6)

If a building spray pump is required, and EC concurrence has been obtained, then perform the following:

STANDARD Candidate performs the following steps.

COMMENTS:

SAT_____

UNSAT_____

STEP 3: (step 4.6.1)

Ensure load is available on the emergency diesel generators per EOP-13, Rule 5.

STANDARD Examinee determines the emergency diesel generators are not supplying the bus. Step is N/A.

COMMENTS:

SAT_____

UNSAT_____

STEP 4: (step 4.6.2) Ensure Building Spray flow controls are set at 1500 gpm and "Remote" if pumps are aligned to BWST, or 1200 gpm and "Local" if aligned to the RB sump STANDARD: Candidate verifies suction source to Building Spray pumps and ensures the REMOTE/LOCAL lever on BSV-3 and BSV-4 is set to REMOTE and to 1500 gpm. (BSV-4 is set to LOCAL and must be moved to REMOTE). COMMENTS:	SAT_____ UNSAT_____
STEP 5: (step 4.6.3) Notify the control room to start one building spray pump. **EXAMINER'S CUE: (If required) the TSC requests you start Building Spray.** STANDARD Candidate operates BSP-1A control switch to start position and notes that the pump did not start. (Breaker is failed open) Pump start failure is reported to the Control Room Supervisor. Candidate repeats the guidance of EM-225C section 4.6 for the "B" train of Building Spray. (some of the required steps may have been performed in parallel with BSP-1A alignment). * Candidate starts BSP-1B and ensures flow is established. **EXAMINER'S CUE:** **Role-play as CRS when candidate discovers start problem with BSP-1A. When informed of the malfunction on the "A" train, direct candidate to establish Building Spray flow with the "B" train.** COMMENTS:	**Critical Step annotated with a *** **Basis: Provide cooling to the RB as directed.** SAT_____ UNSAT_____
TERMINATION CUE: BSP-1B running with indicated flow.	

STOP TIME:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.
A LOCA is in progress
The Control Room Supervisor has entered EOP-03.
Reactor Building (RB) temperatures are high.
The Emergency Coordinator (EC) has given concurrence to start Building Spray to reduce RB temperatures.

INITIATING CUES:

You are requested to start Building Spray (BSP-1A preferred) per Step 4.6 of EM-225C.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SimF (2K7) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 6

TRANSFER PLANT AUXILIARY LOADS TO THE UNIT AUXILIARY TRANSFORMER

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/2/07

VALIDATED BY: John Wilcox / Christopher Rop Date: 8/12/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 2
SIMULATOR JOB PERFORMANCE MEASURE

Task: Transfer plant auxiliary loads to the unit auxiliary transformer.

Alternate Path: Yes

JPM #: SimF (2K7) NRC [NEW]

K/A Rating/Importance: 062A4.01 RO 3.3 SRO 3.1

Task Number: 0620102003

Position: ☐ **SRO ONLY** ☒ **RO/SRO** ☐ **NLO/RO/SRO**

Task Standard: Transfer both 6900V Rx Aux buses and both 4160V unit buses to the auxiliary transformer per OP-703 Step 4.12.

Preferred Evaluation Location:

Simulator X Plant _____ Admin _____

Preferred Evaluation Method

Perform X Simulate ___

References: OP-703

Validation Time: 8 min

Time Critical: No

Candidate: _____
Printed Name

Time Started: _____

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. Initialize previous stored IC# **106 (FATHER)** .
2. Freeze the simulator and notify the examiner.

OR

1. Establish plant startup conditions with power at > 720 MWe and a power escalation in progress.
2. Establish conditional steps to insert the following failures 10 seconds after the "Auto Transfer 3104" switch has been placed to AUTO:
   - Label tfp8500b true (500KV bus B fault)
   - Label tap8660c = 3 (breaker 1660 trip)
   - Label tap8br1c = 3 (Brookridge breaker 1 trip)
   - Label tap8br5c = 3 (Brookridge breaker 5 trip)
3. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. **Copy of OP-703 Step 4.12.**

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Nuclear Operator.
The plant is at ~ 80% power with a power escalation in progress

INITIATING CUE:

The Control Room Supervisor has directed you to transfer plant auxiliary loads to the Unit Auxiliary Transformer per OP-703.

***EXAMINER'S NOTE:* FOR STEPS DENOTED AS "CRITICAL STEP", WHICH HAVE MULTIPLE ACTIONS, THE INDIVIDUAL REQUIRED ACTION WILL BE DENOTED "CS". IF NO INDIVIDUAL ACTIONS ARE DENOTED AS SUCH THEN ALL ACTIONS WITHIN THE STEP ARE DEEMED "CRITICAL".**

TIME START:_____

STEP 1:

Obtain a copy of the correct procedure.

SAT_____

UNSAT_____

STANDARD:

Candidate obtains a copy of OP-703 and identifies that step 4.12 is the correct step.

EXAMINER'S NOTE:

When candidate locates the correct procedure provide him with a copy of OP-703 step 4.12. provide a consumable copy of OP-703 Step 4.12.

Notify simulator operator when candidate is ready to perform the JPM.

COMMENTS:

STEP 2: (Step 4.12.1)

Critical Step (establish normal at power alignment)

TRANSFER 4160v Unit Bus 3A to Auxiliary Transformer

STANDARD:

Candidate performs the following:

- Select "Auto Transfer 3203" to MANUAL.
- Close breaker 3201. (**CS**)
- Open breaker 3203. (**CS**)
- Select "Auto Transfer 3203" to AUTO (**CS**)

SAT_____

UNSAT_____

COMMENTS:

STEP 3: (Step 4.12.2) TRANSFER 4160v Unit Bus 3B to Auxiliary Transformer **STANDARD:** Candidate performs the following • Select "Auto Transfer 3204" to MANUAL. • Close breaker 3202. (**CS**) • Open breaker 3204. (**CS**) • Select "Auto Transfer 3204" to AUTO. (**CS**) **COMMENTS:**	**Critical Step** **(establish normal at power alignment)** SAT_____ UNSAT_____
STEP 4: (Step 4.12.3) TRANSFER 6900v Rx Aux Bus 3A to Auxiliary Transformer **STANDARD:** Candidate performs the following • Verify both 500KV lines are energized. • Select "Auto Transfer 3103" to MANUAL. • Close breaker 3101. (**CS**) • Open breaker 3103. (**CS**) • Select "Auto Transfer 3103" to AUTO. (**CS**) **COMMENTS:**	**Critical Step** **(establish normal at power alignment)** SAT_____ UNSAT_____

STEP 5: (Step 4.12.4)

TRANSFER 6900v Rx Aux Bus 3B to Auxiliary Transformer

STANDARD:

Candidate performs the following:

- Verify both 500KV lines are energized.
- Select "Auto Transfer 3104" to MANUAL
- Close breaker 3102. (**CS**)
- Open breaker 3104. (**CS**)
- Select "Auto Transfer 3104" to AUTO. (**CS**)

COMMENTS:

Critical Step

(establish normal at power alignment)

SAT_____

UNSAT_____

STEP 6: (Step 4.12.5)

IF at any time either 500KV line is lost, OR removed from service, THEN PERFORM the following:

- (Preferred)
  - __ SELECT "Auto Transfer 3103" to MANUAL
  - __ SELECT "Auto Transfer 3104" to MANUAL

OR

- __ TRANSFER 6900v Rx Aux Bus 3A to Unit 3 Startup Transformer
  - __ TRANSFER 6900v Rx Aux Bus 3B to Unit 3 Startup Transformer

STANDARD:

Candidate may initially consider this step not applicable. When the Brookridge line failure occurs, the candidate will perform the following.

- Select "Auto Transfer 3103" to MANUAL
- Select "Auto Transfer 3104" to MANUAL

(Alternatively, the candidate may choose to transfer both 6900 v Rx Aux Buses back to the Startup Transformer)

EXAMINER'S NOTE:

Soon after the previous step is performed, a fault will de-energize the "Brookridge" 500KV line. This will result in R-2-1 Breaker 1662 Trip alarm.

COMMENTS:

Critical Step

(prevent RCP damage due to phase differential)

SAT_____

UNSAT_____

STEP 7: (AR-703)

The following actions will be directed by AR-703:

- If Bkr 1661 is open trip the turbine (N/A)
- Position Bkr 1662 control switch to prevent reclosure
- Stabilize plant as necessary (N/A)
- Notify system dispatcher
- If either 500KV line is lost, refer to OP-703 step 4.12. (performed in previous step)

SAT_____

UNSAT_____

STANDARD:

Candidate performs the following:

- Place breaker 1662 control switch to after-trip position.
- Notify system dispatcher

EXAMINER'S NOTE:

Candidate may perform the annunciator response actions prior to performing Step 4.12.5 of OP-703 (Step 6 of this JPM).

COMMENTS:

END OF TASK

STOP TIME _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Nuclear Operator.
The plant is at ~ 80% power with a power escalation in progress

INITIATING CUE:

The Control Room Supervisor has directed you to transfer plant auxiliary loads to the Unit Auxiliary Transformer per OP-703.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

SimG (2K7) NRC [Bank #184] (SIMULATOR)

SAFETY FUNCTION 7

RESTORE RPS CHANNEL POWER

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY: John Wilcox Date: 8/13/07

APPROVAL BY: Mark Vansickden Date 9/5/07
(Nuclear Training Supervisor)

SIMULATOR JOB PERFORMANCE MEASURE

Task: Restore power to RPS channel

Alternate Path: No

JPM #: SimG (2K7) NRC [Bank #184]

K/A Rating/Importance: 012.A2.02 (3.6 / 3.9)

Task Number: 0120102003

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Restore power to the "A" RPS channel following maintenance.

Preferred Evaluation Location:

Simulator X Plant ____ Admin ____

Preferred Evaluation Method

Perform X Simulate ____

References:

OP-507 Section 4.7

Validation Time: 18 Minutes

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name **Time Finished:** _____

Performance Rating: SAT ____ UNSAT ____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to **IC# 107 (FATHER)** developed for this JPM.
2. If creating IC perform the following:
   - Open VBDP-3 Breaker 17
   - Open "A" RPS System "AC" power breaker
   - Open "A" RPS System "DC"
   - Open "A" RPS PS-1 +15 V breaker
   - Open "A" RPS PS-2 -15 V breaker
   - Open both fan breakers
   - Ensure RCS pressure SASS toggle switch selected to "B" RPS
   - ACK SASS Transfer on SASS modules
   - Store IC

SIMULATOR OPERATOR INSTRUCTIONS:

1. Close VBDP-3 Breaker #17 when requested.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-507 Section 4.7

READ TO THE OPERATOR

INITIAL CONDITIONS:

The "A" RPS channel was de-energized using the breaker on the vital bus to allow repair of its power supply.

The repairs have been completed.

INITIATING CUE:

You are the Nuclear Operator.

The Control Room Supervisor directs you to restore power to RPS Channel "A".

TIME START:_____

STEP 1:	Identify and locate the required procedure	SAT_____
STANDARD:	The candidate should identify that the required procedure is OP-507 Section 4.7.	UNSAT_____
EXAMINERS NOTE:	**When the candidate identifies and locates the correct procedure and section supply him/her with a copy of OP-507 Section 4.7.**	
COMMENTS:		
STEP 2:	(Step 4.7.1): Ensure no SASS modules selected to channel being restored.	SAT_____
STANDARD:	Candidate verifies that no SASS modules are selected to the "A" RPS channel	UNSAT_____
COMMENTS:		

STEP 3:	(step 4.7.2) Ensure affected RPS Channel Power Supply breakers are OFF Ensure the following power supply Breakers are selected to OFF "SYSTEM AC POWER" "SYSTEM DC POWER" "PS-(channel)1" + 15V Power Supply "PS-(channel)2" - 15V Power Supply System Fan breakers	SAT_____ UNSAT_____
STANDARD:	Candidate locates the above breakers and verifies they are in the off position.	
COMMENTS:		

STEP 4:	(step 4.7.3) Ensure Power feed breakers for the affected channel is closed. Ensure Feeder Breaker is CLOSED Channel "A" - VBDP-3 Bkr. #17 Verify "Power Available" lamp on "System AC Power" breaker is lit.	**Critical Step** **Basis:** **Provides power to the channel.** SAT_____ UNSAT_____
STANDARD:	Candidate identifies that VBDP-3 is behind the MCB. After Breaker is closed the candidate checks that "Power Available" lamp on "System AC Power" breaker is lit.	
EXAMINERS / BOOTH OPERATOR CUE:	**Close VBDP-3 breaker #17 and report to candidate when breaker is closed.**	
COMMENTS:		
STEP 5:	(step 4.7.4) Close affected RPS Channel "System AC Power" breaker Verify "Power On" lamp on "System AC Power Breaker is lit.	**Critical Step** **Basis: Power alignment to the RPS cabinet.** SAT_____ UNSAT_____
STANDARD:	Candidate places the breaker in the ON position and then verifies the power on lamp is lit.	
COMMENTS:		

STEP 6:	(step 4.7.5) Ensure RPS cabinet fans are operating. Turn on both System Fan breakers. Ensure fan lamps are lit.	SAT_____ UNSAT_____
STANDARD:	Candidate places breakers for both fans in the ON position and verifies that the fan lamps are lit.	
COMMENTS:		
STEP 7.	(step 4.7.6) CLOSE affected RPS Channel ±15v power supply breakers. CLOSE the following power supply breakers: "PS-(channel) 1" + 15V Power Supply "PS-(channel) 2" + 15V Power Supply	**Critical Step** **Basis: alignment of both power supplies.** SAT_____ UNSAT_____
STANDARD:	Candidate locates breakers and places in the ON position.	
EXAMINER'S NOTE:	**A possibility exist that the examinee may think that the power supply should be energized at this point. (This will not occur until the next step). If the examinee believes a fault has occurred and request CRS/Maintenance assistant then end the JPM at this point the examinee will receive an UNSAT for this JPM.**	
COMMENTS:		

STEP 8:	Procedure Note: The following step will restore power to the affected RPS Channel.	SAT_____
STANDARD		UNSAT_____
	Candidate reads note.	
COMMENTS:		
STEP 9:	(step 4.7.7) REPOWER affected RPS Channel	**Critical Step**
	CLOSE "System DC Power" Breaker	**Basis: Power alignment to the RPS cabinet.**
STANDARD:		
	Candidate locates breaker and places in the ON position. Candidate responds to any associated alarms.	SAT_____
EXAMINERS NOTE:		UNSAT_____
	At this time the following Annunciator alarms clear: **RCS flow loop A,** **RCS flow loop B,** **RCS total flow, subassembly + and - 15V pwr fault alarm,** **RCS pressure, and mismatch (SASS)** **If > 45% power:** **Annunciator for turbine trip bypass clear.** **Turbine AMSAC Low Flux bypass clear.**	
COMMENTS:		

STEP 10: (step 4.7.6) RESET affected RPS component power supplies: DEPRESS RESET toggle switch for the following power supplies: Channel A NI-1 Detector Power Supply (will not energize >10%) Detector P.S. NI-5 Contact Monitor P.S. STANDARD: Candidate locates detector reset power supply toggle, presses and releases toggle switch. Candidate should observe power restored to NI-5 and contact monitor and all 4 contact monitor lights go dim. **EXAMINERS NOTE:** **The source range will not energize if with reactor power > 10 %.** **Sub-Assembly "A" detector pwr supply fault clear. DC voltage increases, light on the module illuminate, and an annunciator alarm for the turbine trip bypass clears, if > 45% pwr.** **On contact monitor Voltage increases to approximately 125 v. All 4 contact monitor lights go "DIM".** COMMENTS:	**Critical Step** **Basis: Reset of pwr supplies prior to resetting RTM.** SAT_____ UNSAT_____

STEP 11.	(step 4.7.9) If RPS A is being powered, then ensure bistables listed in details are RESET DEPRESS OUTPUT STATE RESET toggle switch VERIFY OUTPUT STATE lamp is dim DEPRESS OUTPUT MEMORY RESET toggle switch VERIFY OUTPUT MEMORY lamp is dim Details: SUR ROD WITHDRAWAL INHIBIT *PWR/PUMP BISTABLE (will not reset with less than 3 RCPs running based on Contact Monitor) *PWR/IMBAL/FLOW *HIGH FLUX NI-5 FLUX >10% FP NI-5 (will not reset if greater than 10% FP) MFP TRIP BYPASS (will not reset if less than 20% FP) TURBINE TRIP BYPASS (will not reset if less than 45% FP) SHUTDOWN BYPASS (will not reset if greater than 1820 psig) *HIGH PRESS TRIP *LOW RC PRESS (will not reset if less than 1900 psig) *PRESS/TEMP *HIGH RC TEMP	**Critical Step** **Items marked with an * are considered critical.** **Basis:** **Align bistables to operational lineup.** SAT_____ UNSAT_____
STANDARD:	Candidate performs the 4 steps above for each bistable listed.	
COMMENTS:		

STEP 12:	(steps 4.7.10, 4.7.11, and 4.7.12) These steps apply to RPS channels B, C and D and are not effected by this JPM.	SAT _____
STANDARD:	NA	UNSAT_____
EXAMINERS NOTE:		
	Candidate should note that these 3 steps are NA.	
COMMENTS:		
STEP 13:	(step 4.7.13) RESET RB High Pressure Contact Buffer	**Critical Step**
	Depress Reset toggle switch on Reactor Building high press reset module	**Basis: Bistable reset required to reset RPS.**
STANDARD:		
	The candidate should observe that the 2 input state lamps go from bright to off and the RPS trouble alarm clears.	SAT_____
		UNSAT_____
COMMENTS:		
STEP 14:	NOTE: The Turbine Trip Contact Buffer will not reset if the turbine is tripped.	SAT_____
STANDARD:		UNSAT_____
	Candidate reads note and notes that the turbine is not tripped.	
COMMENTS:		

STEP 15:	(step 4.7.14) RESET Turbine Trip Contact Buffer.	**Critical Step**
	Depress test toggle switch on Turbine In Trip State Module (lower switch on buffer module)	**Basis: Bistable reset required to reset RPS.**
STANDARD:		
	Candidate depresses test toggle and observes both red lights on the module change state, bottom from on to off & top from off to on.	SAT_____
	Sub system trip lamp on 880 module goes "DIM"	UNSAT_____
COMMENTS:		
STEP 16:	(step 4.7.15) Reset Reactor Trip module.	**Critical Step**
	Depress Subsystem Reset toggle on Reactor Trip Module.	**Basis: Resets channel.**
	Verify Protective Sub-System amber indicating lamps on the top of each channel cabinet are DIM for the respective channel being reset:	SAT_____
	"A" RPS Channel "B" RPS Channel "C" RPS Channel "D" RPS Channel	UNSAT_____
STANDARD:		
	The candidate depresses the toggle switch and the RPS channel A trip annunciator alarm clears.	
	The candidate verifies that the PROCTECTIVE SUBSYSTEM LAMP (#1 light on the top of each left cabinet) goes dim. It should change from bright to dim when the subsystem reset toggle is pressed down.	
COMMENTS:		

Examiners CUE: Terminate this JPM once step 4.7.15 is completed.

TERMINATION CUE: **Power has been restored to RPS channel A.**

END OF TASK

TIME STOP:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The "A" RPS channel was de-energized using the breaker on the vital bus to allow repair of its power supply.

The repairs have been completed.

INITIATING CUE:

You are the Nuclear Operator.

The Control Room Supervisor directs you to restore power to RPS Channel "A".

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

Simh (2K7) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 9

PREPARE RM-A2 AND RM-A11 FOR WGDT RELEASE

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/7/07

VALIDATED BY William G Carr / John Wilcox Date: 8/12/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Prepare RM-A2 and RM-A11 for WGDT release.

Alternate Path: No

JPM #: SimH (2K7) NRC [NEW]

K/A Rating/Importance: 071A4.09 RO 3.3 SRO 3.5

Task Number: 072010200

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Prepare RM-A2 and RM-A11 for WGDT release per OP-412B

Preferred Evaluation Location:

Simulator X Plant _____ Admin _____

Preferred Evaluation Method

Perform X Simulate _____

References: OP-412B
SP-731G

Validation Time: 20 min

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1 Initialize normal 100% power IC.
2. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.
2. Depress and hold the BYPASS RM-A2 and BYPASS RM-A11 pushbuttons when directed by the candidate.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of OP-412B with steps signed off up to and including Step 4.1.17.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to prepare RM-A2 (G) and RM-A11 for a release of WDT-1B (WGDT) per OP-412B and the attached Gas Release Permit such that the release can be performed without nuisance alarms. RM-A11 counts are expected to reach as high as 9.0E4 cpm during the release. The procedure has been completed up to and including Step 4.1.17

EXAMINER'S NOTE: ***FOR STEPS DENOTED AS "CRITICAL STEP", WHICH HAVE MULTIPLE ACTIONS, THE INDIVIDUAL REQUIRED ACTION WILL BE DENOTED "CS". IF NO INDIVIDUAL ACTIONS ARE DENOTED AS SUCH THEN ALL ACTIONS WITHIN THE STEP ARE DEEMED "CRITICAL".***

TIME START:_____

NOTE: APPLICANTS MAY BE PROVIDED COPIES OF THE PROCEDURE PRIOR TO ENTERING THE SIMULATOR TO ALLOW FOR PRE-JOB PROCEDURE REVIEW. **STEP 1:** Obtain a copy of the correct procedure. **STANDARD:** The candidate will be provided with a copy of OP-412B **EXAMINER'S NOTE:** Provide the candidate with a copy of OP-412B signed off up to and including step 4.1.17. Notify simulator operator when candidate is ready to perform the JPM. **COMMENTS:**	SAT_____ UNSAT_____
STEP 2: (4.1.18) Verify "POWER" lights are lit on Radiation Monitoring Panel **STANDARD:** Candidate verifies "POWER" lights are lit for: • RM-A2 (G) • RM-A11 **COMMENTS:**	SAT_____ UNSAT_____

STEP 3: (Step 4.1.19) Test and adjust RM-A2 (G) WARNING setpoint per GRWRP. **STANDARD:** Candidate performs the following details • Depress and release RM-A2 HORN SILENCE pushbutton • Verify RM-A2 HORN SILENCE pushbutton is backlit • Record background count-rate • Select and hold ALARM SETTING switch to WARNING position **[CS]** • Adjust WARNING pot. to read below background **[CS]** • Release ALARM SETTING switch • Verify alarm at Rate Meter and MCB Annunciator **[CS]** • Select and hold ALARM SETTING switch to WARNING position **[CS]** • Adjust WARNING pot. to WARNING setpoint per posted GRWRP **[CS]** • Release ALARM SETTING switch • Record warning setpoint **EXAMINER'S NOTE:** **Monitors are normally set for 1M; top scale used to read counts. If 10K is selected, the middle scale would be used.** **COMMENTS:**	**Critical Step** **(required to test monitor operation)** SAT_____ UNSAT_____

STEP 4: (Step 4.1.20)	**Critical Step**
Test and adjust RM-A2 (G) HIGH setpoint per GRWRP.	**(required to test monitor operation)**
STANDARD:	
Candidate performs the following details • Notify CRS/SSO to refer to ODCM. • Depress and hold BYPASS RM-A2 pushbutton **(will be performed by simulator operator)** • Select and hold ALARM SETTING switch to HIGH position **[CS]** • Adjust HIGH pot. to read below background **[CS]** • Release ALARM SETTING switch • Verify alarm at Rate Meter and MCB Annunciator **[CS]** • Select and hold ALARM SETTING switch to HIGH position **[CS]** • Adjust warning pot to HIGH setpoint per posted GRWRP **[CS]** • Release ALARM SETTING switch • Record high setpoint • Reset all alarms • Depress and release RM-A2 HORN SILENCE pushbutton • Release BYPASS RM-A2 pushbutton **(candidate will direct simulator operator to perform this)**	SAT_____ UNSAT_____
EXAMINER'S CUE:	
Role play as CRS and inform candidate that the ODCM has been reviewed.	
EXAMINER'S NOTE:	
The simulator operator will need to hold the BYPASS RM-A2 pushbutton. Once the candidate identifies the need for an additional set of hands, direct the simulator operator to assist.	
COMMENTS:	

STEP 5: (Step 4.1.21) **Critical Step**

Test and adjust RM-A11 WARNING setpoint per GRWRP. **(required to test monitor operation)**

STANDARD:

Candidate performs the following details

- Depress and release RM-A11 HORN SILENCE pushbutton
- Verify RM-A11 HORN SILENCE pushbutton is backlit
- Record background count-rate
- Select and hold ALARM SETTING switch to WARNING position **[CS]**
- Adjust WARNING pot. to read below background **[CS]**
- Release ALARM SETTING switch
- Verify alarm at Rate Meter and MCB Annunciator [CS]
- Select and hold ALARM SETTING switch to WARNING position **[CS]**
- Adjust WARNING pot. to WARNING setpoint per attached GRWRP **[CS]**
- Release ALARM SETTING switch
- Record warning setpoint on OP-412B and on the Gas Release Permit

SAT_____

UNSAT _____

EXAMINER'S NOTE:

The warning setpoint must be set to less than or equal to 1.1 E5 but greater than 9.0E4.

Monitors are normally set for 1M; top scale used to read counts. If 10K is selected, the middle scale would be used.

COMMENTS:

STEP 6: (Step 4.1.22) Test and adjust RM-A11 HIGH setpoint per GRWRP. **STANDARD:** Candidate performs the following details • Notify CRS/SSO to refer to ODCM. • Depress and hold BYPASS RM-A11 pushbutton **(will be performed by simulator operator)** • Select and hold ALARM SETTING switch to HIGH position **[CS]** • Adjust HIGH pot. to read below background **[CS]** • Release ALARM SETTING switch • Verify alarm at Rate Meter and MCB Annunciator **[CS]** • Select and hold ALARM SETTING switch to HIGH position **[CS]** • Adjust warning pot. to HIGH setpoint per attached GRWRP **[CS]** • Release ALARM SETTING switch • Record high setpoint on OP-412B and on the Gas Release Permit • Reset all alarms • Depress and release RM-A11 HORN SILENCE pushbutton • Release BYPASS RM-A11 pushbutton **(candidate will direct simulator operator to perform this)** **EXAMINER'S CUE:** **Role play as CRS and inform candidate that the ODCM has been reviewed.** **EXAMINER'S NOTE:** **The simulator operator will need to hold the BYPASS RM-A11 pushbutton. Once the candidate identifies the need for an additional set of hands, direct the simulator operator to assist.** **The warning setpoint must be set to less than or equal to 2.1 E5 but greater than 9.0E4.** **COMMENTS:**	**Critical Step** **(required to test monitor operation)** SAT_____ UNSAT_____

STEP 7: (Step 4.1.23)

SAT_____

Ensure RM-A2/RM-A11 Channel Check is complete.

UNSAT_____

STANDARD:

Candidate signs and dates the RM-A11 Channel Check block on the attached Gas Release Permit.

EXAMINER'S CUE:

When candidate has signed and dated the Gas Release Permit, terminate the JPM.

COMMENTS:

END OF TASK

STOP TIME:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator
The plant is in Mode 1.

INITIATING CUE:

The Control Room Supervisor has directed you to prepare RM-A2 (G) and RM-A11 for a release of WDT-1B (WGDT) per OP-412B and the attached Gas Release Permit such that the release can be performed without nuisance alarms. RM-A11 counts are expected to reach as high as 9.0E4 cpm during the release. The procedure has been completed up to and including Step 4.1.17

GAS RELEASE PERMIT

ESTIMATED RELEASE CONDITIONS (CHEMISTRY)

Release Point ID:	WDT-1B (WGDT-3B)	Permit Number:	12345 .022. 123 .G
Release Approved By:	Joe Chemist	Special Requirements:	NONE
Release Data Verified By:	Fred Supervisor		
Monitor:	RM-A11		
Max Warning Setpoint:	1.1E5 cpm		
Max High Trip Setpoint:	2.1E5 cpm		
Background:	2500 cpm		

Estimated Curies to be Released	Release to Terminate at	Maximum Effluent Flow Rate
7.85E-2 Ci	10 psig	15 cfm

ACTUAL RELEASE CONDITIONS (OPERATIONS)

WD-19-FQI Channel Check Complete per OP-412B	By/Date: Pete P. Olivier / Today
RM-A11 Warning Setpoint: cpm	RM-A11 High Trip Setpoint: cpm
RM-A11 Channel Check Complete per OP-412B	By/Date:
RM-A11 Source Check Complete per OP-412B	By/Date:
Release Approved By (CRS)/Date:	

	Date	Time	WDT-1B Pressure
Start			psig
Stop			psig
Net	N/A	min	psig

IF RM-A11 Inoperable, THEN Perform 2 Independent Verifications of Discharge Valve Lineup per OP-412B	By/Date:	By/Date:
IF WD-19-FQI Inoperable, THEN Estimate Flow Rate at Least Once per 4 Hours per OP-412B AND Attach Data Sheet	By/Date:	

Release Completed By/Date:

Post Release Approved By (CRS)/Date:

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

SimSpare (2K7) NRC [Bank #410] (SIMULATOR)

SAFETY FUNCTION 8

START CWP-1C WHILE AT POWER

PREPARED/REVIEWED BY: Floyd Lawrence Date: 8/8/07

VALIDATED BY John Wilcox Date 8/13/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: SimSparc (2K7) NRC [Bank #410]

Task: Start CWP-1C while at power.

Alternate Path: ☒ YES ☐ NO

Safety Function: 8

K/A Rating/Importance: G2.1.31 (4.2 / 3.9)

Task Number: 0750102001

Position: ☐ SRO ONLY ☒ RO/SRO ☐ NLO/RO/SRO

Task Standard: Post maintenance, start CWP-1C while at power per OP-406.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method

☒ PERFORM ☐ SIMULATE

References:

OP-604

Validation Time: 18 Minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name **Time Finished:** _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# **109 (FATHER)** developed for this JPM.

OR

1. "Restore" the simulator to a 100% MOL IC.
2. Lower power to approximately 86-88%.
3. Secure CWP-1C.
4. Secure ARP-2B
5. Insert "Shaft Shear" failure for CWP-1C.
6. If needed, store IC in secure location IC# ____

SIMULATOR OPERATOR INSTRUCTIONS:

1. Place CW-24 to "Enable" as directed at step 11

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-604 section 4.7

READ TO THE OPERATOR:

INITIAL CONDITIONS:

The plant is at ≈ 85% power.

CWP-1C has been secured for 24 hours due to maintenance.

CWP-1C maintenance is now complete.

An SPO is standing by at the Intake Structure for CWP-1C start.

An in-plant SPO is controlling Hotwell level in manual.

INITIATING CUE:

You are the Nuclear Operator

The CRS has directed you to start CWP-1C.

TIME START:_____

STEP 1:	Student obtains correct procedure.	
STANDARD:		SAT_____
	Candidate obtains OP-604 section 4.7	UNSAT_____
EXAMINERS CUE:		
	Once candidate determines correct section in OP-604 then provide him/her with consumable copy of the procedure.	
COMMENTS:		

STEP 2: (Step 4.7.1)	
DETERMINE CWP to be started	SAT_____
CWP-1C	UNSAT_____
STANDARD:	
Candidate determines that CWP-1C requires start.	
COMMENTS:	

STEP 3: (Step 4.7.2)

IF CWP has been shutdown > 72 hours,
THEN NOTIFY Electric Shop to inspect motor winding integrity before starting

SAT_____

UNSAT_____

STANDARD:

Candidate determines step is N/A from information given in cue

COMMENTS:

STEP 4: (Step 4.7.3)

NOTE

Consult with Engineering for continued pump operation if lube water flow is outside the 8.0 – 10.5 gpm requirement.

ENSURE lube water is in operation 15 minutes before starting CWP(s)

__ 8.0 to 10.5 gpm to pump bearings
__ VERIFY water flow out of stuffing box
__ REFER TO OP-416, Domestic Water Supply System

SAT_____

UNSAT ___

STANDARD:

Candidate determines flow to the pump bearings and stuffing box flow by calling the SPO. DO is aligned thus OP-416 is not required.

EXAMINERS CUE:

Inform candidate that DO flow was established approx. 1 hour ago.

When requested, report as a SPO that flow to the pump bearings is 10.0 gpm and water flow is evident out of the stuffing box.

COMMENTS:

STEP 5: (Step 4.7.4)

CLOSE "A" ("B") Waterbox Debris Filter Vacuum Breaker Isolation for CWP being started

SAT_____

STANDARD:

UNSAT_____

Candidate determines that step is NA since CWP-1C is being started.

COMMENTS:

STEP 6: (Step 4.7.5)

Critical Step

ENSURE OPEN "C" ("D") Waterbox Debris Filter Vacuum Breaker Isolation for CWP being started.

ENSURE OPEN CWV-173 for CWP-1C
__ ENSURE OPEN CWV-186 for CWP-1D

Basis: Equipment damage if not performed.

STANDARD:

SAT_____

Candidate notifies the SPO to OPEN CWV-173 and receives confirmation the valve is open. CWV-186 will be marked NA

UNSAT_____

EXAMINERS CUE:

When directed and after a short delay role play as the SPO and report that CWV-173 is open

COMMENTS:

STEP 7: (Step 4.7.6) START standby CW Priming Pump, as necessary __ START ARP-2A OR __ START ARP-2B STANDARD: Candidate starts ARP-2B. **EXAMINER CUE:** **If directed, respond as the SPO that ARP-2B is ready for start.** COMMENTS:	SAT_____ UNSAT_____

STEP 8 (Step 4.7.7) PERFORM waterbox valve alignment for CWP being started CWP-1C: 1. __ CLOSE ARV-52 __ CLOSE ARV-53 2. __ OPEN ARV-3 __ OPEN ARV-4	**Critical Step:** **Basis:** **Proper alignment to ensure waterbox is primed.**
STANDARD: Candidate selects ARV-52 & 53 CS to "Closed". Verifies that green light remains lit. Candidate selects ARV-3 & 4 Control Switches to "Open". Verifies both red lights illuminate. Candidate acknowledges annunciator M-3-5, Water Box Vacuum Lost, and determines this is a normal alarm for starting CWP-1C. **EXAMINERS CUE:** Acknowledge annunciator information from the candidate as the CRS. COMMENTS:	SAT_____ UNSAT_____

STEP 9: (Step 4.7.8)

NOTIFY Chemistry to monitor Hotwell conductivity while priming Waterbox SAT_____

STANDARD: UNSAT_____

Candidate notifies secondary chemistry to monitor hotwell for conductivity via phone or radio.

EXAMINERS CUE:

When directed, acknowledge the step as Chemistry Dept. rep.

COMMENTS:

STEP 10: (Step 4.7.9)

PLACE applicable waterbox sightglass in service SAT_____

CWP-1C (CW-48-LI): UNSAT_____

__ OPEN CWV-214
OPEN CWV-217

STANDARD

Candidate notifies the SPO to open CWV-214 & 217 and awaits confirmation the valves are open.

EXAMINERS CUE:

When directed and after a brief delay, role play as the SPO and report that CWV-214 & 217 are OPEN.

COMMENTS:

STEP 11: (Step 4.7.10)

VERIFY waterbox level is ≥ 115 ft-H_2O.
AND POSITION applicable selector switch to ENABLE

SAT_____

UNSAT_____

1. VERIFY applicable waterbox level ≥ 115 ft-H_2O (verified by water level visible in sightglass or 24 – 30 in-Hg on AR-31-PI):

   'C' waterbox for CWP-1C

2. POSITION applicable selector switch to ENABLE

   __ CW-24 (CWP-1C)

STANDARD:

Candidate notifies the SPO to verify level in CWP-1C level sightglass or to verify that AR-31-PI indicates 24-30 in-Hg.

Candidate directs the SPO to place CW-24 to "Enable"

EXAMINERS NOTE:

ONCE ALARM M-3-5 HAS CLEARED, TIME COMPRESSION ALLOWED

EXAMINERS CUE:

When requested, wait for alarm M-3-5 to clear and inform candidate as the SPO that level does exist in the sightglass. If AR-31-PI is used, inform candidate that pressure reading is 26" in-Hg.

When completed by the Booth Instructor, inform candidate that CW-24 is selected to "Enable" as the SPO.

BOOTH INSTRUCTOR

Place CW-24 to "Enable" when directed. (Simulator page "*ar*")

COMMENTS:

STEP 12: (Step 4.7.11)

WHEN all start permissives are met,
THEN ENSURE OPEN "A" and "B" Waterbox Debris Filter Vacuum Breaker Isolation Valves

__ ENSURE OPEN CWV-196 for CWP-1A
__ ENSURE OPEN CWV-197 for CWP-1B

SAT_____

UNSAT_____

STANDARD:

Candidate N/A's this step.

COMMENTS:

STEP 13: (Step 4.7.12)

PLACE Debris Filter for affected waterbox in continuous backwash

CWCP-8 for "C" Waterbox

SAT_____

UNSAT_____

STANDARD:

Candidate notifies the SPO to place "C" Waterbox Debris Filters in continuous backwash

EXAMINERS CUE:

When directed and after a brief delay, role play as the SPO and report that the "C" Debris Filter system is in continuous backwash.

COMMENTS:

STEP 14: (Step 4.7.13)

IF starting CWP-1C or CWP-1D, THEN BYPASS applicable torque switch, if required

PLACE CWFL-3 "Torque Sw Bypass" Switch in BYPASS

SAT_____

UNSAT_____

STANDARD:

Candidate notifies SPO to bypass CWFL-3 torque switch

EXAMINERS CUE:

Inform SPO that torque switch is bypassed for CWFL-3.

COMMENTS:

STEP 15: (Step 4.7.14)

NOTIFY CR Units 1&2 Control Room of intent to place a CWP in service.

SAT_____

UNSAT_____

STANDARD:

Candidate notifies CR-1&2 Control Room via land line.

EXAMINERS CUE:

Role play as the Shift Supervisor at CR-1&2.

COMMENTS:

STEP 16: (Step 4.7.15)

IF operating at power
AND the AULD is in Auto
THEN NOTIFY System Dispatcher

SAT_____

UNSAT_____

NOTIFY System Dispatcher that CR3 will be starting a CWP and to expect an increase in megawatts generated

STANDARD:

Candidate N/A's this step. AULD is not in Auto.

COMMENTS:

STEP 17: (Step 4 7.16)

CAUTION

SAT_____

Do NOT allow waterbox inlet pressures to exceed 10 5 psig.

UNSAT_____

NOTE

When starting a CWP-1 after an extended shutdown (>2 days) transient abnormal conditions may be expected for as long as 15 minutes. These conditions include discharge pressures above alarm setpoints, unusual noises in the vicinity of the waterbox inlets, and high pump vibrations. System Engineering guidance during this condition is desirable.

STANDARD:

Candidate reads caution and note and determines that "Note" does apply.

EXAMINERS CUE:

If directed by the candidate, role play as the SPO and/or Engineer to monitor CWP and inlet water box pressure.

COMMENT:

STEP 17a: (Step 4.7.16) START CWP(s), as required * __ CWP-1C STANDARD: Candidate directs the SPO to clear the Unit 4160V switchgear room and makes PA announcement to stand clear of equipment. Candidate verifies start permits for CWP-1C and starts CWP-1C * Candidate determines that plant parameters are not indicative that CW flow is occurring from CWP-1C. Examples include, low amps, low discharge pressure that does not clear, and no change in hotwell level. Candidate request the SPO to evaluate CWP-1C locally. Candidate secures CWP-1C. **EXAMINERS CUE:** When directed, role play the sweeping of the switchgear room If asked, report as the intake SPO that CWP-1C is running, however discharge pressure is very low (<2 psig) and vibrations are high. If asked, report as the SPO that inlet water box pressure has not changed and is ≈ 0.5 psig COMMENTS:	***Critical Step:** **Basis: Action completes the requirement of the JPM to start equipment and determine that pump is not operating correctly.** SAT_____ UNSAT_____
STEP 17b: **EXPECTED TERMINATION** EXAMINER: IF CWP-1C IS SECURED, TERMINATE JPM. IF NOT, CONTINUE WITH NEXT STEP OF JPM.	

TIME STOP:_____

STEP 18: (Step 4.7.17) SAT_____

VERIFY proper operation of CWFL-3 or CWFL-4 UNSAT_____

STANDARD:

Candidate directs the SPO to ensure proper operation of CWFL-3

EXAMINER CUE:

Role play as the SPO when directed and inform the candidate that CWFL-3 is operating normal.

COMMENTS

STEP 19: (Step 4.7.18) SAT_____

ESTABLISH Debris Filter System in Automatic, AND LINEUP a Waterbox Priming Pump for standby operation for associated pump(s) UNSAT_____

1. ENSURE water boxes are full, AND CWPs are operating

2. STOP one CW Priming Pump:
   __ARP-2B in NORMAL-AFTER-STOP

3. IF Starting CWP-1C OR CWP-1D AND CWP(s) have Operated for 30 minutes THEN SELECT Debris Filter(s) to AUTOMATIC

   CWFL-3
   __CWFL-4

STANDARD:

Candidate directs the SPO to ensure the waterboxes are full and verifies that CWP-1C parameters are normal.

Candidate secures ARP-2B.

Candidate directs the SPO to place the "C" Waterbox debris system in Automatic.

EXAMINER CUE:

Role play as the SPO when directed and inform the candidate that the "C" waterbox is full and that the Debris filter system is in "Auto".

COMMENTS:

STEP 20 (Step 4.7.19) SAT_____

IF operating at power UNSAT_____
AND SG/RX Master is in Manual,
THEN RESTORE control station to normal operation

STANDARD:

Candidate N/A's this step since the SG/RX master is in "Auto".

COMMENTS

STEP 21: (Step 4.7.20) SAT_____

SELECT associated vacuum breakers and priming valves to AUTO UNSAT_____

SELECT valves to AUTO for CWP started:

CWP-1C:

__	ARV-3	__	ARV-52
__	ARV-4	__	ARV-53

STANDARD:

Candidate selects positions ARV-3, 4, 52, and 53 to "Auto".

COMMENTS:

TERMINATE THE JPM

TIME STOP _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant is at ≈ 85% power.

CWP-1C has been secured for 24 hours due to maintenance.

CWP-1C maintenance is now complete.

An SPO is standing by at the Intake Structure for CWP-1C start.

An in-plant SPO is controlling Hotwell level in manual.

INITIATING CUE:

You are the Nuclear Operator.

The CRS has directed you to start CWP-1C.

ATTACHMENT 9
CRYSTAL RIVER UNIT 3
JPM COVER SHEET

Plant! (2K7) NRC [Bank # 346] (PLANT)

SAFETY FUNCTION 5

Perform PPO Post Event Actions

PREPARED/REVIEWED BY: Floyd Lawrence Date: 7/23/07

VALIDATED BY: David Garlitz Date: 7/27/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

CRYSTAL RIVER UNIT 3
IN-PLANT JOB PERFORMANCE MEASURE

Task: Perform PPO Post Event Actions.

Alternate Path: "A" hydrogen analyzer is not in standby.

JPM #: Plant (2K7) NRC [Bank #346]

K/A Rating/Importance: 028A403 RO 3.1 SRO 3.3

Task Number/Position: 0090050300H PPO

Task Standard: Place a hydrogen analyzer in service using EOP-14 Enclosure 2, PPO Post Event Actions

Preferred Evaluation Location:

Simulator ___ In-Plant _X_ Admin

Preferred Evaluation Method:

Perform ___ Simulate _X_

References:

1. EOP-14 Enclosure 2, Rev. 16

Validation Time: 25 min.

Time Critical: No

Candidate: _____ **Time Start:**
Printed Name **Time Finish:** ____

Performance Rating: SAT UNSAT **Performance Time:** ____

Examiner: _____ _____ _____ _____
Printed Name Signature Date

Comment: _____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-14, Enclosure 2

IN-PLANT JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

Initial Conditions:

You are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.

Initiating Cues:

You are directed to complete EOP 14, Enclosure 2.

IN-PLANT JOB PERFORMANCE MEASURE

START TIME: _____

STEP 1:	Obtain a copy of appropriate procedure.	SAT ___
STANDARD:	Candidate obtains a copy of EOP 14, Enclosure 2.	UNSAT
STANDARD:	Candidate indicates that an emergency EAD will be obtained for this evolution. EADs may be obtained in the Turbine Building Hilton or at the access control point to the Auxiliary Building. Candidate may contact Health Physics and request them to determine if area is accessible. Contact can be made by radio, phone call or physically reporting to the HP office.	
EXAMINER NOTE:	**Once candidate indicates where he/she would acquire the enclosure provide them with a copy of EOP-14, Enclosure 2.**	
COMMENTS:		
STEP 2:	(step 2.1) Energize DHV-3. • Unlock and close ES MCC 3A1-3C "DHV-3 SUCTION FROM RCS"	**Critical Step** **Basis: Ensures Control Room can operate DHV-3 for long term cooling.**
STANDARD:	Candidate locates ES MCC 3A1 (95 ft AB hall) and unlocks switch 3C. Candidate rotates the switch handle to the "ON" position.	
EXAMINER CUE:	**Breaker snaps to the "ON" position and remains there. The red and amber lights remain out.**	SAT ___
COMMENTS:		UNSAT

STEP 3:	(step 2.2) Energize HPI recirc to sump valves. • Unlock and close DPDP 8A-4 "MUV-543, MUV-544"	**Critical Step** **Basis: Ensures Control Room can operate valves.**
STANDARD:	Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 4. Candidate rotates the switch handle to the "ON" position	SAT
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT
COMMENTS:		
STEP 4.	(step 2.3) Energize pressurizer vent valves. • Unlock and close DPDP 8A-13 "RCV-159, RCV-160"	**Critical Step** **Basis: Ensures Control Room can operate valves.**
STANDARD.	Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 13. Candidate rotates the switch handle to the on position.	SAT
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT
COMMENTS:		
STEP 5:	(step 2.4) Energize WS valves for hydrogen analyzers • Unlock and close DPDP 8A-14 "WSV-28, 30, 34, 42"	**Critical Step** **Basis: Necessary to align H2 sampling.**
STANDARD:	Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 14. Candidate rotates the switch handle to the "ON" position.	SAT
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT
COMMENTS:		

STEP 6:	(step 2.5) Align "A" Train DC cooling control to Control Room. • Ensure "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-177-MS"	SAT ____ UNSAT
STANDARD:	Candidate verifies that "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-177-MS".	
EXAMINER CUE:	**Decay Heat Heat Exchanger outlet temperature control is selected to the Control Room.**	
COMMENTS:		

STEP 7:	(step 2.6) Energize HPI recirc to sump valves • Unlock and close DPDP 8B-8 "MUV-545, MUV-546"	**Critical Step**
STANDARD:	Candidate locates DPDP 8B (B ES 4160V switchgear room) and unlocks switch 8. Candidate rotates the switch handle to the "ON" position.	**Basis: Ensures Control Room can operate valves.**
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	SAT ____
COMMENTS:		UNSAT

STEP 8:	(step 2.7) Energize WS valves for hydrogen analyzers. • Unlock and close DPDP 8B-21 "WSV-26, 32, 38, 41"	**Critical Step**
STANDARD:	Candidate locates DPDP 8B (B ES 4160V switchgear room) and unlocks switch 21. Candidate rotates the switch handle to the "ON" position.	**Basis: Necessary to align H2 sampling.**
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	SAT ____
COMMENTS:		UNSAT

STEP 9.	(step 2.8)Align "B" Train DC cooling control to Control Room. • Ensure "DHHE-1B OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-178-MS"	SAT _ ... . UNSAT
STANDARD:	Candidate verifies that "DHHE-1B OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-178-MS".	
EXAMINER CUE:	**Decay Heat Heat Exchanger outlet temperature control is selected to the Control Room.**	
COMMENTS:		

STEP 10:	(step 2.9) Energize "A" hot leg high point vents. • Unlock and close DPDP 5A-1 "RCV-157, RCV-158"	**Critical Step**
STANDARD:	Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 1. Candidate rotates the switch handle to the "ON" position.	**Basis: Ensures Control Room can operate valves.**
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	SAT ... ..
COMMENTS:		UNSAT _..

STEP 11:	(step 2.10) Energize WS valves for hydrogen analyzers. • Unlock and close DPDP 5A-2 WSV-29, 31, 35, 43	**Critical Step**
STANDARD:	Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 2. Candidate rotates the switch handle to the "ON" position.	**Basis: Necessary to align H2 sampling.**
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	SAT
COMMENTS.		UNSAT _..

STEP 12:	(step 2.11) Energize PASS valves. • Unlock and close DPDP 5A-27 "CAV-429, 430, 433, 434 SV"	**Critical Step** **Basis: Ensures Control Room can operate valves.**
STANDARD:	Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 27. Candidate rotates the switch handle to the "ON" position.	SAT
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT ___
COMMENTS:		
STEP 13:	(step 2.12) Energize "B" hot leg high point vents • Unlock and close DPDP 5B-1 "RCV-163, RCV-164"	**Critical Step** **Basis: Ensures Control Room can operate valves.**
STANDARD:	Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 1. Candidate rotates the switch handle to the "ON" position.	SAT
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT ___
COMMENTS:		
STEP 14:	(step 2.13) Energize PASS valves • Unlock and close DPDP 5B-8 "CAV-432, 435, 436"	**Critical Step** **Basis: Ensures Control Room can operate valves.**
STANDARD:	Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 8. Candidate rotates the switch handle to the "ON" position.	SAT ___
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	UNSAT ___
COMMENTS:		

STEP 15:	(step 2.14) Energize WS valves for hydrogen analyzers. • Unlock and close DPDP 5B-27 "WSV-27, 33, 39, 40"	**Critical Step**
STANDARD:	Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 27. Candidate rotates the switch handle to the "ON" position.	**Basis: Necessary to align H2 sampling.**
EXAMINER CUE:	**Switch snaps to the "ON" position and remains there.**	SAT
COMMENTS:		UNSAT ___
STEP 16:	(step 2.15)Verify "A": hydrogen analyzer is in standby. If "A" analyzer is not in standby, then go to step 2.22 in this enclosure. • Amber STANDBY light lit.	**Critical Step**
STANDARD:	Candidate locates "A" hydrogen analyzer (A EFIC room, relay rack RR4A) standby light. Candidate transitions to step 2.22 upon discovery that standby light is not lit.	**Basis: Necessary to ensure a standby H2 analyzer is placed in service.**
EXAMINER CUE:	**The standby light is NOT lit.** (NOTE: This light will normally be lit. It is not lit for alternate path purposes.)	SAT ___ UNSAT ___
COMMENTS:		
STEP 17:	STATUS: B H2 analyzer to be placed in service.	SAT ___
STANDARD:	Candidate reads status	UNSAT
COMMENTS:		
STEP 18:	(step 2.22)Verify "B": hydrogen analyzer is in standby. • Amber STANDBY light lit.	SAT
STANDARD:	Candidate locates "B" hydrogen analyzer (B EFIC room, relay rack RR4B) standby light.	UNSAT ___
EXAMINER CUE:	**The standby light is lit.**	
COMMENTS:		

STEP 29:	(step 2.23) Notify Control Room to verify at least 1 RB cooling unit is running. • AHF-1A • AHF-1B • AHF-1C	SAT _____ UNSAT
STANDARD: Candidate contacts Control Room to determine RB fan status (may walk to nearest telephone to simulate radios are not allowed in the EFIC rooms).		
EXAMINER CUE:	**Roleplay as the Control Room and report that AHF-1A is running.**	
COMMENTS:		
STEP 30:	(step 2.24) Align "B" hydrogen analyzer. • If at least 1 RB cooling unit is running, then align "B" hydrogen analyzer to RB Reactor Duct. Open WSV-26 Open WSV-27 • If no RB cooling units are running, then align "B" hydrogen analyzer to RB Dome. Open WSV-38 Open WSV-39	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT
STANDARD: Candidate locates control switches for WSV-26 and WSV-27 and rotates switches to open. Candidate verifies both valves are open by red light on and green light off.		
EXAMINER CUE:	**Both WSV-26 and WSV-27's red open light's are on.**	
COMMENTS:		

STEP 21:	(step 2.25) Open "B" hydrogen analyzer return valves. • WSV-41 • _____WSV-40	**Critical Step** **Basis: Necessary to align H2 sampling.**
STANDARD:	Candidate locates control switches for WSV-41 and WSV-40 and rotates switches to open. Candidate verifies both valves are open by red light on and green light off	SAT
EXAMINER CUE:	**Both WSV-41 and WSV-40's red open lights are on.**	UNSAT ___
COMMENTS:		
STEP 22:	(step 2.26) Energize "B" hydrogen analyzer. • Select "System Power" switch to "ON" on WS-10-CS "CONTAINMENT MONITOR MAIN SYSTEM CONTROL"	**Critical Step** **Basis: Necessary to align H2 sampling.**
STANDARD:	Candidate locates system power toggle for "B" hydrogen analyzer and selects toggle to on. Candidate verifies power light on.	SAT
EXAMINER CUE:	**The "B" hydrogen analyzer "ON" light comes on.**	UNSAT ___
COMMENTS:		
STEP 23:	(step 2.27) Notify Control Room that PPO post event actions are complete with "B" hydrogen analyzer in service.	SAT ___
STANDARD:	Candidate contacts the Control Room to inform them of completion of Enclosure 2 of EOP-14 with the "B" hydrogen analyzer in service.	UNSAT ___
EXAMINER CUE:	**I understand that Enclosure 2 of EOP-14 is complete with the "B" hydrogen analyzer in service.**	
COMMENTS		
	END OF TASK	

TIME STOP: _____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

Initial Conditions:

You are the Primary Plant Operator.
The plant has just tripped.
A LOCA is in progress.

Initiating Cues:

You are directed to complete EOP-14, Enclosure 2.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

PlantJ (2K7) NRC [Bank #414] (PLANT)

Safety Function 6

ALIGN BEST AUX BUS 3 TO ENERGIZE ES 4160V BUS FROM ALTERNATE AC DIESEL

PREPARED/REVIEWED BY: Floyd Lawrence Date: 7/23/07

VALIDATED BY: David Garlitz Date: 7/27/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

IN-PLANT JOB PERFORMANCE MEASURE

Task: Align BEST AUX BUS 3 to energize ES 4160V Bus from Alternate AC Diesel

Alternate Path: NO

JPM #: PlantJ (2K7) NRC [Bank #414]

K/A Rating/Importance: G2.1.30 (3.9 / 3.4)

Task Number: 0620404002

Position: [ ]SRO ONLY [ ]RO/SRO [X]NLO/RO/SRO

Task Standard: Align BEST AUX BUS 3 to energize ES 4160V Bus from Alternate AC Diesel per AP-770 Enclosure 9.

Preferred Evaluation Location:

Simulator____ Plant _X_ Admin ___

Preferred Evaluation Method

Perform ___ Simulate _X_

References:

AP-770 Enclosure 9
SAF-NGGC-2175
OP-703

Validation Time: 15 min

Time Critical: No

Candidate: _____ **Time Started:** _____
Printed Name

Time Finished: _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of AP-770, Enclosure 9 Step 9.8.
2. Consumable copies of OP-703 Step 4.4.2.
3. Photographs of interior of breaker 3237 upper and lower cabinets

READ TO THE OPERATOR:

INITIAL CONDITIONS:

'B' 4160V ES Bus de-energized due to a cabling fault from the BEST.
'B' ES Diesel failed to start.
'B' ES Bus feeder breaker (3212) from OPT out of service for maintenance.

INITIATING CUES:

You are the Secondary Plant Operator.

The Control Room directs you to align the BEST AUX BUS 3 for energizing the 'B' ES 4160V bus from the Alternate AC Diesel using AP-770 Enclosure 9 Step 9.8.

TIME START:_____

STEP 1: Candidate obtains a copy of AP-770. **STANDARD:** Candidate obtains a copy of AP-770, Enclosure 9. **EXAMINER'S NOTE**: Once candidate takes action to obtain the procedure give the candidate a consumable copy of AP-770 Enclosure 9. **COMMENTS:**	SAT_____ UNSAT_____
STEP 2: (Step 9.8, Detail 1) Align BEST AUX BUS 3 for energizing ES 4160V bus from Alternate AC Diesel. Notify qualified operator to perform the following: Position Bkr 3239 "CONTROL POWER DISCONNECT BREAKER 3239" to "ON" (119 TB Unit 4160V SWGR Room). **STANDARD:** Candidate locates control switch and simulates placing it to "ON" (up). **EXAMINER'S CUE:** **Inform the candidate that the switch snaps to and is maintained in the "up" position.** **COMMENTS:**	**Critical Step** **Basis: Ensures BEST Aux Bus is separated from the fault.** SAT_____ UNSAT_____

STEP 3: (Step 9.8, Detail 2)

Open Bkr 3239 at "CONTROL STATION MT-1" (119 TB Unit 4160V SWGR Room east wall).

STANDARD:

Candidate locates switch and simulates placing it to the "TRIP" position.

EXAMINER'S CUE:

Inform the candidate that the red flag in the switch turns green, the red light above the switch goes out, and the green light comes on. The sound of a breaker opening is heard.

COMMENTS:

Critical Step

Basis: Ensures BEST Aux Bus is separated from the fault.

SAT_____

UNSAT_____

STEP 4: (Step 9.8, Detail 3)

Rack in Bkr 3237 (119 TB Unit 4160V SWGR Room).

STANDARD:

Candidate may refer to a copy of OP-703. (Not required while performing tasks in an Abnormal (AP) or Emergency Procedure (EOP). Also the requirements of NGGC-SAF-2175 do not apply while in an emergency or abnormal procedure

EXAMINER'S CUE:

If candidate calls the control room to ask for guidance in regards to using OP-703 for instructions on racking in the breaker and/or guidance on the usage of flash protection clothing as per NGGC-SAF-2175 then respond as the CRS or SSO that we are in AP-770 and need to quickly energize the 'B' ES 4160v Bus.

All reasonable steps should be taken to ensure worker safety without compromising the timely completion of emergency evolution tasks.

COMMENTS:

SAT_____

UNSAT_____

STEP 5: (OP-703 Step 4.4.2.2 Detail 1)

IF it is desired to rack in a 4160V or 6900V-Bkr with a separate Knife Switch compartment, THEN PERFORM the following

SAT_____

UNSAT_____

1. DON appropriate PPE per SAF-NGGC-2175 Electrical Safety and Arc Flash Protection

STANDARD:

The operator may or may not utilize OP-703 guidance for this evolution because the initial information told the operator that an abnormal procedure was in effect and therefore the requirements of OP's and NGGC-SAF-2175 can be waived.

EXAMINER'S NOTE:

This step should be simulated and /or N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above.

COMMENTS:

STEP 6: (OP-703 Step 4.4.2.2 Detail 2)

2. ENSURE DC control power Knife Switch is OPEN

SAT _____

UNSAT_____

STANDARD:

The operator may or may not utilize OP-703 guidance for this evolution because the initial information told the operator that an abnormal procedure was in effect and therefore the requirements of OP's and NGGC-SAF-2175 can be waived.

EXAMINER'S CUE:

Inform the candidate that the knife switch is open.

EXAMINER'S NOTE:

This step should be simulated and /or N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above.

COMMENTS:

STEP 7: (OP-703 Step 4.4.2.2 Detail 3 and 4)

3. IF Remote Control Switch (Control Room) has a PULL TO LOCK position, THEN ENSURE Control Switch is in PTL
4. ENSURE charging motor DC "Power Control Switch" is ON

SAT_____

UNSAT_____

STANDARD:

Detail 3 is not applicable to this breaker. The candidate should simulate opening the breaker door to verify the charging motor switch is on.

The operator may or may not utilize OP-703 guidance for this evolution because the initial information told the operator that an abnormal procedure was in effect and therefore the requirements of OP's and NGGC-SAF-2175 can be waived.

EXAMINER'S CUE:

Inform the candidate that the switch is already ON.

EXAMINER'S NOTE:

This step should be simulated and for N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above.

COMMENTS:

STEP 8: (OP-703 Step 4.4.2.2 Detail 5, 6, 7)

5. ENSURE Bkr is installed in cubicle, door is closed and secured.
6. RACK IN Bkr to TEST position
7. IF CONN position is desired, THEN RACK IN Bkr to CONN position (Racking interlock latch in the down position and trip pushbutton not depressed is verification Bkr is racked in)

Critical Step

Basis: Necessary to provide power to bus.

SAT_____

UNSAT_____

STANDARD:

The student simulates reclosing the cubicle door (the breaker is already installed). The student then locates the racking tool and simulates the following:

- Insert racking tool in breaker racking mechanism.
- Push racking unlocking lever (metal level around the left, top, and bottom of racking mechanism) to the left. (this only needs to be held for the first ¼ turn of the racking tool)
- Rotating the racking tool clockwise until the breaker reaches test position.
- Repeat the two previous steps to move the breaker to connect position.

The operator may or may not utilize OP-703 guidance for this evolution because the initial information told the operator that an abnormal procedure was in effect and therefore the requirements of OP's and NGGC-SAF-2175 can be waived.

EXAMINER'S CUES:

It may be necessary to ask the candidate to describe in detail how he will rack the breaker.

If the candidate fails to position the unlocking lever to the left, the racking mechanism will not turn.

When the breaker reaches the test position, the breaker will "lock" into place. Again, the candidate will need to position the unlocking lever to the left or the mechanism will not turn.

Inform the candidate that the breaker is in the CONN position, the interlock latch is down, and the trip pushbutton is not depressed.

EXAMINER'S NOTE:

This step should be simulated and /or N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above.

COMMENTS:

STEP 9: (OP-703 Step 4.4.2.2 Detail 8) 8. CLOSE DC control power Knife Switch, AND VERIFY closing springs charge by observing tabs on the lower front of the Bkr project out and the words SPRINGS CHARGED CAUTION are visible. **STANDARD:** Candidate simulates opening the upper panel and closing the knife switch. **EXAMINER'S CUE:** **Inform the candidate that the sound of a motor running is briefly heard. The yellow SPRINGS CHARGED CAUTION tab is visible and the breaker green open lamp is lit.** **EXAMINER'S NOTE:** This step should be simulated and /or N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above. **COMMENTS:**	**Critical Step** **Basis: Necessary to provide power to bus.** SAT_____ UNSAT_____

STEP 10: (OP-703 Step 4.4.2.2 Detail 9, 10, 11)

9. IF Remote Control Switch (Control Room) has a PULL TO LOCK position, THEN REMOVE from PTL.
10. VERIFY local and remote indications are energized
11. IF Bkr is equipped with a "Local Permissive" or a "Breaker Control Transfer" Switch, THEN SELECT switch to REMOTE position.

SAT_____

UNSAT_____

STANDARD:

Detail 9 and 11 are N/A for this breaker. Candidate verifies the breaker green lamp is lit and that the green lamp on CONTROL STATION MT-1 is lit for breaker 3237.

EXAMINER'S CUE:

Inform the candidate that the breaker green open lamp is lit and that the MT-1 green lamp for breaker 3237 is lit.

EXAMINER'S NOTE:

This step should be simulated and /or N/A for this step. Guidance for OP-703 is provided here to the examiner for aid in grading this part of the evolution, the operator may not use the OP as stated above.

COMMENTS:

STEP 11: (Step 9.8, Detail 4)

Close Bkr 3237 at "CONTROL STATION MT-1" (119 TB Unit 4160V SWGR Room east wall).

Critical Step

Basis: Provides power to bus.

STANDARD:

Candidate locates panel and simulates placing the switch to CLOSE

SAT_____

UNSAT_____

EXAMINER'S CUE:

When the candidate moves the switch to close, the sound of a breaker operating is heard, followed by the sound of a motor running briefly.

The green flag on the switch will become red.

Inform the candidate that the red lamp on MT-1 is lit and the green lamp is out. On the breaker, the red lamp is lit and the green lamp is out.

COMMENTS:

STEP 12:

Candidate notifies Control Room that BEST AUX BUS 3 is aligned for energizing B ES 4160V Bus from the Alternate AC Diesel.

SAT_____

UNSAT_____

STANDARD:

Candidate notifies Control Room that BEST AUX BUS 3 is aligned for energizing B ES 4160V Bus from the Alternate AC Diesel.

EXAMINER'S CUE:

Acknowledge the candidate's communication.

COMMENTS:

TERMINATION CUE: **When examinee completes step 9.8 of AP-770 Enclosure 9 or calls the control room to report B ES bus is ready for energizing.**

END OF TASK

TIME STOP:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

'B' 4160V ES Bus de-energized due to a cabling fault from the BEST.
'B' ES Diesel failed to start.
'B' ES Bus feeder breaker (3212) from OPT out of service for maintenance

INITIATING CUES:

You are the Secondary Plant Operator.

The Control Room directs you to align the BEST AUX BUS 3 for energizing the 'B' ES 4160V bus from the Alternate AC Diesel using AP-770 Enclosure 9 Step 9.8.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

PlantK (2K7) [Bank #399] (In-Plant)

SAFETY FUNCTION 8

PERFORM IA SYSTEM ALIGNMENT (AP-470)

PREPARED/REVIEWED BY: Floyd Lawrence Date: 7/23/07

VALIDATED BY: David Garlitz Date: 7/27/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

IN-PLANT JOB PERFORMANCE MEASURE

Task: Perform Instrument Air System Alignment, AP-470 Enclosure 1

Alternate Path: Yes

JPM #: PlantK (2K7) NRC [Bank #399]

K/A Rating/Importance: APE065.AK3.04 (3.0 / 3.2)
APE065.AK3.08 (3.7 / 3.9)

Task Number: 0860204020, 0860402001, 1150402010

Position: ☐ **SRO ONLY** ☐ **RO/SRO** ☒ **NLO/RO/SRO**

Task Standard: Align the IA system in response to loss of IA.

Preferred Evaluation Location:

Simulator____ Plant __X__ Admin____

Preferred Evaluation Method

Perform ___ Simulate __X

References:

AP-470

Validation Time: 15 min

Time Critical: No

Candidate: _____
Printed Name

Time Started: _____
Time Finished: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment:_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of AP-470, Enclosure 1

READ TO THE OPERATOR:

INITIAL CONDITIONS:

The plant has entered AP-470 due to a large air leak in the Auxiliary Building.
IAP-3A and IAP-3C are running loaded
IAP-3B is tagged out for maintenanco.
IAP-4 has failed to start.
IA Header Pressure is 75 psig and steady.

INITIATING CUES:

You are the Turbine Building Operator.

The CRS has directed you to perform AP-470, Enclosure 1, IA System Alignment.

TIME START _____

STEP 1:

Candidate obtains the Turbine Building copy of AP-470.

SAT ____

UNSAT_____

STANDARD:

Candidate retrieves the Turbine Building copy of AP-470 and obtains Enclosure 1, IA System Alignment.

EXAMINER'S CUE:

Once candidate takes action to obtain procedure give the candidate a clean copy of AP-470 Enclosure 1.

If at any time candidate questions or takes action to investigate IAP-4 not starting, inform candidate that another operator is investigating IAP-4.

COMMENTS:

STEP 2: (Step 1.1)

___Start all available air compressors (95 ft TB).

SAT_____

UNSAT_____

__IAP-3A
__IAP-3B
__IAP-3C

STANDARD:

Candidate verifies that IAP-3A and IAP-3C are running loaded by observing the IAP-3A & C interface panels. IAP-3B was listed R/T OOS in the initial conditions

EXAMINERS CUE:

IAP-3A & IAP-3C are running loaded.

If asked, system pressure is 75 psig. Candidate may request the position of the bypass/loading valve. If asked, the valve is in a mid-position. If requested, Control Room "red" indicating lights are lit for IAP-3A & 3C.

STEP 3: (Step 1.2)

IF IA PRESS < 80 psig,
THEN ensure SA / IA crosstie is isolated.

1 Verify IAV-30 "IA/SA CROSSTIE AUTO ISOLATION" is closed. (95 ft TB behind IADR-2)

2 IF IAV-30 is not closed, THEN select "INST. AIR BACKUP SUPPLY VLV. IAV-30" switch to "CLOSE" position. (95 ft TB right of IAFL-3A/3B)

STANDARD:

Candidate observes IA pressure is 75 psig. Candidate observes that IAV-30 is OPEN. Candidate performs contingency action (bullet 2) and selects IAV-30 control switch to "CLOSE".

EXAMINERS CUE:

If candidate is looking observing a remote pressure indicator, using a pencil or tool show candidate that IA pressure is 75 psig. When candidate observes IAV-30 report "Red Light Lit". When candidate selects IAV-30 to "Close" report "Red Light Out, Green Light Lit"

COMMENTS:

Critical Step

Basis: Possible isolation of leak to the IA system. Maintains IA integrity.

SAT_____

UNSAT_____

STEP 4: (Step 1.3)

IF IAP-3A s running,
THEN place IADR-3A prefilters and afterfilters in service.

Ensure all the following valves are open:

IAV-828	IAV-830	IAV-831	IAV-829
IAV-834	IAV-832	IAV-833	IAV-835

STANDARD:

Candidate locates each valve and ensures it is open.

EXAMINERS CUE:

Using a pen or pencil show direction of travel of the valve handles as the spare filters are placed in service. Valves for the on-line filters should be open. Inform the candidate that these valves are "as seen".

COMMENTS:

Critical Step

Basis: Ensures proper system alignment and filtration.

SAT_____

UNSAT_____

STEP 5: (Step 1.4)

___ IF IAP-3B is running,
THEN place IADR-3B prefilters and afterfilters in service.

SAT_____

UNSAT_____

STANDARD:

Candidate should N/A this step due to IAP-3B NOT running

COMMENTS:

STEP 6: (Step 1.5)

Critical Step

IF IAP-3C is running,
THEN place IADR-3C prefilters and afterfilters in service.

Ensure all the following valves are open:

IAV-844	IAV-846	IAV-847	IAV-845
IAV-850	IAV-848	IAV-849	IAV-851

Basis: Ensures proper system alignment and filtration

STANDARD:

SAT_____

UNSAT_____

Candidate locates each valve and ensures it is open.

EXAMINERS CUE:

Using a pen or pencil show direction of travel of the valve handles as the spare filters are placed in service. Valves for the on-line filters should be open. Inform the candidate that these valves are "as seen".

COMMENTS:

STEP 7: (Step 1.6)

___ IF IAP-4 is running,
THEN place IADR-2 prefilters and afterfilters in service.

SAT_____

UNSAT_____

STANDARD:

Candidate should N/A this step due to IAP-4 NOT running.

COMMENTS:

STEP 7: (Step 1.7) IF IAP-4 is running. THEN bypass IADR-2. **STANDARD:** Candidate should N/A this step due to IAP-4 NOT running. **COMMENTS:**	SAT_____ UNSAT_____
STEP 8: (Step 1.8) ___. **EXIT** this enclosure. **STANDARD:** Candidate should notify the CRS that Enclosure is complete. **EXAMINERS CUE:** Acknowledge reports from the candidate as the CRS. **COMMENTS:**	SAT_____ UNSAT_____
END TASK	

TIME STOP:_____

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UNPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant has entered AP-470 due to a large air leak in the Auxiliary Building.
IAP-3A and IAP-3C are running loaded
IAP-3B is tagged out for maintenance.
IAP-4 has failed to start.
IA Header Pressure is 75 psig and steady.

INITIATING CUES:

You are the Turbine Building Operator.

The CRS has directed you to perform AP-470, Enclosure 1, IA System Alignment.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

PlantSpare (2K7) NRC [Bank #331] (PLANT)

Safety Function 8

RECIRCULATION OF FSP-1

PREPARED/REVIEWED BY: Floyd Lawrence Date: 7/23/07

VALIDATED BY: David Garlitz Date 7/27/07

APPROVAL BY: Mark Vansicklen Date: 9/5/07
(Nuclear Training Supervisor)

IN-PLANT JOB PERFORMANCE MEASURE

Task: Recirculation of FSP-1.

Alternate Path: ☐ YES ☒ NO

JPM: PlantSpare (2K7) NRC [Bank #331]

K/A Rating/Importance: 086A401 (3.3 / 3.3)

Task Number: 0860104001, 1190404001

Position: ☐ SRO ONLY ☐ RO/SRO ☒ NLO/RO/SRO

Task Standard: Recirculation of FSP-1 using AP-330 enclosure 3.

Preferred Evaluation Location:

☐ SIM ☒ PLANT ☐ ADMIN

Preferred Evaluation Method

☐ PERFORM ☒ SIMULATE

References:

AP-330

Validation Time: 15 Minutes

Time Critical: ☐ YES ☒ NO

Candidate: _____ **Time Started:** _____
Printed Name **Time Finished:** _____

Performance Rating: SAT _____ UNSAT _____ **Performance Time:** _____

Examiner: _____ _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

_____

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of AP-330, Enclosure 3

IN-PLANT JOB PERFORMANCE MEASURE

READ TO THE OPERATOR:

INITIAL CONDITIONS:

AP-330, Loss of Nuclear Service Cooling has been entered.

INITIATING CUE:

You are the SECONDARY PLANT OPERATOR.

You have been notified by the CRS to perform AP-330, Enclosure 3, FSP-1 Recirc.

TIME START:_____

STEP 1: Obtain Copy of AP-330	SAT_____
STANDARD: Locates AP-330 in the SPO office.	UNSAT_____
EXAMINER'S NOTE: Once AP-330 located in SPO office, provide copy of AP-330, Enclosure 3 for examinee to use.	
COMMENTS:	

STEP 2: AP-330 Enclosure 3, Step 3.1 Align FSP-1 to recirc FST-1A Detail ▪ ___ Obtain key 20 from Control Room. ▪ Close FSV-28 "FST-1B INLET ISO" (119 ft Berm between FSTs). ▪ Open FSV-24 "FSP RECIRC LINE TO FST ISO" (119 ft FSPH northwest wall) **EXAMINER NOTE:** Key 20 is not required since the Fire Pump House is no longer locked. **STANDARD:** Examinee will enter the Fire Service Pump House. Examinee will simulate rotating FSV-28 hand wheel in the clockwise direction (observes stem lowering) to hard stop. Examinee will simulate rotating FSV-24 hand wheel in the CCW direction (observes stem rising) to hard stop. Examinee places valve off the backseat ¼ turn. **EXAMINER CUE:** FSV-28 - Hand wheel rotates, stem moves inward and hand wheel comes to a hard stop. FSV-24 - Hand wheel rotates, stem moves outward and hand wheel comes to a hard stop. **COMMENTS:**	**Critical Step** **Basis: Proper system alignment to allow recirc of FSP-1.** SAT_____ UNSAT_____

STEP 3:
AP-330 Enclosure 3, Step 3.2

Slowly open FSV-18 "FSP-1 RECIRC ISO" until FSP-1 starts
(119 ft FSPH south wall)

STANDARD:
Examinee simulates rotating FSV-18 hand wheel in the counter-clockwise direction until examiner informs candidate that FSP-1 has started.

EXAMINER NOTE:
FSP-1 should start when FSV-18 is about 1 turn open.

EXAMINER CUE:
FSP-1 is running.

COMMENTS:

Critical Step

Basis: Lowers FS pressure to auto start FSP-1.

SAT_____

UNSAT_____

STEP 4:
AP-330 Enclosure 3, Step 3.3

Adjust FSV-18 "FSP-1 RECIRC ISO" to obtain 480 to 600 gpm recirc flow as read on FS-12-FIS
(119 ft FSPH)

STANDARD:
Examinee locates FS-12-FIS and examiner will indicate 400 gpm. Examinee simulates rotating FWV-18 in the counter-clockwise direction further. Examinee checks FS-12-FIS and examiner will indicate 560 gpm.

EXAMINER CUE:
Indicate 400 gpm when Examinee first checks FS-12-FIS; indicate 560 gpm the next time gage is checked.

COMMENTS:

Critical Step

Basis: Allows proper recirc flow to prevent pump damage.

SAT_____

UNSAT_____

STEP 5:
AP-330 Enclosure 3, Step 3.4

EXIT this enclosure.

STANDARD:
Examinee informs control room (examiner) that Enclosure 3 of AP-330 is complete.

EXAMINER'S NOTE:
Take the part of the Control Room in communication with the SPO

COMMENTS:

SAT_____

UNSAT_____

TERMINATION CUE:

TASK is complete when step 3.4 completed and control room notified.

END JPM

STOP TIME:_____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO THE EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

AP-330, Loss of Nuclear Service Cooling has been entered.

INITIATING CUE:

You are the SECONDARY PLANT OPERATOR.

You have been notified by the CRS to perform AP-330, Enclosure 3, FSP-1 Recirc.