

Draft Submittal

(Pink Paper)

CRYSTAL RIVER OCTOBER 2005 EXAM

05000302/2005301

SEPTEMBER 12 - 16, 2005

SEPTEMBER 19, 2005 (WRITTEN)

1. Administrative Topics Outline (ES-301-1)
2. Control Room Systems & Facility Walk-Through
Test Outline (ES-301-2)
3. Administrative JPMs
4. In-plant JPMs
5. Control Room JPMs (simulator JPMs)

Facility: Crystal River Unit #3

Date of Exam: September 9 thru 16, 2005

Examination Level: **RO & SRO-I**

Operating Test Number: 1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N	SRO Only – (CO1) – Determine overtime availability. <i>K/A – G2.1.4 SRO 3.4</i> AI-100
	N	RO & SRO – (CO2) – Calculate SDM with a dropped control rod. <i>K/A – G2.1.7 RO 3.7 SRO 4.4</i> SP-421 SRO Only – After completing the SDM calculation determine required TS actions, if any. <i>K/A – G2.1.12 SRO 4.0</i>
Equipment Control	N	RO & SRO – (EC1) – Perform a QPTR calculation. <i>K/A – G2.2.12 RO 3.0 SRO 3.4</i> SP-303 SRO Only – After completing the QPTR calculation determine required TS actions, if any. <i>K/A – G2.1.12 SRO 4.0</i>
Radiation Control	N	RO & SRO – (RC1) – Calculate the maximum permissible stay time with an Emergency Event in progress. <i>K/A – 2.3.4 RO 2.5 SRO 3.1</i> EM-202
Emergency Plan	D	RO Only – (EP1) - Perform an Offsite Dose Assessment Calculation <i>K/A – G2.4.39 RO 3.3</i> EM-204A
	N	SRO Only – (EP2) - Determine Emergency Action Level and Protective Action Recommendations . <i>K/A – G2.4.41 SRO 4.1</i> EM-202

Note:

All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:

(C)ontrol room

(D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)

(N)ew or (M)odified from bank (≥ 1)

(P)revious 2 exams (≤ 1; randomly selected)

(S)imulator

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Facility: Crystal River Unit #3		Date of Exam: September 9 - 16, 2005	
Examination Level: RO & SRO-I		Operating Test Number: 1	
Control Room systems[@] (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)			
System / JPM Title		Type Code*	Safety Function
a.	CRDS – Transfer control rod to auxiliary power supply K/A – 001A4.03 RO 4.0 SRO 3.7 (OP-502) [RO]	D, P, S	1
b.	CVCS – Respond to OTSG tube rupture at power K/A – 004A4.06 RO 3.6 SRO 3.1 (EOP-6) [RO. SRO-I]	A, D, S	3
c.	RCS – Respond to a stuck open PZR spray valve K/A – 002A4.01 RO 4.2 SRO 4.4 (AP-520) [RO. SRO-I]	A, L, N, S	2
d.	RHR – Respond to an ES A/B actuation K/A – 025AA1.10 RO 3.1 SRO 2.9 (EOP-3) [RO. SRO-I]	A, D, S	4 Primary
e.	MSS – Perform actions for a stuck open MSSV K/A – 039A2.04 RO 3.4 SRO 3.7 (EOP-2) [RO. SRO-I]	D, S	4 Secondary
f.	EDG – Synchronize off-site power and unload/shutdown EDG K/A – 064A4.09 RO 3.2 SRO 3.3 (AP-770) [RO. SRO-I]	D, S	6
g.	RPS – Restore RPS channel power K/A – 012A2.02 RO 3.6 SRO 3.9 (OP-507) [RO. SRO-I]	D, S	7
h.	WG – Respond to a Waste Gas header leak K/A – 060AA2.05 RO 3.7 SRO 4.2 (AP-250) [RO. SRO-I]	A, N, S	9
SPARE MU – Restart a MUP following an RCS leak isolation K/A – 002A2.01 RO 4.3 SRO 4.4 (AP-520)		D, S	2
In-Plant Systems[@] (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)			
i.	CRDS – Manual Reactor trip from outside control room K/A – E02EA1.1 RO 4.0 SRO 3.6 (AP-990) [RO. SRO-I]	A, D, E, L, P	1
j.	EFW – Reset EFP-2 trip valve (ASV-50) K/A – 061A2.04 RO 3.4 SRO 3.8 (OP-450) [RO. SRO-I]	D, R	4 Secondary
k.	CCW – Appendix R Chiller lineup K/A – 008A2.01 RO 3.3 SRO 3.6 (AP-330) [RO. SRO-I]	D, E	8
SPARE FS/OTSG – Transfer excess secondary inventory to FST K/A – 037AK3.07 RO 4.2 SRO 4.4 (EOP-14, Enc. 9)		D, E	2, 8
@	All control room (and in-plant) systems must be different and serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
* Type Codes		Criteria for RO / SRO-I / SRO-U	
(A)lternate path		4-6 / 4-6 / 2-3	
(C)ontrol room		≤ 9 / ≤ 8 / ≤ 4	
(D)irect from bank		≥ 1 / ≥ 1 / ≥ 1	
(E)mergency or abnormal in-plant		≥ 1 / ≥ 1 / ≥ 1	
(L)ow Power		≥ 2 / ≥ 2 / ≥ 1	
(N)ew or (M)odified from bank including 1 (A)		≤ 3 / ≤ 3 / ≤ 2 (randomly selected)	
(P)revious 2 exams		≥ 1 / ≥ 1 / ≥ 1	
(R)CA			
(S)imulator			

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**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

AdminCO1 (2K5) NRC [NEW] (ADMINISTRATIVE)

SRO ONLY

DETERMINE OVERTIME AVAILABILITY

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: SRO – Determine overtime availability.

Alternate Path: No

JPM #: AdminCO1 (2K5) NRC [NEW]

K/A Rating/Importance: G2.1.4 SRO 3.4

Task Number/Position:

Task Standard: Determine overtime availability per AI-100, Facility Administrative Policies.

Preferred Evaluation Location:

Simulator ____ In-Plant ____ Admin X

Preferred Evaluation Method:

Perform X Simulate ____

References:

AI-100, Rev. 28

Validation Time: 15 minutes

Time Critical: No

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Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: SAT ____ UNSAT ____

Performance Time: _____

Examiner: _____
Printed Name

Signature / Date

Comment: _____

Tools/Equipment/Procedures Needed:

AI-100, Rev. 28

READ TO THE OPERATOR

INITIAL CONDITIONS

You are the Control Room Supervisor.

The plant is shutdown following a reactor trip.

Preparations for startup are in progress.

This is Thursday, 9-15-05, swing shift.

The SSO has directed you to call in additional operators to work assisting the on-shift crew during startup.

The operators will work 12 hours on Friday, 9-16-05, day shift, 0700 to 1900.

Operations Shift Rotation Schedule attached.

INITIATING CUES

Identify the operators, if any, that would violate overtime restrictions if called in to work on Friday, 9-16-05, day shift. Also identify the overtime restriction(s), if any, that would be violated.

<p><u>STEP 1:</u> Obtain a copy of the correct procedure or perform JPM from memory.</p> <p><u>STANDARD:</u> Candidate obtains a copy of AI-100 or performs the JPM from memory.</p> <p><u>EXAMINER'S NOTE:</u> Provide candidate with a copy of AI-100, Facility Administrative Policies, if requested.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 2:</u> Determine if overtime restriction guidelines would be violated for Operator #1.</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would NOT be violated for Operator #1.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 3:</u> Determine if overtime restriction guidelines would be violated for Operator #2.</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would NOT be violated for Operator #2.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 4:</u> Determine if overtime restriction guidelines would be violated for Operator #3.</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would be violated for Operator #3.</p> <p><i>> 24 hours in any 48 hour period</i></p> <p><u>COMMENTS:</u></p>	<p>Critical Step (required by NRC Generic Letter 82-12)</p> <p>SAT ____</p> <p>UNSAT ____</p>

<p><u>STEP 5:</u> Determine if overtime restriction guidelines would be violated for Operator #4</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would NOT be violated for Operator #4.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 6:</u> Determine if overtime restriction guidelines would be violated for Operator #5.</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would be violated for Operator #5.</p> <p style="text-align: center;"><i>> 72 hours in any 7-day period</i></p> <p><u>COMMENTS:</u></p>	<p>Critical Step (required by NRC Generic Letter 82-12)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 7:</u> Determine if overtime restriction guidelines would be violated for Operator #6.</p> <p><u>STANDARD:</u> Candidate determines that overtime restriction guidelines would NOT be violated for Operator #6.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>END OF TASK</p>	

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS

You are the Control Room Supervisor.

The plant is shutdown following a reactor trip.

Preparations for startup are in progress.

This is Thursday, 9-15-05, swing shift.

The SSO has directed you to call in additional operators to work assisting the on-shift crew during startup.

The operators will work 12 hours on Friday, 9-16-05, day shift, 0700 to 1900.

Operations Shift Rotation Schedule attached.

INITIATING CUES

Identify the operators, if any, that would violate overtime restrictions if called in to work on Friday, 9-16-05, day shift. Also identify the overtime restriction(s), if any, that would be violated.

CR3 Operations Shift Rotation Schedule

Operator	Monday 9-5-05	Tuesday 9-6-05	Wednesday 9-7-05	Thursday 9-8-05	Friday 9-9-05	Saturday 9-10-05	Sunday 9-11-05
	Note	Note	Note	Note	Note	Note	Note
#1	07-15	07-19	07-15	1 07-15	2 07-19	Off	Off
#2	07-15	07-15	07-15	1 07-15	2 07-19	07-19	Off
#3	15-23	15-03	Off	Off	23-07	23-07	23-07
#4	15-23	15-03	Off	Off	23-07	23-11	23-11
#5	23-07	23-11	23-07	2 23-11	Off	07-15	07-19
#6	23-11	23-11	23-07	2 23-07	Off	Off	07-19

NOTES:

- 1) Outage Prep Meeting – Jim's Office – 1500-1800
- 2) Passport Training – MTF – 0700-1100

Operator	Monday 9-12-05	Tuesday 9-13-05	Wednesday 9-14-05	Thursday 9-15-05	Friday/ 9-16-05	Saturday 9-17-05	Sunday 9-18-05
	Note	Note	Note	Note	Note	Note	Note
#1	Requal	Requal	Requal	2 Requal	2 Off	Off	Off
#2	Requal	Requal	Requal	2 Requal	2 Off	Off	Off
#3	23-07	23-07	23-07	19-07	1 Off	Off	VAC
#4	23-07	19-07	23-07	23-07	1 Off	Off	07-15
#5	07-15	07-19	07-19	07-19	1 VAC	Off	Off
#6	07-15	07-19	07-19	07-19	1 VAC	Off	Off

NOTES:

- 1) Mandatory AI-704 Review – Rusty 3A – 0700-1100
- 2) Plant Support – 0700-1900 – Requal Cancelled

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

AdminCO2 (2K5) NRC [NEW] (ADMINISTRATIVE)

CALCULATE SDM WITH A MISALIGNED CONTROL ROD

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: Determine Shutdown Margin.

Alternate Path: NO

JPM #: AdminCO2 (2K5) NRC [NEW]

K/A Rating/Importance: G2.1.7 RO 3.7 SRO 4.4
G2.1.12 SRO 4.0

Task Number/Position:

Task Standard: Determine SDM using SP-421, Reactivity Balance Calculations.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator_____ Plant_____ Admin X

Perform X Simulate_____

References:

OP-103C, Rev. 25
SP-421, Rev. 55
TS 3.1.4

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. None

SIMULATOR OPERATOR INSTRUCTIONS

1. None

Tools/Equipment/Procedures Needed:

Consumable copies of SP-421 and OP-103C.
TS 3.1.4

!!!!!!SEPARATE CANDIDATE CUE SHEETS FOR SRO and RO!!!!!!

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Balance of Plant Operator.
The plant is stable at 60% power.
Control rod 6-6 has dropped to the 60% withdrawn position and is determined to be untrippable.
The actions of AP-545, Plant Runback, have been completed up to Step 3.42.
RCS boron is 1109 ppmB.
210 EFPD.
Xenon value from current Saxon is -2.48% Δ k/k.
Boron-10 atom percent is 19.8.
RCS temperature is 579° F.
Group 8 is at 32% withdrawn.

INITIATING CUES:

The Control Room Supervisor has directed you to verify if adequate SDM exists using SP-421, Reactivity Balance Calculations. Enter SDM below and document additional actions, if any, you would perform.

SROs only: After calculating SDM determine if any TS actions are required. Document your answer below.

<p><u>STEP 1:</u> Locate procedures.</p> <p><u>STANDARD:</u> Candidate obtains a copy of SP-421 and OP-103C.</p> <p><u>EXAMINER'S NOTE:</u> Provide candidate with a copy of SP-421. When the candidate asks for OP-103C provide it to him/her at that time.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 2:</u> Determine correct enclosure to use.</p> <p><u>STANDARD:</u> Candidate determines that Enclosure 1B, One Hour Misaligned Rod SDM Calculation, is the enclosure to be used.</p> <p><u>EXAMINER'S NOTE:</u> If candidate determines that Enclosure 1, SDM – Normal Conditions, is to be used, allow the candidate to complete the JPM since both enclosures will result at the same endpoint. Make a note of this and during the final exam review point out to the candidate that Enclosure 1B was created just for this type of plant condition.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 3:</u> Step 1</p> <p> Enter core burnup.</p> <p><u>STANDARD:</u> Candidate accurately transfers data from Cue Sheet to enclosure.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

<u>STEP 4:</u>	Step 2	
<p>Boron Reactivity</p>		<p>SAT_____</p>
<ol style="list-style-type: none"> 1. Enter RCS boron concentration (Cue Sheet) 2. Enter B-10 atom percent (Cue Sheet) 3. Calculate B-10 adjusted value 4. Enter RCS temperature (Cue Sheet) 5. Use Curve 19 to determine boron concentration required for shutdown margin. 6. Use Curve 3 to determine differential boron worth. 7. Perform calculation to determine boron reactivity. 		<p>UNSAT_____</p>
<u>STANDARD:</u>	<p>Candidate accurately transfers data from Cue Sheet, determines correct curves to use and accurately calculates the value for boron reactivity.</p> <p>Value should be $\pm 0.1\%$ of value listed on attached key.</p>	
<u>COMMENTS:</u>		
<u>STEP 5:</u>	Step 3	
<p>Determine Control Rod Group 8 Reactivity.</p>		<p>SAT_____</p>
<p><u>STANDARD:</u> Candidate determines that Group 8 reactivity is 0% Δ k/k.</p>		<p>UNSAT_____</p>
<u>COMMENTS:</u>		

<p>STEP 6: Step 4</p> <p>Determine Xenon reactivity.</p> <p>STANDARD: Candidate accurately transfers data from Cue Sheet to enclosure.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 7: Step 5</p> <p>Shutdown Margin</p> <ol style="list-style-type: none"> Determine SDM. If SDM is determined to be less negative than -1.0% $\Delta k/k$ then SDM is unacceptable. Immediately notify the CRS and refer to TS 3.1.4. If SDM is determined to be more negative than -1.0% $\Delta k/k$ then SDM is acceptable. Notify the CRS and continue to step 6. <p>STANDARD: Candidate determines that SDM is unacceptable and immediately notifies the CRS.</p> <p>Value should be $\pm 0.1\%$ of value listed on attached key.</p> <p>COMMENTS:</p>	<p>Critical Step (accurate calculation and immediate notification of the CRS is required to comply with TS)</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p style="text-align: center;"><u>RO</u> - END OF TASK</p>	

<p>STEP 8: SRO Only</p> <p>Refer to TS 3.1.4, Control Rod Group Alignment Limits, and determine required actions.</p> <p>STANDARD: Candidate determines that the following actions are required:</p> <ol style="list-style-type: none"> 1. Initiate boration to restore SDM within 1 hour. 2. Reduce thermal power to $\leq 60\%$ of allowable within 2 hours. 3. Reduce overpower trip setpoint to $\leq 70\%$ of allowable within 10 hours. 4. Verify ejected rod worth is within assumptions within 72 hours. 5. Perform SR 3.2.5.1 within 72 hours. <p>COMMENTS:</p>	<p>Critical Step (TS required actions)</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>SRO</u> - END OF TASK</p>	

ONE HOUR MISALIGNED ROD SHUTDOWN MARGIN CALCULATION

1. Core Burnup

Core Burnup = EFPD (from SAXON)

= 210 EFPD**NOTE**

For the remaining steps (2-4) the following NOTES apply:

- (1) It is permissible to round to the nearest whole EFPD.
- (2) It is permissible to round to the nearest whole %wd.
- (3) For RCS ≥ 532 degrees F, 532 degrees F data may be used.
- (4) Two decimal place accuracy is required in calculations.

2. Boron Reactivitya. Measured RCS Boron Concentration 1109 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. If the B-10 a/o is unknown, use the reference value of 19.8

b. B-10 atom percent of RCS Boron 19.8 a/oc. B-10 adjusted Boron Concentration is
Step 2(a) * Step 2(b) / 19.8 = 1109 ppmBd. RCS temperature 579 °Fe. Using RCS temperature from 2(d) and core burnup from Step 1, determine the Boron concentration required for shutdown from appropriate Curve 18 or Curve 19 of OP-103C.
1662 ppmBf. Differential boron worth from Curve 3 of OP-103C, Reactivity Worth Curves.
0.7508 % Δ k/k/100 ppm

g. Reactivity During Modes 1,2,3,4, and 5

Reactivity = [(e-c) x f/100] - 1.0

= [(1662 - 1109) x 0.75 ÷ 100] - 1.0 = + / - + 3.15 % Δ k/k

ONE HOUR MISALIGNED ROD SHUTDOWN MARGIN CALCULATION (Cont'd)3. Control Rod Group 8 Reactivity

- a. IF Group 8 is 28% wd to 32% wd, use 0.00% Δ k/k.
- b. IF Group 8 is 0% wd, use +0.10% Δ k/k
- c. IF Group 8 is at any other location,
AND EFPD is < 653,
THEN use +0.25% Δ k/k
- d. IF EFPD is \geq 653, use 0.0% Δ k/k.

+ 0 % Δ k/k**NOTE**

- (5) For the one hour misaligned rod calculation ONLY, the value for xenon calculated prior to the misaligned rod for this hour may still be used provided that:
- the existing SAXON printout accurately reflects the core conditions prior to the misaligned rod, and
 - the maximum post-misaligned rod power level is less than, or equal to, the power level used on the existing SAXON printout for calculating this hour's xenon.
- (6) Using a xenon value of 0.0% delta k/k is conservative and may be used at any time.

4. Xenon Reactivity

- a. Obtain Xenon reactivity from Saxon code (submit printout).

OR

- b. IF the Saxon code is unavailable,
THEN use 0.0% Δ k/k or contact Reactor Engineering for
a value (0.0% Δ k/k is conservative and therefore preferred). - 2.48 - % Δ k/k

5. Shutdown Margin

- a. Determine the shutdown margin by adding Items 2, 3 and 4 above, and round to the nearest tenth
+ /- + 0.7 % Δ k/k
- b. 1. IF the shutdown margin determined in Step 5a is less negative than -1.0% k/k (i.e., zero, positive or between 0.0 and -1.0),
THEN the shutdown margin is unacceptable. **IMMEDIATELY** inform the Control Room Supervisor and refer to ITS 3.1.4.
2. IF the shutdown margin determined in Step 5a is more negative than -1.0% k/k,
THEN the shutdown margin is acceptable. Notify the Control Room Supervisor and continue to step 6. /
Calculated By/Date
 / Verified By/Date

SRO

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Balance of Plant Operator.

The plant is stable at 60% power.

Control rod 6-6 has dropped to the 60% withdrawn position and is determined to be untrippable.
The actions of AP-545, Plant Runback, have been completed up to Step 3.42.

RCS boron is 1109 ppmB.

210 EFPD

Xenon value from current Saxon is -2.48% Δ k/k.

Boron-10 atom percent is 19.8.

RCS temperature is 579° F.

Group 8 is at 32% withdrawn.

INITIATING CUES:

The Control Room Supervisor has directed you to verify if adequate SDM exists using SP-421, Reactivity Balance Calculations. Enter SDM below and document additional actions, if any, you would perform.

SROs only: After calculating SDM determine if any TS actions are required. Document your answer below.

RO

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Balance of Plant Operator.

The plant is stable at 60% power.

Control rod 6-6 has dropped to the 60% withdrawn position and is determined to be untrippable.

The actions of AP-545, Plant Runback, have been completed up to Step 3.42.

RCS boron is 1109 ppmB.

210 EFPD

Xenon value from current Saxon is $-2.48\% \Delta k/k$.

Boron-10 atom percent is 19.8.

RCS temperature is 579° F.

Group 8 is at 32% withdrawn.

INITIATING CUES:

The Control Room Supervisor has directed you to verify if adequate SDM exists using SP-421, Reactivity Balance Calculations. Enter SDM below and document additional actions, if any, you would perform.

CRYSTAL RIVER UNIT 3 JPM COVER SHEET

AdminEC1 (2K5) NRC [NEW] (ADMINISTRATIVE)

PERFORM A QPTR CALCULATION

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

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SIMULATOR OPERATOR SETUP INSTRUCTIONS

1. None

SIMULATOR OPERATOR INSTRUCTIONS

1. None

Tools/Equipment/Procedures Needed:

Consumable copies of SP-303.

TS 3.2.4

COLR

!!!!!!SEPARATE CANDIDATE CUE SHEETS FOR SRO and RO!!!!!!

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Balance of Plant Operator.

The plant has been stable at this power level for the previous 3 hours.

The Symmetrical Incore Detector System is inoperable.

NI-5 = 63%

NI-6 = 65%

NI-7 = 63%

NI-8 = 65%

$\Delta T_c = 0.2^\circ \text{ F}$

Rod Index is 245%

INITIATING CUES:

The Control Room Supervisor has directed you to calculate current out-of-core QPT using SP-303, Tilt Monitoring with an Unavailable Symmetric Incore System, Enclosure 3. Enter AOT (adjusted out-of-core tilt) values below and document additional actions, if any, you would perform.

SP-303, Enclosure 1, Table 1 is attached.

NI-5 AOT = _____ NI-6 AOT = _____ NI-7 AOT = _____ NI-8 AOT = _____

SROs only: After calculating AOT determine if any TS actions are required. Document your answer below.

<p>STEP 1: Record time, current NI power levels, ΔT_c and Rod Index in Table 3.</p> <p>STANDARD: Candidate accurately transfers data from Cue Sheet to Table 3.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 2: Obtain the appropriate normalization constants (N) for each quadrant from Section 4.1 and record in Table 3.</p> <p>STANDARD: Candidate accurately transfers data from Table 1 (provided) to Table 3.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 3a: Calculate the current average NI power.</p> <p>STANDARD: Candidate accurately calculates average NI power.</p> <p>Calculation result is 64%.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 3b: Calculate current out-of-core tilt (OCD) in each quadrant.</p> <p>STANDARD: Candidate accurately calculates OCD tilt for each quadrant.</p> <p>Values should be $\pm 0.1\%$ of value listed on attached key.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 4: Record the current OCD tile for each quadrant in Table 3.</p> <p>STANDARD: Candidate accurately transfers data to Table 3.</p> <p>COMMENTS:</p>	<p>SAT_____</p> <p>UNSAT_____</p>

<p><u>STEP 5:</u> Calculate adjusted out-of-core tilt (AOT) for each quadrant.</p> <p><u>STANDARD:</u> Candidate accurately calculates AOT for each quadrant. Values should be $\pm 0.1\%$ of value listed on attached key.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 6:</u> Record AOT values for each quadrant in Table 3.</p> <p><u>STANDARD:</u> Candidate accurately transfers data to Table 3.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 7:</u> Compare the current AOT for each quadrant to the Power Range Channels QPT limits in the COLR.</p> <p><u>STANDARD:</u> Candidate determines that Quadrant ZW AOT is above the Steady-State Limit and below the Transient Limit. Candidate notifies CRS.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (accurate comparison to the COLR and notification of the CRS is required to comply with TS)</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p style="text-align: center;"><u>RO</u> - END OF TASK</p>	

<u>STEP 8:</u>	SRO Only	Critical Step (TS required actions)
	Refer to TS 3.2.4, Quadrant Power Tilt, and determine required actions.	
<u>STANDARD:</u>	Candidate determines that the following actions are required:	
	<ol style="list-style-type: none"> 1. Perform SR 3.2.5.1 once every 2 hours, or 2. Reduce thermal power $\geq 2\%$ RTP from the allowable thermal power for each 1% of QPT greater than the steady state limit within 2 hours, and 3. Reduce overpower trip setpoint and the flux/delta flux/flow trip setpoint to $\geq 2\%$ RTP from the allowable thermal power for each 1% of QPT greater than the steady state limit within 10 hours, and 4. Restore QPT to less than or equal to the steady state limit within 24 hours. 	SAT _____ UNSAT _____
<u>COMMENTS:</u>		
	<u>SRO</u> - END OF TASK	

TABLE 3 Current Out-Of-Core QPT Calculations													Date _____
Time													
	1	2	4	6	NI Pwr	AOT	1	2	4	6	NI Pwr	AOT	
Step													
Quadrant / NI													
WX / NI-5	63	+0.10	-1.56	-1.46									
YZ / NI-6	65	-1.57	+1.56	-0.01									
XY / NI-7	63	+0.10	-1.56	-1.46									
ZW / NI-8	65	+1.37	+1.56	<u>+2.93</u>									
ΔT_c	0.02° F						° F						
Reg Rod Index	245 %wd						%wd						
Performed by:	Initial						Initial						
Verified by:	Initial						Initial						

Where:

NI Pwr = Out-of-Core Nuclear Inst Power (%)

N = Normalization Factor (%)

OCD = Out-of-Core Detector Tilt (%)

AOT = Adjusted Out-of-Core Detector Tilt (%)

SRO

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Balance of Plant Operator.
The plant has been stable at this power level for the previous 3 hours.
The Symmetrical Incore Detector System is inoperable.
NI-5 = 63%
NI-6 = 65%
NI-7 = 63%
NI-8 = 65%
 $\Delta T_c = 0.2^\circ \text{ F}$
Rod Index is 245%

INITIATING CUES:

The Control Room Supervisor has directed you to calculate current out-of-core QPT using SP-303, Tilt Monitoring with an Unavailable Symmetric Incore System, Enclosure 3. Enter AOT (adjusted out-of-core tilt) values below and document additional actions, if any, you would perform.

SP-303, Enclosure 1, Table 1 is attached.

NI-5 AOT = _____ NI-6 AOT = _____ NI-7 AOT = _____ NI-8 AOT = _____

SROs only: After calculating AOT determine if any TS actions are required. Document your answer below.

RO

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Balance of Plant Operator.

The plant has been stable at this power level for the previous 3 hours.

The Symmetrical Incore Detector System is inoperable.

NI-5 = 63%

NI-6 = 65%

NI-7 = 63%

NI-8 = 65%

$\Delta T_c = 0.2^\circ \text{F}$

Rod Index is 245%

INITIATING CUES:

The Control Room Supervisor has directed you to calculate current out-of-core QPT using SP-303, Tilt Monitoring with an Unavailable Symmetric Incore System, Enclosure 3. Enter AOT (adjusted out-of-core tilt) values below and document additional actions, if any, you would perform.

SP-303, Enclosure 1, Table 1 is attached.

NI-5 AOT = _____ NI-6 AOT = _____ NI-7 AOT = _____ NI-8 AOT = _____

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

AdminRC1 (2K5) NRC [NEW] (ADMINISTRATIVE)

**CALCULATE THE MAXIMUM PERMISSIBLE STAY
TIME WITHIN EMERGENCY DOSE LIMITS**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: RO/SRO – Calculate the maximum permissible stay time within Emergency Dose Limits.

Alternate Path: No

JPM #: AdminRC1 (2K5) NRC [NEW]

K/A Rating/Importance: G2.3.4 RO 2.5 SRO 3.4

Task Number/Position:

Task Standard: Calculate the maximum permissible stay time within Emergency Dose Limits
(± 5 minutes)

Preferred Evaluation Location:

Simulator _____ In-Plant _____ Admin X

Preferred Evaluation Method:

Perform X Simulate _____

References:

EM-202, Rev. 75

Validation Time: 5 minutes

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. None

SIMULATOR OPERATOR INSTRUCTIONS

1. None

Tools/Equipment/Procedures Needed:

EM-202, Rev. 75

READ TO THE OPERATOR

INITIAL CONDITIONS

You are the Balance of Plant operator.

An emergency event is in progress.

Emergency Dose Limits (EDL) are in effect.

The PPO has received 2.26 Rem TEDE this year.

The use of High Pressure Aux Spray will increase the pressure reduction rate but is not required to protect valuable plant equipment.

The following tasks are to be performed to align High Pressure Aux Spray:

#	TASK	TIME REQUIRED	DOSE RATE
1	Open MUV-273	12 minutes	5.31 R/hr
2	Open DHV-95	4 minutes	19.75 R/hr
3	Throttle DHV-126		3.65 R/hr

Note: Assume no dose is received while traveling between tasks.

INITIATING CUES

The PPO has completed tasks 1 and 2 in the time required. How long does he have to complete Task #3 without exceeding his Emergency Dose Limit?

Note: Candidate may perform these steps in a different order.

Note: Candidate should understand the following:

1. **EDL is 5 Rem for this event (may use EM-202 as a reference).**
2. **Current exposure for the year is not counted toward the EDL.**

<p>STEP 1: Determine dose received while performing Task #1.</p> <p>STANDARD: Candidate determines dose received while performing Task #1. $5.31 \text{ R/hr} \times 1\text{hr}/60 \text{ min} \times 12 \text{ min} = 1.06 \text{ R}$</p> <p>EXAMINER'S NOTE: If JPM is not performed in the simulator then provide candidate with a copy of EM-202, Duties of the Emergency Coordinator.</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 2: Determine dose received while performing Task #2.</p> <p>STANDARD: Candidate determines dose received while performing Task #2. $19.75 \text{ R/hr} \times 1\text{hr}/60 \text{ min} \times 4 \text{ min} = 1.32 \text{ R}$</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 3: Determine dose remaining for EDL.</p> <p>STANDARD: Candidate determines dose remaining for EDL. $5.0 \text{ R} - 1.06 \text{ R} - 1.32 \text{ R} = 2.62 \text{ R}$</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>

<p>STEP 4: Determine the time available for the PPO to complete Task #3 without exceeding the EDL.</p> <p>STANDARD: Candidate determines (± 5 minutes) the time available for the PPO to complete Task #3 without exceeding the EDL.</p> $\frac{\text{Available Dose}}{\text{Dose Rate}} = \frac{2.62 \text{ R}}{3.65 \text{ R/hr}} = .718 \text{ hr} \times \frac{60 \text{ min}}{1 \text{ hr}} = \mathbf{43.1 \text{ min}}$ <p>COMMENTS:</p>	<p>Critical Step (required to calculate maximum stay time)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p>END OF TASK</p>	

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS

You are the Balance of Plant operator.

An emergency event is in progress.

Emergency Dose Limits (EDL) are in effect.

The PPO has received 2.26 Rem TEDE this year.

The use of High Pressure Aux Spray will increase the pressure reduction rate but is not required to protect valuable plant equipment.

The following tasks are to be performed to align High Pressure Aux Spray:

#	TASK	TIME REQUIRED	DOSE RATE
1	Open MUV-273	12 minutes	5.31 R/hr
2	Open DHV-95	4 minutes	19.75 R/hr
3	Throttle DHV-126		3.65 R/hr

Note: Assume no dose is received while traveling between tasks.

INITIATING CUES

The PPO has completed tasks 1 and 2 in the time required. How long does he have to complete Task #3 without exceeding his Emergency Dose Limit?

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

AdminEP1 (2K5) NRC [Bank #306] (ADMINISTRATIVE)

RO ONLY

COMPLETE AN OFF-SITE DOSE ASSESSMENT

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: Complete an Off-Site Dose Assessment during Radiological Emergencies
(Control Room Method).

Alternate Path: N/A

JPM #: AdminEP1 (2K5) NRC [Bank #306]

K/A Rating/Importance: Generic 2.4.39 (3.3 / 3.1)

Task Number: 1150402007

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

Task Standard: Complete an Off-Site Dose Assessment during Radiological
Emergencies (Control Room Method), EM-204A

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator ___ In-Plant ___ Admin X

Perform X Simulate ___

References:

EM-204A, Rev. 24

Validation Time: 15 minutes

Time Critical: NO

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: SAT ___ UNSAT ___

Performance Time: _____

Examiner: _____ / _____
Printed Name Signature Date

Comment: _____

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

Consumable copies of EM-204A
Calculator

READ TO THE OPERATOR

Initial Conditions:

You are the Reactor Operator.
A Radiological Emergency is in progress.
RM-A2 low-range gas channel reads 6000 cpm.
Wind Speed (33') is 5.2 meters/second (15 min. avg)
Chart Recorder Primary Tower delta T is -1.50 (15 min. avg)
Wind Direction (33') is 268 degrees
Release duration is unknown

Initiating Cues:

You are directed to perform EM-204A.

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

<p><u>STEP 1:</u> Provide candidate with a copy of EM-204A and a calculator.</p> <p><u>STANDARD:</u> N/A</p> <p><u>COMMENTS:</u></p>	
<p><u>STEP 2:</u> Candidate completes EM-204A, Enclosure 1.</p> <p><u>STANDARD:</u> Candidate will complete EM-204A and return material to you.</p> <p><u>EXAMINER NOTE:</u></p> <p>See attached Answer Key. Candidate answers should match the key in order to be correct. For step 4.4.1 a range of +/- .005 may be allowed for rounding purposes only.</p> <p>Candidate must obtain all three of the affected sectors to be successful.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step: (information used for the protection of the public)</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>END OF TASK</p>	

ADMINISTRATIVE JOB PERFORMANCE MEASURE

ANSWER KEY

STEP #	RAD AND MET MONITOR DATA			FLORIDA NUCLEAR PLANT EMERGENCY NOTIFICATION FORM
4.1.2	RM-A2 LOW RANGE GAS CHANNEL	6000	CPM	
or 4.1.3	RM-A2 MID-RANGE GAS CHANNEL		mR/HR	
4.2.1	SIGMA-THETA		DEGREES (1)	
or 4.2.2	DELTA T	-1.5	DEGREES F (2)	
4.2.3	WIND FROM (33')	268	DEGREES (2)	8A
4.2.4	WIND SPEED (33')	5.2	M/SEC (2)	
4.2.4.1	WIND SPEED MPH=M/SEC X 2.24	11.648	MPH	13A
4.2.5	STABILITY CLASS	A		13B
	<p>(1) Meter displays a rolling 15 minute average, so the current instantaneous value should be used.</p> <p>(2) 15 minute average from chart recorder on meteorological panel</p>			

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

ANSWER KEY

STEP#	SITE BOUNDARY DOSE INFORMATION			FLORIDA NUCLEAR PLANT EMERGENCY NOTIFICATION FORM
4.3.1 or 4.3.2	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	1.2 E-01	3.2 E-01	1.6 E-01	
4.4.1	DOSE RATE CORRECTED FOR WIND SPEED = (mR/HR ÷ M/SEC) (From 4.2.4)			14E, 14F
	DDE mR/HR	THYROID mR/HR	TEDE mR/HR	
	.023	.062	.031	
	Enter on State Form		Enter on State Form	
4.5.1	PROJECTED RELEASE DURATION _____ 1 _____ HOURS. (If duration can't be estimated, assume 1 hour.)			
4.5.2	DOSE = (CORRECTED DOSE RATE X DURATION HOURS)			
	DDE mR	THYROID mR	TEDE mR	
	.023	.062	.031	
4.6.1	NOBLE GAS CI/SEC	IODINE CI/SEC		14A, 14B
	2.1E-2	2.1E-4		
4.6.2	AFFECTED SECTORS <u> D </u> <u> E </u> <u> F </u> _____ (three minimum)			8B
4.7.1	<div style="border-bottom: 1px solid black; display: inline-block; width: 80%;"></div>			
	Performed by _____ Date/Time _____			
4.7.2	<div style="border-bottom: 1px solid black; display: inline-block; width: 80%;"></div>			
	Emergency Coordinator _____ Date/Time _____			

ANSWER KEY

TABLE 1
RM-A2 LOW-RANGE MONITOR

ENCLOSURE 2
(Page 1 of 2)

SITE BOUNDARY (0.83-MILE)
DOSE RATE (MR/HR)

LOWRANGE CPM	NG uCi/cc	NG CI/SEC	I CI/SEC	STABILITY CLASS A,B,C			STABILITY CLASS D,E			STABILITY CLASS F,G		
				DDE mR/HR	THY mR/HR	TEDE mR/HR	DDE mR/HR	THY mR/HR	TEDE mR/HR	DDE mR/HR	THY mR/HR	TEDE mR/HR
100	5.8E-06	4.3E-04	4.3E-06	2.6E-03	6.7E-03	3.2E-03	1.2E-02	3.1E-02	1.5E-02	4.3E-02	1.1E-01	5.4E-02
200	1.1E-05	7.7E-04	7.7E-06	4.6E-03	1.2E-02	5.8E-03	2.2E-02	5.6E-02	2.7E-02	7.8E-02	2.0E-01	9.8E-02
400	2.0E-05	1.5E-03	1.5E-05	8.8E-03	2.3E-02	1.1E-02	4.1E-02	1.1E-01	5.1E-02	1.5E-01	3.8E-01	1.8E-01
600	2.9E-05	2.2E-03	2.2E-05	1.3E-02	3.4E-02	1.6E-02	6.0E-02	1.6E-01	7.5E-02	2.2E-01	5.7E-01	2.7E-01
800	3.9E-05	2.8E-03	2.8E-05	1.7E-02	4.4E-02	2.1E-02	8.0E-02	2.1E-01	1.0E-01	2.9E-01	7.5E-01	3.6E-01
1000	4.8E-05	3.5E-03	3.5E-05	2.1E-02	5.5E-02	2.7E-02	9.9E-02	2.6E-01	1.2E-01	3.6E-01	9.3E-01	4.5E-01
2000	9.5E-05	7.0E-03	7.0E-05	4.2E-02	1.1E-01	5.2E-02	2.0E-01	5.1E-01	2.4E-01	7.1E-01	1.8E+00	8.8E-01
4000	1.9E-04	1.4E-02	1.4E-04	8.3E-02	2.2E-01	1.0E-01	3.9E-01	1.0E+00	4.9E-01	1.4E+00	3.6E+00	1.8E+00
6000	2.8E-04	2.1E-02	2.1E-04	1.2E-01	3.2E-01	1.6E-01	5.8E-01	1.5E+00	7.3E-01	2.1E+00	5.5E+00	2.6E+00
8000	3.8E-04	2.8E-02	2.8E-04	1.7E-01	4.3E-01	2.1E-01	7.8E-01	2.0E+00	9.7E-01	2.8E+00	7.3E+00	3.5E+00
1E+04	4.7E-04	3.5E-02	3.5E-04	2.1E-01	5.4E-01	2.6E-01	9.7E-01	2.5E+00	1.2E+00	3.5E+00	9.1E+00	4.4E+00
2E+04	9.4E-04	6.9E-02	6.9E-04	4.1E-01	1.1E+00	5.2E-01	1.9E+00	5.0E+00	2.4E+00	7.0E+00	1.8E+01	8.7E+00
4E+04	1.9E-03	1.4E-01	1.4E-03	8.3E-01	2.2E+00	1.0E+00	3.9E+00	1.0E+01	4.8E+00	1.4E+01	3.6E+01	1.7E+01
6E+04	2.8E-03	2.1E-01	2.1E-03	1.2E+00	3.2E+00	1.6E+00	5.8E+00	1.5E+01	7.3E+00	2.1E+01	5.4E+01	2.6E+01
8E+04	3.8E-03	2.8E-01	2.8E-03	1.7E+00	4.3E+00	2.1E+00	7.7E+00	2.0E+01	9.7E+00	2.8E+01	7.3E+01	3.5E+01
1E+05	4.7E-03	3.5E-01	3.5E-03	2.1E+00	5.4E+00	2.6E+00	9.7E+00	2.5E+01	1.2E+01	3.5E+01	9.1E+01	4.4E+01
2E+05	9.4E-03	6.9E-01	6.9E-03	4.1E+00	1.1E+01	5.2E+00	1.9E+01	5.0E+01	2.4E+01	7.0E+01	1.8E+02	8.7E+01
4E+05	1.9E-02	1.4E+00	1.4E-02	8.3E+00	2.2E+01	1.0E+01	3.9E+01	1.0E+02	4.8E+01	1.4E+02	3.6E+02	1.7E+02
6E+05	2.8E-02	2.1E+00	2.1E-02	1.2E+01	3.2E+01	1.6E+01	5.8E+01	1.5E+02	7.3E+01	2.1E+02	5.4E+02	2.6E+02
8E+05	3.8E-02	2.8E+00	2.8E-02	1.7E+01	4.3E+01	2.1E+01	7.7E+01	2.0E+02	9.7E+01	2.8E+02	7.3E+02	3.5E+02
1E+06	4.7E-02	3.5E+00	3.5E-02	2.1E+01	5.4E+01	2.6E+01	9.7E+01	2.5E+02	1.2E+02	3.5E+02	9.1E+02	4.4E+02

BASED ON RM-A2 GAS CALIBRATION ON 5/20/03
DOSE RATE MONITORING FOR 1 MINUTE PER SECOND
DOSE RATE MONITORING FOR 1 MINUTE PER SECOND

8:45 AM

ANSWER KEY

DETERMINATION OF AFFECTED SECTORS

WIND DIRECTION (°FROM)	AFFECTED SECTORS
349-11	H J K
12-33	J K L
34-56	K L M
57-78	L M N
79-101	M N P
102-123	N P Q
124-146	P Q R
147-168	Q R A
169-191	R A B
192-213	A B C
214-236	B C D
237-258	C D E
259-281	D E F
282-303	E F G
304-326	F G H
327-348	G H J

SIGMA-THETA (Degrees)____ (Primary method)	DELTA T (Degrees F) (Secondary method)	STABILITY CLASS
≥ 22.5	≤ -1.46	A (most dispersed plume)
< 22.5 to 17.5	-1.45 to -1.31	B
< 17.5 to 12.5	-1.30 to -1.16	C
< 12.5 to 7.5	-1.15 to -0.39	D
< 7.5 to 3.8	-0.38 to 1.15	E
< 3.8 to 2.1	1.16 to 3.07	F
< 2.1	≥ 3.08	G (most concentrated plume)

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

Initial Conditions:

You are the Reactor Operator.

A Radiological Emergency is in progress.

RM-A2 low-range gas channel reads 6000 cpm.

Wind Speed (33') is 5.2 meters/second (15 min. avg)

Chart Recorder Primary Tower delta T is -1.50 (15 min. avg)

Wind Direction (33') is 268 degrees

Release duration is unknown

Initiating Cues:

You are directed to perform EM-204A.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

AdminEP2 (2K5) NRC (ADMINISTRATIVE)

SRO ONLY

**DETERMINE EMERGENCY ACTION LEVEL AND
PROTECTIVE ACTION RECOMMENDATIONS**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt/Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

Task: Determine Emergency Action Levels and Protective Action Recommendations

Alternate Path: No

JPM #: AdminEP2 (2K5) NRC [NEW]

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 public.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator ___ Plant ___ Admin X

Perform X Simulate ___

References:

EM-202, Rev. 75
EOP-7, Rev. 12

Validation Time: 10 Minutes

Time Critical: YES – 15 MINUTES

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

Time Finished: _____

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

Examiner: _____
Printed Name Signature Date

Comment: _____

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. N/A

SIMULATOR OPERATOR INSTRUCTIONS:

1. N/A

TOOLS/EQUIPMENT/PROCEDURES NEEDED:

1. EM-204, Rev. 75
2. EOP-7, Rev. 12

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Superintendent, Shift Operations.
See attached data sheet.

INITIATING CUE:

Determine the highest Emergency Action Level for the time line provided. Also determine the Protective Action Recommendations required, if any. Document your answers below.

THIS JPM **IS** TIME CRITICAL

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

<p><u>STEP 1:</u> Obtain a copy of the correct procedure.</p> <p><u>STANDARD:</u> Candidate obtains a copy of EM-202 and EOP-7.</p> <p><u>EXAMINER'S NOTE:</u> Provide candidate with a copy of EM-202 and EOP-7 when requested.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> Candidate determines classification for the data provided.</p> <p><u>STANDARD:</u> Candidate determines the classification using the Fission Product Barrier Matrix:</p> <div style="margin-left: 100px;"> <p>FUEL CLAD LOSS FACTOR +4 (RM-G29 or 30 >100 R/hr for 15 minutes or longer)</p> <p>RCS LOSS FACTOR +4 (RM-G29 or 30 >10 R/hr for 15 minutes or longer)</p> <p>CONTAINMENT POT LOSS +1.5 (RB Pressure >30 psig with no Building Spray available)</p> <p>TOTAL +9.5</p> <p> GENERAL EMERGENCY</p> </div> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Protection of the Public.</p> <p>SAT _____</p> <p>UNSAT _____</p>

ATTACHMENT 8
ADMINISTRATIVE JOB PERFORMANCE MEASURE

<p>STEP 3: Candidate determines the Protective Action Recommendations.</p> <p>STANDARD:</p> <p>Candidate refers to Enclosure 7 of EM-202.</p> <p>Using EOP-7 curves the candidate will determine that the plant is in Region 3 of the ICC curves and needs to evacuate Zone 1 and shelter Zones 2 & 3.</p> <p>Using RM-G29/30 readings the candidate will determine the need to evacuate Zone 1 and shelter Zones 2 & 3.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Protection of the Public.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>TERMINATION CUE:</p> <p>Emergency Action Level and Protective Action Recommendations determined.</p>	
<p style="text-align: center;">END OF TASK</p>	

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Superintendent, Shift Operations.
See attached data sheet.

INITIATING CUE:

Determine the highest Emergency Action Level for the time line provided. Also determine the Protective Action Recommendations required, if any. Document your answers below.

THIS JPM IS TIME CRITICAL

At 1330 today the plant was at 100% power. The plant experiences a transient and the following time line of indications occur:

TIME	1345
RCS PRESSURE	110 PSIG
PRESSURIZER LEVEL	0"
INCORES	370° F
RX BLDG SPRAY FLOW	0 GPM/TRAIN
RX BLDG PRESSURE	48 PSIG
RMG - 29 & 30	127 R/HR

TIME	1400
RCS PRESSURE	110 PSIG
PRESSURIZER LEVEL	0"
INCORES	500° F
RX BLDG SPRAY FLOW	0 GPM/TRAIN
RX BLDG PRESSURE	48 PSIG
RMG - 29 & 30	245 R/HR

Based on the above information identify the appropriate EAL.

FOR THIS EXERCISE DO NOT USE ANY EC DISCRETION!

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

Plantl (2K5) NRC [Bank #403] (PLANT)

ALTERNATE PATH

SAFETY FUNCTION 1

MANUAL REACTOR TRIP PER AP-990

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

IN-PLANT JOB PERFORMANCE MEASURE

Task: Manually trip the reactor during AP-990.

Alternate Path: Yes

JPM #: PlantI (2K5) NRC [Bank #403]

K/A Rating/Importance: E02EA1.1 RO 4.0 SRO 3.6

Task Number/Position: 1010402004

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

Task Standard: Manually trip the reactor during AP-990.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator ___ Plant X Admin ___

Perform ___ Simulate X

References:

AP-990 Rev. 22

Validation Time: 15 Minutes

Time Critical: No

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

Time Finished: _____

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

Examiner: _____
Printed Name Signature Date

Comment: _____

IN-PLANT JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of AP-990 signed off up to Step 3.17.
2. Consumable copies of AP-990, Steps 3.16 & 3.17

IN-PLANT JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The Control Room has been evacuated.
AP-990 has been completed through Step 3.16

INITIATING CUE:

The Control Room Supervisor directs you to perform AP-990, Step 3.17.

IN-PLANT JOB PERFORMANCE MEASURE

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".

<u>STEP 1:</u>	Obtain AP-990.	SAT_____
<u>STANDARD:</u>	Candidate obtains a copy of AP-990.	UNSAT_____
<u>EXAMINER'S NOTE:</u>	Examiner will provide candidate with AP-990 signed off through Step 3.16.	
<u>COMMENTS:</u>		

IN-PLANT JOB PERFORMANCE MEASURE

STEP 2:	(step 3.17) Verify NI-14-NI2 is on scale. If NI-14-NI2 is <u>NOT</u> on scale, <u>THEN</u> ensure Rx is shutdown.	Critical Step
	1. Notify PPO to ensure CRD Bkrs are tripped (124 ft CC CRD Room):	Basis: Reactivity Control
	"CRD BREAKER A" (CS)	
	"CRD BREAKER B" (CS)	
	"CRD BREAKER CB3" (CS)	SAT_____
	"CRD BREAKER CB1" (CS)	
	"CRD BREAKER CB4" (CS)	UNSAT_____
	"CRD BREAKER CB2" (CS)	
	2. Notify PPO to verify all CRD "0%" lights for groups 1 through 7 are lit on "POSITION REFERENCE PANEL".	
	3. If NI-14-NI2 is not on scale, then notify TSC to consider emergency boration.	
STANDARD:	Candidate observes NI-14-NI2 on RSP.	
	Candidate locates six CRD Breakers and indicates that he/she would depress trip pushbuttons.	
	Candidate locates Position Reference Panel and observes lights for Group 1 through 7.	
	Candidate again checks NI-14-NI2	
EXAMINER'S CUE:	<p>When candidate observes NI-14-NI2 indicate to him/her that NI-14-NI2 is "as seen" (Off-scale high for 100% power). Inform the candidate that he/she is to complete the remaining portion of this step.</p> <p>When candidate indicates that he would depress the trip pushbutton for each breaker inform him/her that they hear a loud clunk and the open flag is visible.</p> <p>When candidate looks at the Position Reference Panel indicate to him/her that the "0%" lights for Group 1 through 7 are on.</p> <p>When candidate checks NI-14-NI2 indicate a reading that is on scale (RX shutdown) and decreasing.</p>	

IN-PLANT JOB PERFORMANCE MEASURE

<u>COMMENTS:</u>	
<u>TERMINATION CUE:</u> CRD breakers OPEN, CRD groups 1 through 7 fully inserted and NI-14-NI2 on scale and decreasing.	
<p style="text-align: center;">END OF TASK</p>	

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Reactor Operator.
The Control Room has been evacuated.
AP-990 has been completed through Step 3.16

INITIATING CUE:

The Control Room Supervisor directs you to perform AP-990, Step 3.17.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

PlantJ (2K5) NRC [Bank #058] (PLANT)

SAFETY FUNCTION 4 (SECONDARY)

RESET EFP-2 TRIP VALVE (ASV-50)

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

In-Plant Job Performance Measure

Task: Reset Trip Valve ASV-50 for EFP-2.

Alternate Path: NO

JPM #: PlantJ (2K5) NRC [Bank #058]

K/A Rating/Importance: 061A2.04 RO 3.4 SRO 3.8

Task Number: 0190404001

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

Task Standard: Following an overspeed trip of ASV-50, reset ASV-50 IAW OP-450.

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator ____ In-Plant X Admin ____

Perform ____ Simulate X

References:

OP-450 Rev. 46

Validation Time: 15 min.

Time Critical: NO

Candidate: _____

Printed Name

Time Start: _____

Time Finish: _____

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

Examiner: _____ / _____

Printed Name

Signature

Date

Comment:

In-Plant Job Performance Measure

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-450, Rev. 46, Section 4.1

In-Plant Job Performance Measure

READ TO THE OPERATOR

Initial Conditions:

You are the Auxiliary Building Operator.

ASV-50 (EFP-2's trip valve) has tripped and is closed.

Initiating Cues:

The Control Room Supervisor directs you to RESET EFP-2 in accordance with OP-450, step 4.1.7.

In-Plant Job Performance Measure

EXAMINER'S NOTE: THIS JPM REQUIRES AN RCA ENTRY. ENSURE ALL RWP REQUIREMENTS ARE ADHERED TOO.

<p><u>STEP 1:</u> IF EFP-2 shaft begins to roll while relatching ASV-50, THEN TRIP ASV-50 AND INVESTIGATE cause</p> <p><u>EXAMINER'S CUE:</u> If the examinee asks about EFP-2 shaft status, inform him/her that the shaft is as observed.</p> <p><u>STANDARD:</u> Candidate will monitor shaft status during the following steps.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> ENSURE CLOSED ASV-204 and ASV-5</p> <p><u>STANDARD:</u> Candidate may call the control room and request status of ASV-5 and ASV-204. Candidate may check local valve control station indicating lights. (Closed "Green" lights lit)</p> <p><u>EXAMINER'S CUE:</u> If required, report as control room operator that ASV-5 and ASV-204 are closed.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 3:</u> ENSURE local drain traps appear to operate normally.</p> <p><u>STANDARD:</u> Candidate checks for excessive steam flow and/or water flowing to drains.</p> <p><u>EXAMINER'S CUE:</u> Inform candidate conditions are as observed.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

In-Plant Job Performance Measure

<p><u>STEP 4:</u> TURN handwheel clockwise (CW) to raise latch collar</p> <p><u>STANDARD:</u> Candidate indicates that he would put on his gloves prior to touching hand wheel.</p> <p>Locate ASV-50.</p> <p>Simulate rotating handwheel in clockwise direction.</p> <p>Observe latch collar rising.</p> <p>Observe latch collar up fully</p> <p><u>EXAMINER'S CUE:</u> Point to the latch collar and report it is rising <u>if the hand wheel is being turned in the correct direction.</u> Then report Latch up fully.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: To re-latch ASV-50, latch collar has to be up fully.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP5:</u> ENSURE tappet and tappet nut are fully depressed</p> <p><u>STANDARD:</u> Candidate checks tappet and tappet nut full depressed on the bearing housing.</p> <p><u>EXAMINER'S CUE:</u> Report tappet and tappet nut are as observed.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 6:</u> ENGAGE latch lever</p> <p><u>STANDARD:</u> Locate Trip handle reset lever and simulates moving handle in direction necessary to engage trip hook.</p> <p><u>EXAMINER'S CUE:</u> Point to the latch and inform the examinee it moves in place.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Trip hook has to be engaged in order to open valve.</p> <p>SAT _____</p> <p>UNSAT _____</p>

In-Plant Job Performance Measure

<p><u>STEP 7:</u> Slowly TURN hand wheel counter-clockwise (CCW) until full OPEN</p> <p><u>STANDARD:</u> Candidate simulates turning the hand wheel slowly counter-clockwise.</p> <p style="padding-left: 40px;">Observe valve stem rising to full up position.</p> <p><u>EXAMINER'S CUE:</u> <u>Point to the valve stem and report it is rising if the hand wheel is being turned in the correct direction. Then report valve stem up fully.</u></p> <p><u>COMMENTS:</u></p>	<p>Critical Step Basis: Necessary to open the valve.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 8:</u> VERIFY alarm CLEARS</p> <p><u>STANDARD:</u> Candidate simulates call to control room to ask about EFP-2 trip alarm status.</p> <p><u>EXAMINER'S CUE:</u> When control room is called, report that alarm is clear. (assuming all critical steps were completed correctly)</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>END OF TASK</p>	

In-Plant Job Performance Measure

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

Initial Conditions:

You are the Auxiliary Building Operator.

ASV-50 (EFP-2's trip valve) has tripped and is closed.

Initiating Cues:

The Control Room Supervisor directs you to RESET EFP-2 in accordance with OP-450, step 4.1.7.

CRYSTAL RIVER UNIT 3

JPM COVER SHEET

PlantK (2K5) NRC [Bank #395] (PLANT)

SAFETY FUNCTION 8

APPENDIX R CHILLER LINEUP

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Gerhardt/Moffatt

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

IN-PLANT JOB PERFORMANCE MEASURE

Task: Respond to a loss of SW cooling by placing the Appendix R Chiller in service per AP-330.

Alternate Path: No

JPM #: PlantK (2K5) NRC [Bank #395]

K/A Rating/Importance: 008A2.01 RO 3.3 SRO 3.6

Task Number: 0080402012

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

Task Standard: Place the Appendix R Chiller in service following a loss of SW using AP-330, Enclosure 7.

Preferred Evaluation Location:

Simulator____ Plant X Admin____

Preferred Evaluation Method

Perform____ Simulate X

References:

AP-330, Enclosure 7, Rev. 18

Validation Time: 15 Minutes

Time Critical: No

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

Time Finished: _____

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

Examiner: _____
Printed Name Signature Date

Comment: _____

IN-PLANT JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. NA

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of AP-330, Enclosure 7

IN-PLANT JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

The plant has experienced a loss of SW and is in AP-330.
The Appendix R Chiller is supplying the Unit 4160V and Unit 480V Switchgear rooms.

INITIATING CUES:

You are the Primary Plant Operator.
The Control Room Supervisor has directed you to complete Enclosure 7 of AP-330, APPENDIX R CHILLER LINEUP.

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 1: Obtain AP-330 Enclosure 7</p> <p>STANDARD: Candidate should obtain the TB copy of AP-330.</p> <p>EXAMINER'S CUE: Once the candidate has identified where he/she would get the procedure give them a copy of AP-330, Enclosure 7.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 2: (step 7.1)</p> <p>If Appendix R Chiller (CHHE-2) is providing Unit 4 160V/480V SWGR Room cooling, then remove chiller from service.</p> <p>Notify SPO to perform the following in order (145 ft TB Control Panel AH-42 by CC entrance):</p> <p>Select CHP-2 "Chilled Water Pump" to "OFF".</p> <p>When "CHHE-2 Air Cooled Chiller Status" indicates off, then select CHHE-2 "Air Cooled Chiller" to "OFF".</p> <p>STANDARD: Candidate locates TB Control Panel and selects CHP-2 to off.</p> <p>Candidate observes CHHE-2 Air Cooled Chiller Status indicates off, he/she then selects CHHE to off.</p> <p>EXAMINER'S CUE: SPO is not available. The PPO must perform all steps.</p> <p>Inform the candidate that CHP-2 indicates off.</p> <p>Inform the candidate that CHHE-2 Air Cooled Chiller Status indicates off, then when CHHE-2 is selected to off inform the candidate that CHHE-2 indicates off.</p> <p>COMMENTS:</p>	<p>Critical Step:</p> <p>Chiller lineup must be secured prior to change in alignment.</p> <p>SAT _____</p> <p>UNSAT _____</p>

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 3: (step 7.2)</p> <p>Ensure Appendix R chiller is aligned to dedicated shutdown loads.</p> <p>Notify SPO to close the following valves (145 ft TB southeast stairwell):</p> <p style="padding-left: 40px;">CHV-210 "TB SWGR ROOM COOLER APPENDIX R CH INLET ISO"</p> <p style="padding-left: 40px;">CHV-211 "TB SWGR ROOM COOLER APPENDIX R CH OUTLET ISO"</p> <p>Notify SPO to open the following valves (119 ft TB by RH control panel):</p> <p style="padding-left: 40px;">CHV-131 "APPENDIX R CH RETURN HEADER ISO"</p> <p style="padding-left: 40px;">CHV-132 "APPENDIX R CH SUPPLY HEADER ISO"</p> <p>Notify Maintenance to maintain drip pans.</p> <p>STANDARD: Candidate locates CHV-210 and CHV-211 and places each valve in the closed position</p> <p>Candidate locates CHV-131 and CHV-132 and places each valve in the open position.</p> <p>Candidate makes notification to maintain drip pans.</p> <p>EXAMINER'S CUE: Notify candidate that each valve (CHV-210 & 211) handle reaches the hard stop in the perpendicular direction.</p> <p>Notify the candidate that each valve (CHV-131 & 132) handle reaches the hard stop in the parallel direction.</p> <p>Inform the candidate that maintenance has been notified to maintain the drip pans.</p> <p>COMMENTS:</p>	<p>Critical Step:</p> <p>Basis:</p> <p>Provides proper flowpath to dedicated loads.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 4: (step 7.3)</p> <p>Ensure Appendix R chill water aligned to AHF-54B</p> <p>Notify PPO to close the following valves in order (C EFIC Room):</p> <p style="padding-left: 40px;">CHV-89 "EFIC Room Cooler Normal Duty CH Inlet Iso"</p> <p style="padding-left: 40px;">CHV-102 "EFIC Room Cooler Normal Duty CH Outlet Iso"</p> <p>Notify PPO to place "EFIC Room HVAC Chilled Water Valves CHV-97 & CHV-101" selector switch to "DED" (B EFIC Room).</p> <p>Ensure CHV-97 is open.</p> <p>Ensure CHV-101 is closed.</p> <p>STANDARD: Candidate locates CHV-89 and places in the closed position, he/she then locates CHV-102 and places it in the closed position.</p> <p>Candidate locates the selector switch for CHV-97 & 101 and places it in the "DED" position and then ensures that CHV 97 is open and CHV-101 is closed.</p> <p>EXAMINER'S CUE: Notify candidate that each valve (CHV-89 & 102) reaches the hard stop in the closed direction.</p> <p>Notify the candidate the switch for CHV-97 and 101 is in the "DED" position.</p> <p>Notify the candidate that CHV 97 indicates open and CHV-101 indicates closed.</p> <p>COMMENTS:</p>	<p>Critical Step: Basis: Same as step 7.2</p> <p>SAT _____</p> <p>UNSAT _____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

<p><u>STEP 5:</u> (step 7.4)</p> <p>Place Appendix R dedicated chiller in service.</p> <p>Notify SPO to perform the following in order (145 ft TB Control Panel AH-42 by CC entrance):</p> <p> Select CHP-2 "Chilled Water Pump" to "ON".</p> <p> Select CHHE-2 "Air Cooled Chiller" to "ON".</p> <p><u>STANDARD:</u> Candidate locates Panel AH-42 and selects CHP-2 to On.</p> <p> Candidate selects CHHE-2 to On.</p> <p><u>EXAMINER'S CUE:</u> Inform candidate that CHP-2 red light lit.</p> <p> Inform candidate that CHHE-2 red light lit.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step:</p> <p>Basis:</p> <p>Restores unit to provide cooling.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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IN-PLANT JOB PERFORMANCE MEASURE

STEP 6:

(step 7.5)

Ensure Appendix R fans are running.

Notify SPO to select the following switches to "ON" (145 ft TB Control Panel AH-42 by CC entrance):

"FAN COIL UNIT AHHE 51 480 V ES SWGR RM A"

"FAN COIL UNIT AHHE 50 480 V ES SWGR RM A"

"FAN COIL UNIT AHHE 53 480 V ES SWGR RM B"

"FAN COIL UNIT AHHE 52 480 V ES SWGR RM B"

"FAN COIL UNIT AHHE 48 4160 V ES SWGR RM A"

"FAN COIL UNIT AHHE 46 BATT. CHRG. RM A"

"FAN COIL UNIT AHHE 49 4160 V ES SWGR RM B"

"FAN COIL UNIT AHHE 47 BATT. CHRG. RM B"

"FAN COIL UNIT AHHE 54 INVERTER RM A"

"FAN COIL UNIT AHHE 55 INVERTER RM A"

"FAN COIL UNIT AHHE 56 INVERTER RM B"

"FAN COIL UNIT AHHE 57 INVERTER RM B"

"FAN COIL UNIT AHHE 45 REMOTE SHUTDOWN RM"

STANDARD: Candidate locates each control switch and places it in the on position.

EXAMINER'S CUE: As candidate selects each switch to the on position inform him/her that the switch is selected to "ON".

COMMENTS:

Critical Step:
Basis:
Provides individual cooling to vital areas.

SAT_____

UNSAT_____

IN-PLANT JOB PERFORMANCE MEASURE

<p>STEP 7: (step 7.6)</p> <p>Start AHF-54B.</p> <p>STANDARD: Notifies RO in control room to start AHF-54B.</p> <p>EXAMINER'S CUE: Inform the candidate as the control room RO that AHF-54B indicates on.</p> <p>COMMENTS:</p>	<p>Critical Step: Basis: Same as step 7.5</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 8: (step 7.7)</p> <p>Exit this enclosure.</p> <p>STANDARD: Candidate states that he/she has completed the enclosure.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>TERMINATION CUE: AP-330 Enclosure 7 complete</p>	
<p>END OF TASK</p>	

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

The plant has experienced a loss of SW and is in AP-330.
The Appendix R Chiller is supplying the Unit 4160V and Unit 480V Switchgear rooms.

INITIATING CUES:

You are the Primary Plant Operator.
The Control Room Supervisor has directed you to complete Enclosure 7 of AP-330, APPENDIX R CHILLER LINEUP.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimA (2K5) NRC [Bank #294] (SIMULATOR)

SAFETY FUNCTION 1

**TRANSFER A SINGLE CONTROL ROD TO THE AUXILIARY
POWER SUPPLY**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Transfer a single control rod to the Auxiliary Power Supply.

Alternate Path: NO

JPM #: SimA (2K5) NRC [Bank #294]

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

Task Number/Position: 0010102010 RO

Task Standard: Transfer a single control rod to the Auxiliary Power Supply by using OP-502, Control Rod Drive System, Section 4.16, Transferring a Group or Rod to the Auxiliary Power Supply.

Preferred Evaluation Location:

Simulator X In-Plant _____ Admin _____

Preferred Evaluation Method:

Perform X Simulate _____

References:

OP-502, Rev. 49

Validation Time: 10 min.

Time Critical: NO

=====

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____
Printed Name

Signature / Date

Comment: _____

SIMULATOR SETUP INSTRUCTIONS:

1. None

SIMULATOR OPERATOR INSTRUCTIONS:

1. Any power IC

Tools/Equipment/Procedures Needed:

Consumable copies of OP-502, Section 4.16

READ TO THE OPERATOR

Initial Conditions:

You are the Reactor Operator.
The plant is stable at full power.
Control Rod troubleshooting is in progress.

Initiating Cues:

You are requested to transfer Rod 5-4 to the Auxiliary Power Supply. Following transfer of the rod leave the reactor diamond and demand stations in manual for further manipulations.

<p><u>STEP 1:</u> Obtain a copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Candidate obtains a copy of OP-502.</p> <p><u>EXAMINER'S NOTE:</u> Once candidate determines correct section of procedure provide a copy of Section 4.16.</p> <p><u>EXAMINER'S CUE:</u> For purposes of this JPM assume the SRO concurs with each rod manipulation.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 2:</u> (Step 4.16.1)</p> <p>PROCEDURE CAUTION: Tave control will go to Feedwater regulation if Feedwater is in AUTO.</p> <p>Place Reactor Diamond in MANUAL.</p> <p>DEPRESS "MANUAL"</p> <p>VERIFY "MANUAL" light ON, "AUTO" light OFF</p> <p><u>STANDARD:</u> Candidate depresses the Diamond Panel MANUAL pushbutton and observes the MANUAL light ON and the AUTO light OFF.</p> <p><u>EXAMINER'S NOTE:</u> Candidate may elect to take both FW Loop Demand Stations to "Manual". This is satisfactory, but not required.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT ____</p> <p>UNSAT ____</p>

<p>STEP 3: (Step 4.16.2)</p> <p>Place Reactor Demand control station in Hand.</p> <p>DEPRESS HAND VERIFY "REACTOR DEMAND" in Mini Track ("AUTO" and "HAND" lights on)</p> <p>STANDARD: Candidate depresses the HAND pushbutton on the Reactor Demand (Bailey) HAND/AUTO station and observes that both the HAND and AUTO lights are ON.</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 4: (Step 4.16.3)</p> <p>Select "GROUP SELECT" Switch to desired group.</p> <p>STANDARD: Candidate positions the "GROUP SELECT" Switch to Group 5.</p> <p>COMMENTS:</p>	<p>Critical Step (required for transfer of the correct rod)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 5: (Step 4.16.4)</p> <p>Select ALL or desired rod.</p> <p>Use "SINGLE SELECT" Switch.</p> <p>STANDARD: Candidate positions the "SINGLE SELECT" Switch to 4.</p> <p>COMMENTS:</p>	<p>Critical Step (required for transfer of the correct rod)</p> <p>SAT ____</p> <p>UNSAT ____</p>

<p>STEP 6: (Step 4.16.5)</p> <p>Select "SEQ OR"</p> <p>Verify "SEQ OR" light ON "SEQ" light ON</p> <p>STANDARD: Operator depresses the "SEQ/SEQ OR" pushbutton and verifies both lights ON.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 7: (Step 4.16.6)</p> <p>Select "AUXIL"</p> <p>Verify "AUXIL" light ON, "GROUP" light OFF Verify "TRANS RESET" light OFF Verify "CONTROL ON" white light for selected group is ON</p> <p>STANDARD: Candidate depresses the "AUXIL/GROUP" pushbutton and verifies "AUXIL" light ON and "GROUP" light OFF. Also verifies "TRANS RESET" light OFF and "CONTROL ON" light for GP 5 ON.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 8: (Step 4.16.7)</p> <p>Place "SPEED SELECTOR" switch in "JOG"</p> <p>Verify "SY" light comes ON</p> <p>STANDARD: Candidate rotates "RUN/JOG" switch to "JOG" and verifies "SY" light ON.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT _____</p> <p>UNSAT _____</p>

<p>STEP 9: (Step 4.16.8)</p> <p>Select "CLAMP"</p> <p>Verify "CLAMP" light ON Verify "CLAMP REL" light OFF</p> <p>STANDARD: Candidate depresses "CLAMP/CLAMP REL" pushbutton and verifies "CLAMP" light ON and "CLAMP REL" light OFF.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 10: (Step 4.16.9)</p> <p>PROCEDURE CAUTION: If Amber control ON lights for more than one group are ON, STOP, and notify SSO.</p> <p>Depress "MAN TRANS"</p> <p>Verify "TR CF" light ON Verify Amber "CONTROL ON" light(s) for only selected Group or rod come ON</p> <p>STANDARD: Candidate depresses "MAN TRANS" pushbutton and verifies "TR CF" light ON. The candidate will also verify the Amber "CONTROL ON" light for rod 5-4 is ON.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 11: (Step 4.16.10)</p> <p>Select "CLAMP REL"</p> <p>Verify "CLAMP REL" light ON Verify "CLAMP" light OFF</p> <p>STANDARD: Candidate depresses "CLAMP/CLAMP REL" pushbutton and verifies "CLAMP REL" light ON and "CLAMP" light OFF.</p> <p>COMMENTS:</p>	<p>Critical Step (required to accomplish rod transfer)</p> <p>SAT ____</p> <p>UNSAT ____</p>

<p>STEP 12: (Step 4.16.11)</p> <p>Select "GROUP"</p> <p>Verify "GROUP" light ON Verify "AUXIL" light OFF Verify "SY" light OFF</p> <p>STANDARD: Candidate depresses "GROUP/AUXIL" pushbutton and verifies "GROUP" light ON and "AUXIL" light OFF. Candidate will also verify the "SY" light OFF.</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 13: (Step 4.16.12)</p> <p>If latching Safety Rods in accordance with section 4.2, return to Section 4.2.3 after completion of this step.</p> <p>STANDARD: N/A</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>STEP 14: (Step 4.16.13)</p> <p>Place "SPEED SELECTOR" switch in "RUN"</p> <p>Verify white "CONTROL ON" light for selected group is ON Verify Amber "CONTROL ON" light(s) for selected group/rod is ON</p> <p>STANDARD: Candidate rotates "RUN/JOG" switch to "RUN", observes the white (Diamond panel) "CONTROL ON" light for group 5 is ON and the Amber (PI panel) "CONTROL ON" light for rod 5-4 is ON.</p> <p>COMMENTS:</p>	<p>SAT ____</p> <p>UNSAT ____</p>

<p><u>STEP 15:</u> (Step 4.16.14)</p> <p>Restore "SINGLE SELECT" Switch.</p> <p>Place "SINGLE SELECT" Switch to OFF</p> <p><u>STANDARD:</u> Candidate rotates "SINGLE SELECT" Switch to OFF.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 16:</u> (Step 4.16.15)</p> <p>Restore "GROUP SELECT" Switch</p> <p>Place "GROUP SELECT" Switch to OFF</p> <p><u>STANDARD:</u> Candidate rotates GROUP SELECT switch to OFF.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p><u>STEP 16:</u> (Step 4.16.16)</p> <p>PROCEDURE NOTE: When in "SEQ" the Control ON lamp and Amber Control ON lamps are on for rods on the Aux Power Supply and controlling rod group (usually group 7)</p> <p>Select "SEQ"</p> <p>Verify "SEQ" light ON</p> <p>Verify "SEQ OR" light OFF</p> <p><u>STANDARD:</u> Candidate depresses "SEQ/SEQ OR" pushbutton and verifies "SEQ" light ON and "SEQ OR" light OFF.</p> <p><u>EXAMINER'S CUE:</u> You have transferred rod 5-4 to the Auxiliary Power Supply. This JPM is complete.</p> <p><u>COMMENTS:</u></p>	<p>SAT ____</p> <p>UNSAT ____</p>
<p>END OF TASK</p>	

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

Initial Conditions:

You are the Reactor Operator.
The plant is stable at full power.
Control Rod troubleshooting is in progress.

Initiating Cues:

You are requested to transfer Rod 5-4 to the Auxiliary Power Supply. Following transfer of the rod leave the reactor diamond and demand stations in manual for further manipulations.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimB (2K5) NRC [Bank #389] (SIMULATOR)

SAFETY FUNCTION 3

ALTERNATE PATH

RESPOND TO AN OTSG TUBE RUPTURE AT POWER

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform the actions specified during a steam generator tube rupture.
(Restore Pressurizer level during an OTSG Tube Rupture per EOP-6 step 3.1)

Alternate Path: Yes

JPM #: SimB (2K5) NRC [Bank #389]

K/A Rating/Importance: 004A4.06 RO 3.6 SRO 3.1

Task Number: 1150502005

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

Task Standard: EOP-6 and AI-505

Preferred Evaluation Location:

Simulator x Plant Admin

Preferred Evaluation Method

Perform x Simulate

References: EOP-06, Rev. 17
AI-505, Rev. 15

Validation Time: 10 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. Initialize previous stored IC# 65

Or

- 1 Initialize the simulator to a 100% IC and:
 - A. Set Letdown flow to 70 gpm.
 - B. Fail MUV-49 open.
 - C. Set the "A" OTSG high tube leak to .35 = 140 gpm.
 - D. Unfreeze and allow PZR level to lower to approx 200" (198-200")
 - E. Clear unrelated distracting alarms and freeze the simulator.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of EOP-06
2. Consumable copies of page 3 / 4 to replace marked up copies.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is in Mode 1.
An OTSG Tube Rupture is in progress

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-06, Step 3.1

<p><u>STEP 1:</u></p> <p>The guidance of the EOP would normally be read by the CRS. For the purpose of this JPM a copy of EOP-06 will be given to the operator.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the guidance of EOP-06 step 3.1</p> <p><u>EXAMINER'S CUE:</u></p> <p>Examiner will provide operator with a copy of EOP-06.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (step 3.1 Action Category)</p> <p>Candidate determines the need to restore PZR level</p> <p><u>STANDARD:</u></p> <p>Candidate will review the action guidance of step 3.1, monitor reactor power and Pressurizer level and Pressurizer level trend.</p> <p><u>EXAMINER'S NOTE:</u></p> <p>Simulator set up will establish conditions of an OTSG tube rupture greater than makeup capabilities with letdown in service at 70 gpm. This condition will continue until Pzr level is at or slightly below 200". This should be the status of the plant when the candidate enters the control room. Based on these conditions; Rx power > 20% and PZR level < 200 in, the candidate should recognize the need to restore PZR level per detailed actions.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Must be able to recognize that PZR level is lowering.</p> <p>SAT _____</p> <p>UNSAT _____</p>

<p><u>STEP 3:</u> (step 3.1, detail 1)</p> <p>Close MUV-49</p> <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Operator selects closed on MUV-49 and recognizes the valve fails to close. 2. Operator uses an alternate method to isolate Letdown Flow. <ol style="list-style-type: none"> a. Locate and select closed on MUV-567 control switch. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> b. Locate and select closed on MUV-50 control switch and rotate the control knob for MUV-51 in the counter-clockwise direction to close MUV-51. <p><u>EXAMINER'S NOTE:</u></p> <p>MUV-49 is failed open as part of the setup for the JPM. Operator should recognize the intent of closing MUV-49 is to isolate Letdown flow and use an alternate method to accomplish this step. The two methods listed above are the most probable operator actions. This action is justified IAW AI-505 4.1.4 step 1 b.</p> <p>IF the student elects to call the PPO to close MUV-49 locally, wait approximately 1 minute and report that this cannot be accomplished.</p> <p>Other methods to isolate letdown may be used by the student and will be acceptable as long as they can be accomplished in a timely manner and do not create unacceptable operational or radiological concerns (i.e. isolating in a manner that lifts the letdown system relief valve would not be acceptable). Additionally, the candidate may choose not to take these contingency actions and provide additional makeup. In either case the operator must restore PZR level.</p> <p><u>EXAMINER'S CUE:</u></p> <p>If SRO direction is requested when MUV-49 failure is identified, then direct the candidate to "Isolate letdown using an alternative method".</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Maximize RCS Inventory to allow controlled Shutdown.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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<p><u>STEP 4:</u> (step 3.1, detail 2)</p> <p>Open MUV-24</p> <p><u>STANDARD:</u></p> <p>Candidate locates control switch for MUV-24 and holds the switch in the clockwise (open) direction until the green light is extinguished and the red light is on.</p> <p><u>EXAMINER'S CUE:</u></p> <p>Opening MUV-24 is important to maximizing the time allowed for plant shutdown without PZR level lowering to a point requiring a reactor trip. However, if the candidate does not perform this step and goes directly to the next detail, he can still be successful in restoration of PZR level.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 5:</u> (step 3.1, detail 3)</p> <p>Ensure BWST to MUP valves are open:</p> <p>_____ MUV-73</p> <p>_____ MUV-58</p> <p><u>STANDARD:</u></p> <p>Operator locates the control switch for MUV-73 and rotates it in the open (Clockwise) direction observing the green closed light go out and the red open light come on.</p> <p>Candidate locates the control switch for MUV-58 and verifies it is open.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Ensures proper MUP suction.</p> <p>SAT_____</p> <p>UNSAT_____</p>

<p>STEP 6: (step 3.1, detail 4)</p> <p>4 <u> </u> IF PZR level does <u>NOT</u> recover, <u>THEN</u> take additional actions to restore PZR level:</p> <p><u> </u> Start second MUP and required cooling pumps.</p> <p>[Rule 5, EDG Control]</p> <p>Open additional HPI valves:</p> <p><u> </u> MUV-23</p> <p><u> </u> MUV-25</p> <p><u> </u> MUV-26</p> <p><u>STANDARD:</u></p> <p>Candidate monitors PZR level. Based on PZR level trend the examinee may perform this step. If level is recovering based on actions taken at detail 1 then this step may be marked N/A.</p> <p>If PZR level continues to lower, then the following standard applies:</p> <p>Candidate locates the control switches for DCP-1B, RWP-3B and MUP-1C and rotates each switch to the "start" position, observing the red "run" light being illuminated for each pump. All three pumps must be started for successful completion of step.</p> <p>Candidate locates the control switches for MUV-23, 25 and 26 and holds the individual valve control switch in the "open" direction to establish additional flow to the RCS. Candidate monitors PZR level trend and establishes sufficient flow to cause an upward PZR level trend.</p> <p><u>EXAMINER'S CUE:</u></p> <p>If the Operator has established sufficient makeup to cause Pzr level to rise the JPM may be stopped.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Pzr level continues to decrease without additional flow.</p> <p>SAT <u> </u></p> <p>UNSAT <u> </u></p>
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<p><u>STEP 7:</u> (step 3.1 Detail 5)</p> <p>If PZR level does <u>NOT</u> recover, <u>THEN</u> close MUP recirc to MUT valves:</p> <p> ___ MUV-53</p> <p> ___ MUV-257</p> <p><u>STANDARD:</u></p> <p>Operator should NA this step due to success in the previous steps. However, if the operator has not opened the HPI injection valves sufficiently to cause an upward trend he/she may unnecessarily close the recirc valves. If the operator closes the recirc valves and total flow through each HPI pump is <100 gpm this would constitute a failure.</p> <p><u>EXAMINER'S CUE:</u></p> <p>When the Candidate has established sufficient makeup to cause Pzr level to rise the JPM can be stopped.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>(Conditional)</p> <p>Basis: <u>If</u> step is performed, MUP damage can occur if flow is <100 gpm.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>TERMINATION CUE:</u></p> <p>Sufficient Make-up flow exists to cause PZR level to rise.</p>	

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.
An OTSG Tube Rupture is in progress

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-06, Step 3.1

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimC (2K5) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 2

ALTERNATE PATH

RESPOND TO A STUCK OPEN SPRAY VALVE

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform the actions specified for a stuck open spray valve.

Alternate Path: Yes

JPM #: SimC (2K5) NRC [NEW]

K/A Rating/Importance: 002A4.01 RO 4.2 SRO 4.4

Task Number:

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

Task Standard: Using AP-520 perform the actions specified for a stuck open PZR spray valve.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator X Plant _____ Admin _____

Perform X Simulate _____

References: AP-520, Rev. 7

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 previous stored IC# **66** and allow simulator to run until a steady RCS pressure decrease is evident on SPDS.
2. Freeze the simulator and notify the examiner.

OR

1. Establish steady state 4% power conditions
2. Insert the following failures

a. RCV-13 fail as is	TFHV0131 = t	
b. RCV-13 amber light	A3_A2_DS53_1	COND on A3_A2_S26_2
	Time on = 12 sec	Time off = 60 minutes
c. RCV-14 fail to position	TVHVL014 = 0.5	
d. RCV-14 fail to position	TVHVL014 = 1.0	COND on A3_A2_DS184_1
e. Htr bank failure	TVH1PCP = 1.0	COND on A3_A2_DS184_1
f. Htr bank failure	TVH1PCP2 = 1.0	COND on A3_A2_DS184_1
3. After inserting failures allow simulator to run until a steady RCS pressure decrease is evident on SPDS.
4. 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 AP-520

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 2.

An uncontrolled RCS pressure reduction is in progress.

AP-520 has been entered and completed through Step 3.4.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-520, starting at Step 3.5.

<p><u>STEP 1:</u></p> <p>The guidance of the AP would normally be read by the CRS. For the purpose of this JPM a copy of AP-520 will be given to the operator.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the status of the plant and AP-520 STATUS.</p> <p><u>EXAMINER'S CUE:</u></p> <p>Examiner will provide operator with a copy of AP-520.</p> <p><u>EXAMINER'S NOTE:</u></p> <p>Notify simulator operator when candidate is ready to perform the JPM.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (step 3.5)</p> <p>Verify proper operation of PZR heaters.</p> <ul style="list-style-type: none"> • PZR Heater Control • PZR Htr Banks • RC-203-JI • RC-204-JI <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate will verify RC-3-PIC in AUTO with a heater demand 2. Candidate will ensure power to PZR heater banks 3. Candidate will check power output on RC-203 and 204-JI <p><u>EXAMINER'S NOTE:</u></p> <p>Simulator set up will establish conditions for a leaking PZR Spray valve. The leak will be large enough such that a Rx trip will be required per AP-520.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

<p><u>STEP 3:</u> (step 3.6)</p> <p>IF RCS PRESS continues to lower, THEN isolate possible sources of RCS PRESS reduction.</p> <p>Close the following valves:</p> <ul style="list-style-type: none"> • DHV-91 • RCV-53 • RCV-11 • PORV • RCV-13 • RCV-14 <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate selects closed on all the indicated valves and verifies GREEN light ON. 2. Candidate recognizes that RCV-13 probably did not close completely. <p><u>EXAMINER'S NOTE:</u></p> <p>RCV-13 will torque out mid-stroke and the amber light will extinguish. The candidate may replace the GREEN light bulb to ensure it is not blown. With no GREEN light and RCS pressure still decreasing the candidate will determine that RCV-13 is still open partially and continue on in the procedure.</p> <p><u>EXAMINER'S CUE:</u></p> <p>If SRO direction is requested when RCV-13 failure is identified, then direct the candidate to continue on in the procedure.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (isolate possible leak paths)</p> <p>SAT _____</p> <p>UNSAT _____</p>
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<p><u>STEP 4:</u> (step 3.7)</p> <p>IF RCS PRESS continues to lower, AND RCV-13 is NOT closed, THEN stop RCP-1B.</p> <p>When RX power is <72%, THEN stop RCP-1B</p> <p>Concurrently Perform AP-545, Plant Runback</p> <p><u>STANDARD:</u></p> <p>Candidate determines that RCS pressure is still lowering, notifies the CRS and stops RCP-1B. Candidate will continue to monitor plant parameters. Candidate also notifies the CRS to concurrently perform AP-545.</p> <p><u>EXAMINER'S CUE:</u></p> <p>If SRO direction is requested when securing RCP-1B, then direct the candidate to perform the actions of the AP.</p> <p>State that the other Reactor Operator will perform the actions of AP-545.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (required action to minimize spray flow)</p> <p>SAT_____</p> <p>UNSAT_____</p>
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<p><u>STEP 5:</u> (step 3.8)</p> <p>IF RCS PRESS continues to lower, THEN trip the RX and Concurrently Perform EOP-2, Vital System Status Verification.</p> <p><u>STANDARD:</u></p> <p>Candidate determines that RCS pressure is still lowering, notifies the CRS of the procedure guidance, receives concurrence from the CRS and trips the reactor.</p> <p><u>EXAMINER'S CUE:</u></p> <p>If SRO direction is requested when tripping the reactor, then direct the candidate to perform the actions of the AP.</p> <p><u>EXAMINER'S NOTE:</u></p> <p>Terminate the JPM when the Rx is tripped.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (required action for low RCS pressure)</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p style="text-align: center;">END OF TASK</p>	

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 2.

An uncontrolled RCS pressure reduction is in progress.

AP-520 has been entered and completed through Step 3.4.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-520, starting at Step 3.5.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimD (2K5) NRC [Bank #003] (SIMULATOR)

SAFETY FUNCTION 4 (Primary)

ALTERNATE PATH

RESPOND TO AN ES A/B ACTUATION

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

Simulator Job Performance Measure

Task: Respond to an ES A/B actuation

Alternate Path: Yes

JPM #: SimD (2K5) NRC [Bank #003]

K/A Rating/Importance: 025AA1.10 RO 3.1 SRO 2.9

Task Number: 0130502002 / 0050502002

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

Task Standard: During emergency operation, ensure proper ES component response IAW EOP-03, Step 3.9.

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator ☒ In-Plant ☐

Perform ☒ Simulate ☐

References:

EOP-03, Rev.12

Validation Time: 6 min.

Time Critical: NO

Candidate: _____
Printed Name

Time Start: _____

Time Finish: _____

Performance Rating: SAT _____ UNSAT _____

Performance Time: _____

Examiner: _____
Printed Name

Signature

Date

Comment: _____

Simulator Job Performance Measure

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. RESTORE IC# 67
2. Unfreeze and then freeze the simulator to allow lockouts to trip.
 - a. Acknowledge SCM alarms.
3. RESTORE IC# 67
 - a. Acknowledge ALL alarms.

OR

1. Initialize the simulator to a 100% power IC.
2. Fail DHV-34 "Closed" (TFBUV34C = T).
3. Fail DHV-35 "Closed" (TFBUV35C = T).
4. Place condition on DHV-34 to remove failure when DHV-34 control switch taken to open (TFBUV34C = F / Condition = A1_A2_S11_3).
5. Place condition on DHV-35 to remove failure when DHV-35 control switch taken to open (TFBUV35C = F / Condition = A1_A2_S13_3).
6. Insert a 0.01 LOCA at the discharge of RCP-1A (TVHH0401 = 0.01).
7. Perform EOP-13, Rule 1.
8. Run until RCS pressure is approx. 900 psig.
9. Acknowledge all annunciator alarms and loss of ASCM alarms.
10. Silence all nuisance alarms not associated with the JPM using the "ALA" shortcut in expert mode.
10. Freeze the simulator.
11. Store IC _____

SIMULATOR OPERATOR INSTRUCTIONS:

1. Acknowledge alarms not associated with the JPM as the other operator.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Ensure a clean copy of EOP-03 is available.

Simulator Job Performance Measure

READ TO THE OPERATOR

Initial Conditions:

You are the Reactor Operator.

While in Mode 1 a LOCA occurred causing a loss of adequate sub-cooling margin.

EOP-02 Immediate Actions were performed.

EOP-13, Rule 1 actions were performed.

EOP-03 follow-up actions 3.1 through 3.8 have been performed.

Initiating Cues:

The CRS is in EOP-03 at Step 3.9 and has directed you to ensure that ES equipment is properly aligned.

Simulator Job Performance Measure

<p><u>STEP 1:</u> Obtain copy of the appropriate procedure.</p> <p><u>STANDARD:</u> Candidate obtains a copy of EOP-03, Step 3.9</p> <p><u>EXAMINER'S NOTE:</u> Candidate may verify EOP-13 Rule 1 actions and EOP-03 actions up to 3.9.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2A:</u> IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "A" HPI</p> <p><u>STANDARD:</u> Candidate verifies HPI actuation ES status lights are green for "A" Train of HPI (excluding MUP-1A and AHF-1C slow speed).</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2B:</u> IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "B" HPI</p> <p><u>STANDARD:</u> Candidate verifies HPI actuation ES status lights are green for "B" Train of HPI (excluding MUP-1B, AHF-1B slow speed and AHF-1C slow speed)</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

Simulator Job Performance Measure

<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2C:</u> IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned.</p> <p>Ensure applicable ES actuations: "A" LPI</p> <p><u>STANDARD:</u> Candidate verifies LPI actuation ES status lights are green for "A" Train of LPI.</p> <p>Candidate finds that the LPI actuation status light for DHV-34 is Amber.</p> <p>Candidate locates control switch for DHV-34 and selects "Open".</p> <p>Candidate verifies DHV-34 ES status light goes "Green"</p> <p><u>EXAMINER'S CUE:</u></p> <p>If candidate notifies the CRS prior to taking action for DHV-34, the examiner should only state "Ensure ES equipment is properly aligned".</p> <p><u>EXAMINER'S NOTE:</u></p> <p>Both LPI pumps are currently running without a suction source. Additionally, once DHV-34 & 35 are opened the candidate should recognize that no flow will occur due to the high RCS pressure.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: LPI & BS suction flowpath.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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Simulator Job Performance Measure

<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2D:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p>Ensure applicable ES actuations: "B" LPI</p> <p><u>STANDARD:</u> Candidate verifies LPI actuation ES status lights are green for "B" Train of LPI.</p> <p>Candidate finds that the LPI actuation status light for DHV-35 is Amber.</p> <p>Candidate locates control switch for DHV-35 and selects "Open".</p> <p>Candidate verifies DHV-35 ES status light goes "Green"</p> <p><u>EXAMINER'S CUE:</u></p> <p>If candidate notifies the CRS prior to taking action for DHV-35, the examiner should only state "Ensure ES equipment is properly aligned".</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Same as step 2C.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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Simulator Job Performance Measure

<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2E:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "A" RBIC</p> <p><u>STANDARD:</u> Candidate verifies RBIC actuation ES status lights are green for "A" Train of RBIC.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2F:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "AB" RBIC</p> <p><u>STANDARD:</u> Candidate verifies RBI&C actuation ES status lights are green for "AB" Train of RBIC (excluding SWV-79, 80, 81, 82, 83, 84, 85, & 86).</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2G:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "B" RBIC</p> <p><u>STANDARD:</u> Candidate verifies RBIC actuation ES status lights are green for "B" Train of RBIC.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

Simulator Job Performance Measure

<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2H:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "A" RB Spray</p> <p><u>STANDARD:</u> RB Spray has not initiated.</p> <p><u>EXAMINER'S CUE:</u> Candidate may question the history of RB pressure. If asked, state "RB pressure is as seen and has not been above current value".</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>EXAMINER'S NOTE:</u> All parts of Step 2 can be performed in any sequence.</p> <p><u>STEP 2I:</u> IF at any time, ES systems have, <u>OR</u> should have actuated, <u>THEN</u> ensure ES equipment is properly aligned.</p> <p style="padding-left: 40px;">Ensure applicable ES actuations: "B" RB Spray</p> <p><u>STANDARD:</u> RB Spray has not initiated.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 3:</u> Notify CRS of actions taken and status of ES systems.</p> <p><u>STANDARD:</u> Candidate notifies CRS that DHV-34 & 35 did not automatically position on the ES actuation and that control switch operation was successful.</p> <p><u>EXAMINER'S CUE:</u> Acknowledge response as the CRS.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>END OF TASK</p>	

Simulator Job Performance Measure

OPERATOR CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Reactor Operator.

While in Mode 1 a LOCA occurred causing a loss of adequate sub-cooling margin.

EOP-02 Immediate Actions were performed.

EOP-13, Rule 1 actions were performed.

EOP-03 follow-up actions 3.1 through 3.8 have been performed.

INITIATING CUES:

The CRS is in EOP-03 at Step 3.9 and has directed you to ensure that ES equipment is properly aligned.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimE (2K5) NRC [Bank #035] (SIMULATOR)

SAFETY FUNCTION 4 (Secondary)

**PERFORM ACTIONS FOR A STUCK OPEN
MSSV**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform the required actions if a MSSV fails to reset following a Reactor/Turbine trip.

Alternate Path: No

JPM #: SimE (2K5) NRC [Bank #035]

K/A Rating/Importance: 039A2.04 RO 3.4 SRO 3.7

Task Number: 0390502002

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

Task Standard: Perform the required actions if an MSSV fails to reset following a Reactor/Turbine trip.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator X Plant _____ Admin _____

Perform X Simulate _____

References:

EOP-02, Step 3.11 Rev. 9

Validation Time: 6 Minutes

Time Critical: No

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

Time Finished: _____

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

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# 68 developed for this JPM.
2. Run IC until header pressure is 1000 psig.

OR

1. If creating IC perform the following in order:
 - Fail MSV-48 (TVSVSR4B) to position .04 conditional on Rx power < 10% (rrswtp le 10)
 - Trip Rx
 - Set pressurizer level setpoint to 100".
 - Perform EOP-14 Enclosure 1 (Expert mode, Enc1)
 - Set Conditional to Delete the MSV-48 failure (TVSVSR4B = -1) when header pressure is < 950#. (A4_A2_A7_3 le 950)
 - Allow plant to stabilize until all MSSVs are closed, except MSV-48.
 - Defeat nuisance alarms.
 - Run IC until header pressure is 1000 psig.
 - Store IC.

SIMULATOR OPERATOR INSTRUCTIONS:

1. NA

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Radio (may be simulated)
2. Consumable copies of EOP-02, Step 3.11

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
A Reactor Trip has occurred.
EOP-02 Immediate Actions have been completed.
EOP-02, Steps 3.1 thru 3.10, have been completed.

INITIATING CUE:

The Control Room Supervisor directs you to perform EOP-02, Step 3.11.

SIMULATOR JOB PERFORMANCE MEASURE

<u>STEP 1:</u>	Candidate obtains copy of EOP-02.	SAT _____
<u>STANDARD:</u>	Candidate locates EOP-02.	UNSAT _____
<u>COMMENTS:</u>		

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 2: (step 3.11)</p> <p>Verify MSSVs are closed.</p> <p><u>IF</u> MSSVs are <u>NOT</u> closed, <u>THEN</u> attempt to reseal MSSVs.</p> <p><u>IF</u> OTSG PRESS is > desired setpoint, <u>THEN</u> control OTSG PRESS using TBVs (preferred) or ADVs.</p> <p><u>IF</u> OTSG PRESS is \leq desired setpoint, <u>AND</u> any MSSV is open, <u>THEN</u> momentarily lower associated OTSG PRESS to \geq 900 psig.</p> <p><u>IF</u> any MSSV is <u>NOT</u> reset, <u>THEN</u> notify Maintenance to start repair efforts.</p> <p>STANDARD: Observes MSSV lifting on MSSV monitor.</p> <p><i>This step may be accomplished by either of the following:</i></p> <p>FIRST METHOD:</p> <p>Locate the hand/Auto station for TBVs on affected OTSG.</p> <p style="text-align: center;">"B" OTSG MSV-11 & MSV-14</p> <p>Depress the Manual pushbutton to select manual.</p> <p>Depress the Open pushbutton to lower OTSG pressure to desired set point.</p> <p>When OTSG is at desired pressure observe OTSG pressure and TV monitor to ensure valve is seated.</p> <p>Depress the Close pushbutton to close MSV-11 and 14.</p> <p>Depress the Auto pushbutton to return MSV-11 and 14 to Auto control.</p> <p>Observe OTSG pressure and TV monitor to ensure valve remains seated.</p> <p>Notify the Control Room Supervisor of the condition of MSV-48.</p>	<p>Critical Step:</p> <p>Basis: Recognizes abnormal condition that will result in overcooling.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

(STEP-2) (continued)

SECOND METHOD:

Locate the Hand/Auto station for the UNAFFECTED OTSG.

"A" OTSG MSV-9 & MSV-10

Depress the Manual pushbutton for MSV-9 & 10.

Locate the Turbine Header Pressure set point control knob.

Rotate the set point knob to desired set point.

(A setting of ≈ 30 will be ≈ 900 psig, including 125# bias)

When OTSG is at desired pressure observe OTSG pressure and TV monitor to ensure valve is seated.

Returns setpoint to normal (≈ 47) and TBVs to Auto.

Observe OTSG pressure and TV monitor to ensure valve remains seated.

Notify the Control Room Supervisor of the condition of MSV-48.

EXAMINER'S NOTE:

If questioned by the candidate as to how much to lower OTSG pressure or candidate does not lower pressure sufficient to reseal the MSSV tell them as the CRS to limit the decrease to 900 psig

Simulator is setup to close MSV-48 when OTSG pressure is lowered to ≈ 945 psig.

COMMENTS:

SIMULATOR JOB PERFORMANCE MEASURE

<u>TERMINATION CUE:</u>	MSV-48 is closed and TBVs are returned to normal post trip lineup.	
<u>EXAMINER'S NOTE:</u>	The intent of the task is for the operator to take control of the TBVs (preferred) and lower the OTSG pressure to successfully reseal the MSSV. If action other than method 1 or 2 is taken which successfully reseals the MSSV without placing the plant at risk then the task should be considered satisfactory. An example of placing the plant at risk would be lowering OTSG pressure to the point that a MSLI occurs. However, if while reducing pressure to lower pressure in the affected OTSG the operator lowers pressure in the non-affected OTSG this should be a comment on his/her evaluation. Additionally, steaming to atmosphere is not the preferred method to lower the OTSG pressure. Thus, if the candidate uses the ADVs to lower pressure this should be a comment on the evaluation.	
END OF TASK		

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Reactor Operator.
A Reactor Trip has occurred.
EOP-02 Immediate Actions have been completed.
EOP-02, Steps 3.1 thru 3.10, have been completed.

INITIATING CUE:

The Control Room Supervisor directs you to perform EOP-02, Step 3.11.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimF (2K5) NRC [Bank #048] (SIMULATOR)

SAFETY FUNCTION 6

**SYNCHRONIZE OFF-SITE POWER AND
UNLOAD/SHUTDOWN EDG-1A**

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

SIMULATOR JOB PERFORMANCE MEASURE

Task: Synchronize in off-site power and unload/shutdown EGDG-1A.

Alternate Path: No

JPM #: SimF (2K5) NRC [Bank #048]

K/A Rating/Importance: 064A4.09 RO 3.2 SRO 3.3

Task Number: 0640402005 / 0640402006

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

Task Standard: Synchronize in off-site power and unload/shutdown EGDG-1A using AP-770.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator X Plant _____ Admin _____

Perform X Simulate _____

References:

AP-770 Rev. 33, Enclosure 6

Validation Time: 20 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# 69 developed for this JPM.
2. If creating IC perform the following:
 - Insert LOOP
 - Delete LOOP after plant trips.
 - Perform AP-770 up to step 3.53 (restoring a bus).
 - Close breakers 4900 and 4902.
 - Store IC.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Be prepared to complete portions of step 6.1 of Enclosure 6 in AP-770 as PPO (adjusting speed droop from 0 to 60 in increments of 10 and selecting unit-parallel switch to parallel).

Page "EDG"
Speed Droop (TAGDADRP)
Unit / Parallel Switch (TCG5AUPS)

2. Be prepared to complete portions of step 6.4 of Enclosure 6 AP-770 as PPO (adjusting speed droop from 60 to 0 in increments of 10 and selecting unit-parallel switch to unit).

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Radio (may be simulated)
2. Copy of AP-770
3. Consumable copies of AP-770, Enclosure 6

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.
The plant is stable in Mode 3 following a loss of off-site power.
Both diesels are running and tied to their respective ES bus.
AP-770 is complete up to off-site power availability (Step 3.53)

INITIATING CUES:

Off-site power is now available.
The Control Room Supervisor has directed you to perform AP-770, Enclosure 6, "A" EDG SHUTDOWN.

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 1:</u> Obtain a copy of appropriate procedure.</p> <p><u>STANDARD:</u> Candidate obtains a copy of AP-770, starting with Step 6.1 of Enclosure 6.</p> <p><u>EXAMINER'S NOTE:</u> When the candidate locates the correct procedure provide him with a copy of AP-770, Enclosure 6.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2:</u> (step 6.1)</p> <p>Prepare "A" EDG to synchronize with off-site power source.</p> <p>Ensure plant conditions are stable.</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 2A:</u> (step 6.1) Continued</p> <p>Ensure HPI is bypassed or reset.</p> <p>Depress 4160V ESA UV RESET push button.</p> <p>Notify PPO to obtain key 94 from Control Room.</p> <p>While maintaining frequency, notify PPO to select A EDG SPEED DROOP to 60 in increments of 10</p> <p>Select EDG A EXC VOLT ADJ select to CONT RM</p> <p>Notify PPO to select A EDG Unit-Parallel switch to PAR</p> <p>Adjust EDG A EXC VOLT ADJUST to maintain A EDG voltage 4150 to 4250 volts.</p> <p>Ensure at least 1 of the following breakers is closed:</p> <div style="margin-left: 100px;"> <p>1691</p> <p>1692</p> <p>4900</p> <p>4902</p> </div>	<p>Critical Step</p> <p>Basis: Generator electrical alignment to share load.</p> <p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

STANDARD:

Candidate verifies plant stable; initial conditions indicated the plant is stable.

Candidate verifies on both "A" and "B" ES status panels that the channel function enable green lights are ON and the bypass reset green lights are ON.

Candidate depresses pushbutton for 4160 V UV RESET and verifies that both reset/normal lights are ON.

PPO notified to complete details 4 and 5 of Step 6.1 of Enclosure 6 in AP-770; candidate may raise "A" EDG speed to maintain frequency.

Candidate rotates EDG "A" EXC VOLT ADJ SELECT switch to CONT RM. (Q-2-5 alarms).

PPO notified to complete detail 7 of Step 6.1 of Enclosure 6 in AP-770.

Candidate rotates EDG "A" EXC VOLT ADJUST knob to keep the voltage between 4150 and 4250 volts.

Candidate verifies that at least one of the following breakers is closed: 1691, 1692, 4900 or 4902

EXAMINER'S/ BOOTH OPERATOR CUE:

When notified as the PPO to adjust Speed Droop then adjust Speed Droop as directed and report back to the candidate as the PPO.

When notified as the PPO to select Unit Parallel switch to PAR then select Unit Parallel switch to PAR as directed and report back to the candidate as the PPO.

COMMENTS:

SIMULATOR JOB PERFORMANCE MEASURE

STEP 3: (step 6.2)

Synchronize "A" EDG with off-site power source.

Select synchroscope for breaker to be paralleled to ON (3211).

Adjust EDG "A" EXC VOLT ADJUST to match incoming and running voltages.

Adjust EDG "A" SPEED to establish synchroscope moving slow in the fast direction.

Close oncoming breaker at approximately 11 o'clock.

Select synchroscope to OFF.

Critical Step

Basis: Meet requirements to parallel two electrical sources.

SAT_____

UNSAT_____

STANDARD:

Candidate rotates synchroscope for breaker 3211 to ON and verifies sync lights ON.

Candidate rotates EDG "A" EXC VOLT ADJUST knob (as needed) so that the incoming voltage and running voltage are approximately the same.

Candidate rotates EDG "A" SPEED control handle until the needle on the synchroscope is rotating slowly in the fast direction.

Candidate rotates breaker 3211 to close when the synchroscope is at approximately the 11 o'clock position.

Candidate rotates the synchroscope control handle for breaker 3211 to OFF and verifies sync lights off.

COMMENTS:

SIMULATOR JOB PERFORMANCE MEASURE

STEP 4: (step 6.3)

Reduce "A" EDG load.

Maintain -1.5 to $+1.5$ MVAR by adjusting EDG "A" EXC VOLT ADJUST.

If "A" EDG load is > 1200 KW, then adjust EDG "A" SPEED to reducer load to approximately 1200 KW.

When load has been reduced to approximately 1200 KW for 3 to 5 min, then adjust EDG "A" SPEED to reduce load to approximately 200 KW.

Establish approximately $+0.1$ MVAR by adjusting EDG "A" EXC VOLT ADJUST.

Open breaker 3209.

SAT_____

UNSAT_____

STANDARD:

Candidate rotates EDG "A" EXC VOLT ADJUST knob to maintain MVARs between -1.5 and $+1.5$ if needed.

Candidate verifies load is < 1200 KW.

When load has been approximately 1200 KW for 3 to 5 minutes candidate rotates EDG "A" SPEED knob and reduces load to approximately 200 KW.

Candidate establishes $\approx +0.1$ MVAR using the EDG A EXC VOLT ADJUST.

Candidate rotates breaker 3209 control handle to open and verifies green light ON and red light OFF.

COMMENTS:

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 5: (step 6.4)</p> <p>Stop "A" EDG.</p> <p>Notify PPO to adjust "A" EDG SPEED DROOP to 0.</p> <p>Notify PPO to select "A" EDG Unit-Parallel switch to UNIT</p> <p>Maintain 59.8 to 60.2 HZ by adjusting EDG "A" SPEED.</p> <p>Select EDG "A" VOLT ADJUST MODE SELECT to MAN</p> <p>Maintain EDG voltage at 3933 to 4400V by adjusting EDG "A" MANUAL VOLTAGE ADJUST.</p> <p>Select EDG "A" VOLT ADJUST MODE SELECT to AUTO.</p> <p>Select EDG "A" EXC VOLT ADJ SELECT to DG RM.</p> <p>Depress "A" EDG STOP pushbutton.</p>	<p>Critical Step</p> <p>Basis:</p> <p>Restoration of "A" EGDG to ES standby.</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p>STANDARD:</p> <p>Candidate notifies PPO to complete details 1 and 2 of step 6.4 of Enclosure 6 in AP-770.</p> <p>Candidates rotates EDG "A" SPEED knob as required to maintain 59.8 to 60.2 HZ.</p> <p>Candidate rotates EDG "A" VOLT ADJUST MODE SELECT to MAN.</p> <p>Candidate rotates EDG "A" MANUAL VOLTAGE ADJUST to maintain EDG voltage between 3933 and 4400V.</p> <p>Candidate rotates EDG "A" VOLT ADJUST MODE SELECT to AUTO.</p> <p>Candidate rotates EDG A"A EXC VOLT ADJ SELECT to DG RM. (Q-5-2 clears)</p> <p>Candidate depresses the "A" EDG STOP push button and verifies EDG stops by voltage decrease to 0 and run/ready light extinguishes.</p>	

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>EXAMINER'S CUE:</u></p> <p>When notified as the PPO to adjust Speed Droop then adjust Speed Droop as directed and report back to the candidate as the PPO.</p> <p>When notified as the PPO to select Unit Parallel switch to UNIT then select Unit Parallel switch to UNIT as directed and report back to the candidate as the PPO.</p> <p><u>COMMENTS:</u></p>	
<p><u>STEP 6:</u> (step 6.5)</p> <p>Exit this Enclosure</p> <p><u>STANDARD:</u> NA</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>TERMINATION CUE:</u> Enclosure 6 is completed.</p>	
<p>END OF TASK</p>	

SIMULATOR JOB PERFORMANCE MEASURE

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 following a loss of off-site power.
Both diesels are running and tied to their respective ES bus.
AP-770 is complete up to off-site power availability (Step 3.53)

INITIATING CUES:

Off-site power is now available.
The Control Room Supervisor has directed you to perform AP-770, Enclosure 6, "A" EDG SHUTDOWN.

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimG (2K5) NRC [Bank #184] (SIMULATOR)

SAFETY FUNCTION 7

RESTORE RPS CHANNEL POWER

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

SIMULATOR JOB PERFORMANCE MEASURE

Task: Restore power to RPS channel

Alternate Path: No

JPM #: SimG (2K5) NRC [Bank #184]

K/A Rating/Importance: 012A2.02 RO 3.6 SRO 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:

Preferred Evaluation Method

Simulator X Plant _____ Admin _____

Perform X Simulate _____

References:

OP-507, Section 4.7 Rev. 25

Validation Time: 25 Minutes

Time Critical: No

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

Time Finished: _____

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

Examiner: _____
Printed Name Signature Date

Comment: _____

SIMULATOR JOB PERFORMANCE MEASURE

SIMULATOR OPERATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# 70 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.
2. Close "A" CRD Breaker when requested.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-507, Section 4.7

SIMULATOR JOB PERFORMANCE MEASURE

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

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:

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

SIMULATOR JOB PERFORMANCE MEASURE

<u>STEP 1:</u>	Identify and locate the required procedure	SAT _____
<u>STANDARD:</u>	The candidate should identify that the required procedure is OP-507 Section 4.7.	UNSAT _____
<u>EXAMINER'S NOTE:</u>	When the candidate identifies and locates the correct procedure and section supply him/her with a copy of OP-507, Section 4.7.	
<u>COMMENTS:</u>		
<u>STEP 2:</u>	Procedure Note: Ensure no SASS modules selected to channel being restored.	SAT _____
<u>STANDARD:</u>	Candidate verifies that no SASS modules are selected to the "A" RPS channel.	UNSAT _____
<u>EXAMINER'S NOTE:</u>	Only RCS pressure is used by SASS. This switch has already been transferred to the "B" RPS channel.	
<u>COMMENTS:</u>		

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 3:</u> (step 4.7.1)</p> <p>Ensure affected RPS Channel Power Supply breakers are OFF</p> <p>Ensure the following power supply breakers are selected to OFF position</p> <p>"SYSTEM AC POWER"</p> <p>"SYSTEM DC POWER"</p> <p>"PS-(channel)1" + 15V Power Supply</p> <p>"PS-(channel)2" - 15V Power Supply</p> <p>Fan breakers</p> <p><u>STANDARD:</u> Candidate locates the above breakers and verifies they are in the OFF position.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: RPS protection from voltage spike.</p> <p>SAT_____</p> <p>UNSAT_____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 4:</u> (step 4.7.2)</p> <p>Ensure power feeder breaker for the affected channel is closed.</p> <p>Ensure Feeder Breaker is CLOSED</p> <p>Channel "A" - VBDP-3 Bkr. #17</p> <p>Verify "Power Available" lamp on "System AC Power" breaker is lit.</p> <p><u>STANDARD:</u> Candidate identifies that VBDP-3 is behind the MCB.</p> <p>After Breaker is closed the candidate checks that "Power Available" lamp ON "System AC Power" breaker is lit.</p> <p><u>EXAMINER'S / BOOTH OPERATOR CUE:</u></p> <p>Play role as the PPO and communicate with the Control Room to close the breaker.</p> <p>Close VBDP-3 breaker #17 and report to candidate when breaker is closed.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis:</p> <p>Provides power to the channel.</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 5:</u> (step 4.7.3)</p> <p>Close affected RPS Channel "System AC Power" breaker.</p> <p>Verify "Power On" lamp ON "System AC Power" breaker is lit.</p> <p><u>STANDARD:</u> Candidate places the breaker in the ON position and then verifies the power on lamp is lit.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis:</p> <p>Power alignment to the RPS cabinet.</p> <p>SAT_____</p> <p>UNSAT_____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 6: (step 4.7.4)</p> <p>Ensure RPS cabinet fans are operating.</p> <p>Turn on both Fan breakers.</p> <p>Ensure fan lamps are lit.</p> <p>STANDARD: Candidate places breakers for both fans in the ON position and verifies that the fan lamps are lit.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 7: (step 4.7.5)</p> <p>CLOSE affected RPS Channel $\pm 15v$ power supply breakers.</p> <p>CLOSE the following power supply breakers:</p> <p style="padding-left: 40px;">"PS-(channel) 1" + 15V Power Supply</p> <p style="padding-left: 40px;">"PS-(channel) 2" - 15V Power Supply</p> <p>STANDARD: Candidate locates breakers and places in the ON position.</p> <p>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 assistance then end the JPM at this point.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Simultaneous alignment of both power supplies.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 8: Procedure Note: The following step will restore power to the affected RPS Channel.</p> <p>STANDARD: Candidate reads note.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 9: (step 4.7.6)</p> <p style="margin-left: 40px;">REPOWER affected RPS Channel</p> <p style="margin-left: 40px;">CLOSE "System DC Power" Breaker</p> <p>STANDARD: Candidate locates breaker and places in the ON position. Candidate responds to any associated alarms.</p> <p>EXAMINER'S NOTE:</p> <p style="margin-left: 40px;">At this time the following Annunciator alarms clear:</p> <p style="margin-left: 80px;">RCS flow loop A, RCS flow loop B, RCS total flow, subassembly + and - 15V pwr fault alarm, RCS pressure, and mismatch (SASS)</p> <p style="margin-left: 40px;">If > 45% power:</p> <p style="margin-left: 80px;">Annunciator for turbine trip bypass clear. Turbine AMSAC Low Flux bypass clear.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Power alignment to the RPS cabinet.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 10: (step 4.7.7)</p> <p>RESET affected RPS component power supplies:</p> <p>DEPRESS RESET toggle switch for the following power supplies:</p> <p style="padding-left: 40px;"><u>Channel A</u></p> <p style="padding-left: 40px;">NI-1 Detector Power Supply (will not energize >10%)</p> <p style="padding-left: 40px;">NI-5 Detector Power Supply</p> <p style="padding-left: 40px;">Contact Monitor P.S.</p> <p><u>STANDARD:</u> 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.</p> <p><u>EXAMINER'S NOTE:</u></p> <p style="padding-left: 40px;">The source range will not energize if with reactor power > 10 %.</p> <p style="padding-left: 40px;">Sub-Assembly "A" detector pwr supply fault clear. DC voltage increases, light on the module illuminates and an annunciator alarm for the turbine trip bypass clears if > 45% pwr.</p> <p style="padding-left: 40px;">On contact monitor voltage increases to approximately 125V. All 4 contact monitor lights go "DIM".</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Reset of pwr supplies prior to resetting RTM.</p> <p>SAT _____</p> <p>UNSAT _____</p>
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SIMULATOR JOB PERFORMANCE MEASURE

STEP 11: (step 4.7.8)

If RPS A is being powered, then ensure RESET all tripped bistables listed in details:

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

STANDARD:

Candidate performs the 4 steps above for each bistable listed.

COMMENTS:

Critical Step

Items marked with an * are considered critical.

Basis:

Align bistables to operational lineup.

SAT_____

UNSAT_____

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 12:</u> (steps 4.7.9, 4.7.10, and 4.7.11) These steps apply to RPS channels B, C and D and are not effected by this JPM.</p> <p><u>STANDARD:</u> NA</p> <p><u>EXAMINER'S NOTE:</u> Candidate should note that these 3 steps are NA.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 13:</u> (step 4.7.12)</p> <p style="text-align: center;">RESET RB High Pressure Contact Buffer</p> <p style="text-align: center;">Depress Reset toggle switch on Reactor Building High Press reset module</p> <p><u>STANDARD:</u> The candidate should observe that the 2 input state lamps go from bright to off.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Bistable reset required to reset RPS.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 14:</u> NOTE: The Turbine Trip Contact Buffer will not reset if the turbine is tripped.</p> <p><u>STANDARD:</u> Candidate reads note and notes that the turbine is not tripped.</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 15: (step 4.7.13)</p> <p>RESET Turbine Trip Contact Buffer.</p> <p>Depress test toggle switch on Turbine In Trip State module (lower switch on buffer module)</p> <p>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.</p> <p>RPS trouble alarm clear and sub system trip lamp on 880 module goes "DIM"</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Bistable reset required to reset RPS.</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p>STEP 16: (step 4.7.14)</p> <p>Reset Reactor Trip module.</p> <p>Depress Subsystem Reset toggle on Reactor Trip module.</p> <p>Verify Protective Sub-System amber indicating lamps on the top of each channel cabinet are DIM for the respective channel being reset:</p> <p style="padding-left: 40px;">"A" RPS Channel "B" RPS Channel "C" RPS Channel "D" RPS Channel</p> <p>STANDARD: The candidate depresses the toggle switch and the RPS Channel A trip annunciator alarm clears.</p> <p>The candidate verifies that the PROTECTIVE 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.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Resets channel.</p> <p>SAT_____</p> <p>UNSAT_____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p><u>STEP 17:</u> Procedure Notes:</p> <p style="margin-left: 40px;">Trip Reset will remove the 125# Bias applied to the Turbine Bypass valves, if applicable.</p> <p style="margin-left: 40px;">Local closure of CRD Breakers will be required unless all Control Rods are fully inserted.</p> <p><u>STANDARD:</u> NA</p> <p><u>COMMENTS:</u></p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p><u>STEP 18:</u> (step 4.7.15)</p> <p style="margin-left: 40px;">Close associated CRD breakers:</p> <p style="margin-left: 80px;">Depress the Trip Reset P/B</p> <p style="margin-left: 80px;">Depress the Fault Reset P/B</p> <p style="margin-left: 80px;">Ensure closed any open CRD breakers</p> <p style="margin-left: 120px;">A Breaker</p> <p style="margin-left: 40px;">Verify CRD breaker open and CRD Control Fault annunciator alarms are clear.</p> <p><u>STANDARD:</u> Candidate Depresses the Trip Reset, Fault Reset P/B and notifies the PPO to close the A CRD breaker</p> <p style="margin-left: 40px;">When "Trip Reset" is depressed there will be no change</p> <p style="margin-left: 40px;">When "Fault Reset" is depressed the lamp momentarily backlights.</p> <p><u>EXAMINER'S / BOOTH OPERATOR CUE:</u></p> <p style="margin-left: 40px;">Role Play as the PPO to close the "A" CRD breaker.</p> <p style="margin-left: 40px;">Simulator page is "crd_logic" for the breaker.</p> <p style="margin-left: 40px;">Inform the student when the breaker is closed.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step</p> <p>Basis: Restore CRD breaker.</p> <p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 19: (step 4.7.16)</p> <p>Verify all associated alarms are clear.</p> <p>Local breaker flags indicate CLOSED Annunciator window J-5-6 clear Event points 1982, 1983, 1984, 1985 are all clear CRD Control Fault (J-3-5) event point 1237 clear Breaker Trip indications in the RPS cabinet are dim (on the top of each cabinet and on the RTM)</p> <p>STANDARD: Candidate notifies the PPO to verify that all CRD breakers indicate closed.</p> <p>Candidate verifies that all annunciator alarms are cleared.</p> <p>Candidate verifies that Breaker Trip indications on each RPS cabinet and on the Reactor Trip Module are dim.</p> <p>EXAMINER'S CUE: As PPO inform the candidate that all CRD breakers are closed.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 20: (step 4.7.17)</p> <p>If required to energize any EFIC channels, then refer to OP-450</p> <p>STANDARD: NA</p> <p>EXAMINER'S CUE: Inform the student that all EFIC channels are energized and to complete the remainder of Section 4.7.</p> <p>If asked, the PPO has verified the EFIC cabinets have power.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>

SIMULATOR JOB PERFORMANCE MEASURE

<p>STEP 21: (step 4.7.18)</p> <p>Reset tripped EFIC.</p> <p>Depress both green flashing "Test/Results/Reset" buttons on EFIC panel.</p> <p>Ensure EFIC Actuation alarm is clear.</p> <p>STANDARD: Candidate depresses both green flashing "Test/Results/Reset" buttons on EFIC panel and observes that lamps go from flashing to off and the Emergency Feedwater Actuation Annunciator clears.</p> <p>COMMENTS:</p>	<p>Critical Step</p> <p>Basis: Clears half trip on EFIC.</p> <p>SAT _____</p> <p>UNSAT _____</p>
<p>STEP 22: (step 4.7.19)</p> <p>Reset SASS Transfer and SASS Mismatch Alarms and Modules</p> <p>STANDARD: NA</p> <p>EXAMINER'S CUE: Inform the student that another Nuclear Operator will complete the required actions for SASS.</p> <p>COMMENTS:</p>	<p>SAT _____</p> <p>UNSAT _____</p>
<p>TERMINATION CUE: Power has been restored to RPS Channel A.</p>	
<p>END OF TASK</p>	

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Reactor Operator.

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:

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

**CRYSTAL RIVER UNIT 3
JPM COVER SHEET**

SimH (2K5) NRC [NEW] (SIMULATOR)

SAFETY FUNCTION 9

ALTERNATE PATH

RESPOND TO A WASTE GAS HEADER LEAK

PREPARED/REVIEWED BY: Alan Kennedy

Date: 7-18-05

VALIDATED BY: Andy Barnes

Date: 7-18-05

APPROVAL BY: Mark Van Sicklen
(Nuclear Training Supervisor)

Date: 7-18-05

ATTACHMENT 7
SIMULATOR JOB PERFORMANCE MEASURE

Task: Perform the actions specified for RM-A2 high alarm.

Alternate Path: Yes

JPM #: SimH (2K5) NRC [NEW]

K/A Rating/Importance: 060AA2.05 RO 3.7 SRO 4.2

Task Number:

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

Task Standard: Using AP-250 perform the actions specified for RM-A2 high alarm.

Preferred Evaluation Location:

Preferred Evaluation Method

Simulator X Plant _____ Admin _____

Perform X Simulate _____

References: AP-250, Rev. 15

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 100% IC.
2. Start lesson plan # 20 in NRCEXAM lesson plan directory.
3. Execute Setup Step.
4. Freeze simulator when RM-A2 High Alarm annunciates.
5. Notify lead examiner.

OR

6. Initialize 100% IC.
7. Insert the following labels:
 - a. TAAARL2 = MAX
 - b. TVCMXA02 = 3
 - c. TFAAFOP2 = TRUE
 - d. TFC709BR = TRUE
 - e. TFC709BR = FALSE conditional on A7_A1_S49_2
8. Unfreeze the simulator and allow to run until RM-A2 reaches its High Alarm (about 2 minutes)
9. Freeze the simulator and notify lead examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Copy of AP-250
2. Ensure Radiation Monitor Setpoint Log is in simulator.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 1.

RM-A2 "Atmospheric Radiation High" alarm has just been received.

AP-250 has been entered.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-250 starting at Step 3.1.

<p><u>STEP 1:</u></p> <p>The guidance of the AP would normally be read by the CRS. For the purpose of this JPM a copy of AP-250 will be given to the operator.</p> <p><u>STANDARD:</u></p> <p>Candidate reviews the status of the plant and locates a copy of AP-250.</p> <p><u>EXAMINER'S CUE:</u></p> <p>Examiner will provide operator with a copy of AP-250.</p> <p><u>EXAMINER'S NOTE:</u></p> <p>Notify simulator operator when candidate is ready to perform the JPM.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>									
<p><u>STEP 2:</u> (step 3.1)</p> <p>Ensure Auto actions of affected radiation monitor(s).</p> <p>See Table 1.</p> <table><tr><td>Stopped:</td><td>AHF-30</td><td>AHF-10</td></tr><tr><td></td><td>AHF-11A</td><td>AHF-9A</td></tr><tr><td></td><td>AHF-11B</td><td>AHF-9B</td></tr></table> <p><u>STANDARD:</u></p> <ol style="list-style-type: none">Candidate will verify the listed fans have stopped (GREEN light ON, RED light OFF)Candidate recognizes AHF-9B is still running.Candidate selects the control switch to OFF and verifies GREEN light ON and RED light OFF.Candidate reports failure of AHF-9B to automatically trip to the CRS. <p><u>EXAMINER'S CUE:</u></p> <p>Examiner acknowledges report of AHF-9B failure to automatically trip.</p> <p><u>COMMENTS:</u></p>	Stopped:	AHF-30	AHF-10		AHF-11A	AHF-9A		AHF-11B	AHF-9B	<p>Critical Step (fan must be secured to reduce spread of contamination)</p> <p>SAT_____</p> <p>UNSAT_____</p>
Stopped:	AHF-30	AHF-10								
	AHF-11A	AHF-9A								
	AHF-11B	AHF-9B								

<p><u>STEP 3:</u> (step 3.2)</p> <p>Notify personnel of entry into AP-250.</p> <p><u>STANDARD:</u></p> <p>N/A</p> <p><u>EXAMINER'S CUE:</u></p> <p>Inform the candidate that the other operator performed these notifications.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 4:</u> (step 3.3)</p> <p>Ensure proper radiation monitor operation.</p> <ol style="list-style-type: none"> 1. Ensure radiation monitor is energized. 2. Ensure "Alarm Reset Operate Check Source" switch is selected to "OPERATE" position. 3. Ensure high alarm setpoint is set per the release permit or Radiation Monitor Setpoint Log. 4. IF radiation monitor is off-scale high, THEN ensure "RANGE" switch is selected to "1M" position. 5. Observe trends on other radiation monitors, as applicable. <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate ensures radiation monitor is energized. 2. Candidate ensures "Alarm Reset Operate Check Source" switch is selected to "OPERATE" position. 3. Candidate ensures high alarm setpoint is set per the Release Permit. Current high alarm setpoint is 2.86E5. Candidate will review release permit and check high alarm setpoint. 4. Candidate will ensure "RANGE" switch is selected to "1M" position. 5. Candidate observes trends on RM-A01-RIR-1 and verifies that additional radiation monitors are increasing. <p><u>COMMENTS:</u></p>	<p>Critical Step (required to ensure valid alarm)</p> <p>SAT_____</p> <p>UNSAT_____</p>

<p><u>STEP 5:</u> (step 3.4)</p> <p>Notify Health Physics and Chemistry of radiation monitor actuation.</p> <p><u>STANDARD:</u></p> <p>N/A</p> <p><u>EXAMINER'S CUE:</u></p> <p>Inform the candidate that the other operator performed these notifications.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 6:</u> (step 3.5)</p> <p>IF alarm is NOT valid, THEN perform corrective actions.</p> <p><u>STANDARD:</u></p> <p>Candidate determines that the alarm is valid and continues in procedure.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 7:</u> (step 3.6)</p> <p>Evacuate affected areas, as required.</p> <p><u>STANDARD:</u></p> <p>N/A</p> <p><u>EXAMINER'S CUE:</u></p> <p>Inform the candidate that the other operator performed this step and the Auxiliary Building has been evacuated.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>

<p><u>STEP 8:</u> (step 3.7)</p> <p>Stop any activities suspected of causing the radiation monitor actuation and restore systems as required.</p> <p><u>STANDARD:</u></p> <p>N/A</p> <p><u>EXAMINER'S CUE:</u></p> <p>Inform the candidate that the other operator performed this step and is evaluating plant activities.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 9:</u> (step 3.8)</p> <p>Concurrently perform the appropriate enclosures in this procedure.</p> <p><u>STANDARD:</u></p> <p>Candidate continues to Enclosure 2.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 10:</u> (Enclosure 2, step 2.1)</p> <p>Ensure AHF-34A is stopped.</p> <p><u>STANDARD:</u></p> <p>Candidate observes Events Recorder point 515 indicates this fan is stopped.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (fan must be secured to reduce spread of contamination)</p> <p>SAT_____</p> <p>UNSAT_____</p>

<p><u>STEP 11:</u> (Enclosure 2, step 2.2)</p> <p>Ensure AHU-3 is stopped.</p> <p><u>STANDARD:</u></p> <p>Candidate observes Events Recorder point 1551 indicates this unit is stopped or observes GREEN light ON and RED light OFF on HVAC panel.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 12:</u> (Enclosure 2, step 2.3)</p> <p>IF AB has NOT been evacuated THEN notify PPO to isolate WG system.</p> <p><u>STANDARD:</u></p> <p>Per the earlier examiner's cue the AB has been evacuated. No actions are required.</p> <p><u>COMMENTS:</u></p>	<p>SAT_____</p> <p>UNSAT_____</p>
<p><u>STEP 13:</u> (Enclosure 2, step 2.4)</p> <p>IF at any time, RM-A2 GAS approaches off-scale high, THEN align RM-A2 LMH valve controller.</p> <ol style="list-style-type: none"> 1. Select "RM-A2 MID/Hi Range Controller" to "AUTO" 2. IF TSC is manned, THEN notify Accident Assessment Team of RM-A2 status. <p><u>STANDARD:</u></p> <ol style="list-style-type: none"> 1. Candidate verifies RM-A2 is approaching off-scale high and selects the "RM-A2 MID/Hi Range Controller" to "AUTO". 2. Candidate requests status of the TSC. <p><u>EXAMINER'S CUE:</u></p> <p>Inform the candidate that the TSC is not manned and terminate the JPM.</p> <p><u>COMMENTS:</u></p>	<p>Critical Step (accurate radiation readings are required)</p> <p>SAT_____</p> <p>UNSAT_____</p>
<p>END OF TASK</p>	

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.

RM-A2 "Atmospheric Radiation High" alarm has just been received.

AP-250 has been entered.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-250 starting at Step 3.1.