CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM A

NRC 2011

SAFETY FUNCTION 1

PERFORM IMMEDIATE ACTIONS OF AP-504 ("A" TC INSTRUMENT FAILS LOW")

PREPARED/REVIEWED BY: Alan Kennedy Date: 06-09-11

VALIDATED BY: Virgin / Wooten Date: 07/10/11

APPROVAL BY: Mark VanSicklen Date: 07/27/11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim A – NRC 2011

Task: Perform Immediate Actions of AP-504, Integrated Control System Failure – "A" RCS Loop Tc fails low.

Alternate Path: ☐ **YES** ☒ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: **1**

K/A Rating/Importance: 001A4.15 RO 3.1 SRO 3.1

Task Number: 0410402015

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

Task Standard: Perform the Immediate Actions of AP-504 once entry conditions are identified.

Preferred Evaluation Location:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

AP-504, Revision 12
OP-204, Revision 124

Validation Time: **5 minutes**

Time Critical: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **141** (FATHER) developed for this JPM (Exam 3 directory).

2. ***ENSURE tags on FWV-15, FWV-23 and FWP-2B Trip/Reset switch.***

4. Freeze the simulator and notify the examiner.
   OR
   If creating IC perform the following:

   a. Reduce power per OP-204 and stabilize power at 45% with:
      - Unit buses transferred to the Startup Transformer per OP-703.
      - "B" Condensate Pump secured.
      - "B" MFW Pump secured with FWVs 15 and 23 closed

   b. Ensure power is less than or equal to 45%
   c. Insert the following failures:

TFL4APB2 = TRUE	"A" RPS channel high pressure bistable = no trip
TFL4CPB2 = TRUE	"B" RPS channel high pressure bistable = no trip
TFL4CPB2 = TRUE	"C" RPS channel high pressure bistable = no trip
TFL9DSSA = TRUE	DSS "A" fail to trip
TFL9DSSB = TRUE	DSS "B" fail to trip

   [INSTRUCTOR NOTE: The fault below fails the "A" Tc instrument low ramped over 3 minutes.]

   d. Freeze simulator
      - Insert failure: RC5A TE1 fails LOW (TVL14145 - constant offset) failed to "-0.4" ramped over 3 minutes.
   e. Store IC

SIMULATOR OPERATOR INSTRUCTIONS:

1. Discuss with examiner for length of time following 'taking of the watch' to insert failure.
2. Ensure TVL14145 failure is pending at "-0.4" on "Pending" tab on the Summary page.
3. Have copies of OP-204 Rev 124 signed off to Step 4.4.18
4. Plant response after 45 seconds:
   Main feedwater flow will lower on "A" and rise on "B". CRDs will receive an out command. Power will rise. RCS pressure will slowly rise and accelerate if no corrective actions are taken. Reactor will trip on high pressure if control rod movement is not stopped. Feedwater will need to be adjusted to null out delta Tc.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. AP-504 Rev 12, Integrated Control System Failure
2. OP-204 Rev 124, signed off up to step 4.4.18 (Have available for candidate review if requested)

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the reactor operator.

Rx power is 45%.
Power reduced to work on Main Feedwater Pump 2B governor.
Main Feedwater Pump 2B is secured and tagged out.

INITIATING CUE:

You are to monitor plant parameters and respond to plant conditions IAW the duties and responsibilities of the Operator at the Controls.

TIME START: _____

STEP 1: Examinee assumes the watch. STANDARD: Candidate walks down the MCB and announces that he/ she has the watch. **EXAMINER NOTE:** **If the candidate requests to review OP-204, inform him that the BOP is continuing in OP-204 actions. If the candidate requests specific status from OP-204, provide the information from the pre-staged copy.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 2.1, first bullet) Ensure FW is in hand. • Select both FW Loop Demands to "HAND". STANDARD: Candidate selects both FW Loop Demands to "HAND". **EXAMINER NOTE:** **An announcement of the intent to take actions should precede any physical actions by the candidate.** **Examiner should recognize that delays in operator performance of Immediate Actions could result in a RPS trip on high pressure.** COMMENTS:	SAT_____ UNSAT_____
STEP 3: (Step 2.1, second bullet) Ensure FW is in hand. • Select both feedwater pumps to "HAND". STANDARD: Candidate selects both feedwater pumps to "HAND". **EXAMINER NOTE:** **Failure to take the FW pumps to "HAND" for this malfunction will not result in a continued plant transient if FW Loops were taken to "HAND" or if FW Control Valves are taken to "HAND".** COMMENTS:	SAT_____ UNSAT_____

STEP 4: (Step 2.1, third bullet) Ensure FW is in hand. • IF any main feedwater block valve is closed, THEN select the associated feedwater control valves to "HAND". STANDARD: Examinee will evaluate the position of the Main Block valves and determine that both are closed, requiring both Low Load and Startup control valves to be taken to "HAND". **EXAMINER NOTE:** **Failure to take the control valves to "HAND" for this malfunction will not result in a continued plant transient if FW Loop Masters are in "HAND".** COMMENTS:	SAT_____ UNSAT_____

STEP 5: (Step 2.2) Ensure Rx is in hand. • Select Rx Diamond to "MAN". • Select "REACTOR DEMAND" to "HAND". STANDARD: Examinee will perform Step 2.2 to block "A" Loop Tc failure from demanding a CRD rod pull prior to exceeding RPS trip setpoint of 2,355 psig. *If RCS pressure control is lost due to the duration of rod withdrawal, examinee **SHALL** trip the Reactor prior to, OR within one minute after, exceeding the RPS trip setpoint of 2355 psig.* **EXAMINER NOTE:** **Examiner should recognize that delays in operator performance of Immediate Actions could result in an RPS trip on high pressure.** **RPS high pressure trip setpoint is failed on three RPS channels.** COMMENTS:	**CRITICAL STEP** **Stopping the Rx response to the failed instrument is the critical aspect of this step.** **Basis**: A "Tc" failure (low) will result in a continuous rod pull, which if not mitigated, will result in an RPS trip setpoint being exceeded. SAT _____ UNSAT _____

STEP 6: (Step 2.3) IF an undesired change in turbine header pressure has occurred, THEN stabilize establish manual control. • Place turbine in manual. • Place turbine bypass valves in manual. STANDARD: Examinee should evaluate turbine header pressure and not perform the details of this step. **EXAMINER NOTE:** **A reduction in feedwater flow will result in a reduction in header pressure. The main turbine will then attempt to restore header pressure by closing the governor valves. This plant response is normal.** COMMENTS:	SAT _____ UNSAT _____

STEP 7: (Step 2.4) Ensure Condensate "MASTER" is in "HAND". STANDARD: Candidate places the Condensate "MASTER" in "HAND". **EXAMINER NOTE:** **The condensate master receives input from feedwater flow which will result in a condensate flow reduction until the feedwater flow error is blocked. Failure to take the condensate "MASTER" to "HAND" will not result in a continued plant transient.** COMMENTS:	SAT_____ UNSAT_____

STEP 8: (Step 2.5) Ensure thermal power ≤ applicable limit. • Perform any of the following: ___ Insert control rods ___ Lower feedwater flow ___ Lower turbine load ___ Close turbine bypass valves STANDARD: Examinee will evaluate the above parameters and ensure that reactor power is less than 50% by NIs. Control rods must be inserted to match Reactor power to feedwater flow if power exceeds 50%. **EXAMINER NOTE:** **Current power limitations are based on reduced MFW availability. If Rx power exceeds MFW capacity, control rods must be inserted to reduce Rx power prior to RCS pressure reaching the high pressure trip setpoint.** COMMENTS:	SAT_____ UNSAT_____

STEP 9: (Step 2.6) PROCEDURE NOTE: Feedwater flow may be raised if the transient caused actual feedwater flow to be significantly less than what is required for current Rx power. Match FW flow to Rx power to stabilize plant. STANDARD: Examinee will evaluate the above parameters and, if > 50% Rx power, must insert control rods to match Reactor power to feedwater flow. Otherwise, the candidate should adjust Rx power and/or FW flow as necessary to match heat production and heat removal. *If RCS pressure control is lost due to the duration of rod withdrawal, examinee **SHALL** trip the Reactor prior to, or within ONE minute after, exceeding the RPS trip setpoint of 2355 psig.* **EXAMINER NOTE:** **Depending on the duration of the event, main feedwater flows will be skewed with "A" low and "B" high.** **RPS high pressure trip setpoint is failed on three RPS channels.** COMMENTS:	**CRITICAL STEP** **Basis:** Failure to match heat removal to heat production after a significant rod withdrawal will result in a challenge to RPS trip setpoints. SAT_____ UNSAT_____
TERMINATION CRITERIA: **Candidate states completion of AP-504 Immediate Actions or ineffective control results in a manual plant trip.**	

TIME STOP: _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the reactor operator.

Rx power is 45%.
Power reduced to work on Main Feedwater Pump 2B governor.
Main Feedwater Pump 2B is secured and tagged out.

INITIATING CUE:

You are to monitor plant parameters and respond to plant conditions IAW the duties and responsibilities of the Operator at the Controls.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM B

NRC 2011

SAFETY FUNCTION 4 (Primary)

ALTERNATE PATH

RESPOND TO AN ES A/B ACTUATION

PREPARED/REVIEWED BY: Alan Kennedy Date: 07/09/11

VALIDATED BY: Virgin / Webster Date: 07/10/11

APPROVAL BY: Mark VanSicklen Date: 07/27/11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim B – NRC 2011

Task: Respond to an HPI ES A/B actuation.

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☒ **YES** ☐ **NO**

Safety Function: 4 (Primary)

K/A Rating/Importance:			
	BW/E03EA1.1	RO 4.1	SRO 3.8
	013A4.01	RO 3.7	SRO 3.5
	013A3.02	RO 4.1	SRO 4.2

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.

Preferred Evaluation Location:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

EOP-03, Rev 16

Validation Time: 8 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment**:** _____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **142 (FATHER** developed for this JPM.
2. Freeze the simulator and notify the examiner.

OR

1. Initialize the simulator to a 100% power IC.
2. Fail MUV-73 closed. (TFBVC073 = TRUE)
3. Place condition on MUV-73 to remove failure when MUV-73 control switch taken to open. (TFBVC073 = DELETE conditional on A1_A2_S19_3)
4. Open breaker ("B" train power supply) for MUV-25 (TCB2V25B = F).
5. Open breaker ("B" train power supply) for MUV-26 (TCB2V26B = F).
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. 1000 psig.
9. Acknowledge all annunciator alarms and loss of ASCM alarms.
10. Silence all nuisance alarms not associated with the JPM. (Alarm points: 0255, 1419, 1463, 1613, 1615, 1620, 1670, 961, 1235, 1112, 101, 103, 089 and 761 should be defeated in addition to FW Heater Drain Alarms)
11. Freeze the simulator.
12. Store IC.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-03 signed off through Step 3.2.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

A LOCA has occurred.
EOP-02, Vital System Status Verification, Immediate Actions were performed.
The crew has transitioned to EOP-03, Inadequate Subcooling Margin.
EOP-03 Immediate Actions and EOP-13, Rule 1, actions were performed.
EOP-03 Follow-Up Actions Steps 3.1 and 3.2 are complete.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-03 starting with Step 3.3.

TIME START _____

STEP 1: The guidance of the EOP would normally be read by the CRS. For the purpose of this JPM a copy of EOP-03 will be given to the operator. STANDARD: Candidate obtains copy of the appropriate procedure. **EXAMINER NOTE**: **Examiner will provide candidate with a copy of EOP-03 signed off through Step 3.2.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 3.3) Verify proper HPI discharge flow path exists. • At least 1 train of HPI valves open: o A Train: MUV-23 & MUV-24 o B Train: MUV-25 & MUV-26 • Both HPI cross-tie valves open: o MUV-586 o MUV-587 STANDARD: Candidate verifies RED lights ON for MUV-23 & 24. Candidate may recognize loss of power to MUV-25 & 26. Candidate verifies RED lights ON for MUV-586 & 587. **EXAMINER NOTE**: **If reported, acknowledge loss of power to MUV-25 & 26 as CRS.** COMMENTS:	SAT_____ UNSAT_____

STEP 3: (Step 3.4)

SAT_____

UNSAT_____

Ensure at least 1 HPI train is properly aligned.

1. BWST to MUP valves open:

   - A Train: MUV-73
   - B Train: MUV-58

2. At least 1 ES selected MUP and required cooling pumps running:

   - MUP-1A
   - MUP-1B
   - MUP-1C

   [Rule 5, Diesel Load Control]

3. MUP recirc to MUT valves closed:

   - MUV-543
   - MUV-544
   - MUV-545
   - MUV-546

4. Makeup and seal injection isolation valves closed:

   - A Train: MUV-596
   - B Train: MUV-18 & MUV-27

STANDARD:

Candidate verifies RED light ON for MUV-58.

Candidate should recognize MUV-73 still closed at this time but not required to open until Step 3.9 in procedure.

Candidate verifies RED lights on for MUP-1B, MUP-1C, SWP-1A or SWP-1B, RWP-2A or RWP-25, DCP-1B, and RWP-3B.

Candidate verifies GREEN lights ON for MUV-543, 544, 545, and 546.

Candidate verifies GREEN lights ON for MUV-596, 18, and 27.

COMMENTS:

STEP 4: (Step 3.5) Ensure at least 1 letdown isolation valve is closed. • A Train: MUV-567 • B Train: MUV-49 STANDARD: Candidate verifies GREEN lights ON for MUV-567 & 49. COMMENTS:	SAT_____ UNSAT_____
STEP 5: (Step 3.6) Ensure DHV-3 is closed. STANDARD: Candidate verifies GREEN light ON for DHV-3. COMMENTS:	SAT_____ UNSAT_____

STEP 6: (Step 3.7) Verify EFW is operating and flow is controlled. [Rule 3, EFW/AFW Control] • Ensure level in available OTSGs is at or trending toward "ISCM" level. See Table 1 STANDARD: Candidate verifies RED light ON for EFP-3. Candidate verifies RED light ON for ASV-5. Candidate verifies that both OTSGs are trending toward "ISCM" level. COMMENTS:	SAT_____ UNSAT_____

STEP 7: (Step 3.8) IF either train of HPI valves is de-energized, THEN open affected HPI valves. 1. Select affected HPI valve normal source of "OFF". 2. Select affected HPI valve emergency source to "ON". 3. Ensure affected HPI valves are open. STANDARD: Candidate selects MUV-25 & 26 "B" source to "OFF". Candidate selects MUV-25 & 26 "A" source to "ON". Candidate observes MUV-25 & 26 stroke OPEN as indicated by AMBER lights. Candidate verifies RED lights ON for MUV-25 & 26. COMMENTS:	SAT_____ UNSAT_____

STEP 8: (Step 3.9 Detail 1) IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned. 1. Ensure at least 1 train of ES components is properly aligned: • HPI (1625 psig RCS PRESS) • Diverse Containment Closure • LPI (500 psig RCS PRESS) • RBIC (4 psig RB PRESS) • RB Spray (30 psig RB PRESS) STANDARD: Candidate evaluates the "A" Train of ES and determines that HPI (with the exception of MUV-73), Diverse Containment Closure and RBIC have actuated properly. Candidate identifies that MUV-73 is closed (AMBER light) isolating the suction source for MUP-1B. Candidate Opens MUV-73 using the control switch on the ESF "A" apron section (valve will OPEN – Green ES Status Light). **EXAMINER NOTE:** **Detail 1 bullets can be performed in any sequence.** **Proper ES actuation is verified by observing the Green status lights on ESF "A" and "B" vertical sections.** **EXAMINER CUE**: **If notified as the CRS that MUV-73 did not open upon ES actuation, acknowledge notification IAW AI-412 and direct RO to continue actions.** COMMENTS:	**Critical Step** **Basis: Failure to identify correct ES equipment alignment may result in equipment failure and loss of safety function.** SAT_____ UNSAT_____

STEP 9: (Step 3.9 Detail 2) IF at any time, ES systems have, OR should have actuated, THEN ensure ES equipment is properly aligned. 2. Bypass or reset ES actuations: • Auto • Manual STANDARD: Candidate notifies CRS that both trains of ES are properly aligned with MUV-73 having to be manually selected to "OPEN". Candidate requests permission to "Bypass" Auto and Manual actuations of HPI and RBIC. Candidate shall "bypass" RBIC and HPI actuations and reset "manual" actuations of both RBIC and HPI. Candidate should NOT throttle HPI at this time as SCM has not been regained. **EXAMINER CUE**: **If requested as the CRS to bypass / reset "auto" and "manual" actuation of ES, acknowledge request IAW AI-412 and direct RO to "bypass / reset" ES actuations.** COMMENTS:	SAT_____ UNSAT_____
TERMINATION CRITERIA: Candidate has control of ES actuations.	

TIME STOP _____

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 LOCA has occurred.
EOP-02, Vital System Status Verification, Immediate Actions were performed.
The crew has transitioned to EOP-03, Inadequate Subcooling Margin.
EOP-03 Immediate Actions and EOP-13, Rule 1, actions were performed.
EOP-03 Follow-Up Actions Steps 3.1 and 3.2 are complete.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-03 starting with Step 3.3.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM C

NRC 2011

SAFETY FUNCTION 3

ALTERNATE PATH

RESPOND TO A STUCK OPEN SPRAY VALVE

PREPARED/REVIEWED BY: Alan Kennedy Date: 06-08-11

VALIDATED BY: Virgin / Wooten Date: 07/10/11

APPROVAL BY: Mark VanSicklen Date: 07/27/11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim C – NRC 2011

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

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: **3**

K/A Rating/Importance: 010A4.01 RO 3.7 SRO 3.5

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:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

OP-305, Rev 39
AP-520, Rev 14

Validation Time: 15 minutes

Time Critical: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **143** (FATHER) developed for this JPM. (Exam 3 directory)

   OR

1. Establish steady state 3% power conditions (IC #11 SON)
2. Disable and acknowledge LEFM and Nozzle Quality alerts.
3. Insert the following failures
   a. RCV-13 fail to position TVHV0131 = 0.05 COND ON A3_A2_DS53_1
   b. RCV-14 run open TFHV0143 = True COND ON A3_A2_DS56_1
   c. RPS Channel "A" low pressure trip disable TFL4APB5 = TRUE
   d. RPS Channel "B" low pressure trip disable TFL4BPB5 = TRUE
   e. RPS Channel "C" low pressure trip disable TFL4CPB5 = TRUE

3. Freeze the simulator and notify the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-305 with steps 4.9.1 and 4.9.2 signed off.
2. Consumable copies of AP-520.

To more efficiently use simulator time candidates may review the cue sheet and OP-305 prior to entering the simulator.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is in Mode 2.
RCS boron concentration is 1400 ppm.
PZR boron concentration is 1510 ppm.

A pre-job briefing has been completed and Reactivity Manager oversight will be provided by the examiner. A less than 1% power change is anticipated for this evolution.

INITIATING CUE:

The Control Room Supervisor has directed you to perform a boron equalization per Section 4.9 of OP-305, Operation of the Pressurizer. Steps 4.9.1 and 4.9.2 have already been completed.

Maintain RCS pressure between 2120 psig and 2180 psig.

TIME START _____

STEP 1: Candidate will be given a copy of OP-305 with Steps 4.9.1 and 4.9.2 checked off. STANDARD: Candidate reviews the status of the plant and Step 4.9.3. **EXAMINER NOTE**: **Examiner will provide candidate with a copy of OP-305.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 4.9.3)

SAT_____

Establish Pressurizer Spray

UNSAT_____

3.a. Select PZR Heater Banks "D" & "E" to ON
3.b. Select RCV-14 to MANUAL
3.c. Throttle OPEN RCV-14 to maintain normal RCS pressure, and CONTROL PZR Heater demand between 50% and 90%

STANDARD:

3.a. Candidate selects PZR Heater Banks "D" and "E" to ON

3.b. Candidate selects RCV-14 to Manual

3.c. Candidate throttles OPEN RCV-14. When candidate throttles RCV-14 it will experience a failure and run full open. The candidate will attempt to close RCV-14. The valve will not close. *Candidate will probably attempt to close RCV-13 (Spray Block valve). RCV-13 will not completely close.*

EXAMINER CUE:

If SRO direction is requested direct the candidate to stop the pressure reduction using the appropriate procedure.

EXAMINER NOTE:

Candidate should enter AP-520 and secure RCP-1B.

EXAMINER NOTE:

Candidate may elect to take "prompt and prudent" action at this time and secure RCP-1B.

If RCP-1B is shutdown at this point then RCS pressure will begin to recover. When the candidate states this fact then this JPM may be terminated.

COMMENTS:

STEP 3: The guidance of the AP would normally be read by the CRS. For the purpose of this JPM the candidate will use the simulator copy and perform the actions without SRO guidance. STANDARD: Candidate enters AP-520. **EXAMINER CUE**: **Notify the candidate that Steps 3.1 through 3.3 will be performed by the other operator.** COMMENTS:	SAT_____ UNSAT_____
STEP 4**:** (Step 3.4 of AP-520) Step should be marked NA. STANDARD: Candidate determines that Step 3.4 is NA and continues to Step 3.5. COMMENTS:	SAT_____ UNSAT_____

STEP 5**:** (Step 3.5 of AP-520) STATUS: RCS Pressure lowering. Verify proper operation of PZR heaters. ● PZR Heater Control ● PZR Htr Banks ● RC-203-JI ● RC-204-JI STANDARD: 1. Candidate verifies RC-3-PIC in AUTO with a heater demand. 2. Candidate ensures power to PZR heater banks. 3. Candidate checks power output on RC-203-JI and RC-204-JI. COMMENTS:	SAT_____ UNSAT_____

STEP 6: (Step 3.6 of AP-520)

IF RCS PRESS continues to lower, THEN isolate possible sources of RCS PRESS reduction.

Close the following valves:

- DHV-91
- RCV-53
- RCV-11
- PORV
- RCV-13
- RCV-14

STANDARD:

1. Candidate selects closed on all the indicated valves and verifies GREEN light ON with the exception of RCV-14, which is failed open, and RCV-13, which has failed mid-stroke.

2. Candidate recognizes that RCV-13 did not close completely.

EXAMINER NOTE:

RCV-13 will stop movement mid-stroke when candidate tries to close (close torque switch activates). RCS pressure will continue to lower.

EXAMINER CUE:

If SRO direction is requested when RCV-13 failure is identified direct the candidate to continue on in the procedure.

COMMENTS:

SAT_____

UNSAT_____

STEP 7: (Step 3.7 of AP-520) IF RCS PRESS continues to lower, AND RCV-13 is NOT closed, THEN stop RCP-1B. When RX power is <72%, THEN stop RCP-1B. **(CS)** Concurrently Perform AP-545, Plant Runback STANDARD: 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. *If RCS pressure control is lost examinee **SHALL** trip the Reactor prior to, OR within one minute after, exceeding the RPS trip setpoint of 1900 psig.* **EXAMINER CUE:** **If SRO direction is requested when securing RCP-1B direct the candidate to perform the actions of the AP.** **State that the other Reactor Operator will perform the actions of AP-545.** **EXAMINER NOTE:** **RPS low pressure trip setpoint is failed on three RPS channels.** COMMENTS:	**Critical Step** **Basis: Required action to minimize spray flow and stop RCS pressure reduction.** SAT_____ UNSAT_____

STEP 8: (Step 3.8 of AP-520) IF RCS PRESS continues to lower, THEN trip the RX and Concurrently Perform EOP-2, Vital System Status Verification. STANDARD: Candidate determines that RCS pressure is recovering. **EXAMINER NOTE:** **Terminate the JPM when the candidate states that RCS pressure is recovering.** COMMENTS:	SAT_____ UNSAT_____
TERMINATION CRITERIA: RCS pressure recovering.	

TIME STOP _____

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 in Mode 2.
RCS boron concentration is 1400 ppm.
PZR boron concentration is 1510 ppm.

A pre-job briefing has been completed and Reactivity Manager oversight will be provided by the examiner. A less than 1% power change is anticipated for this evolution.

INITIATING CUE:

The Control Room Supervisor has directed you to perform a boron equalization per Section 4.9 of OP-305, Operation of the Pressurizer. Steps 4.9.1 and 4.9.2 have already been completed.

Maintain RCS pressure between 2120 psig and 2180 psig.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM D

NRC 2011

SAFETY FUNCTION 4

ESTABLISH AUXILIARY FEEDWATER FLOW

PREPARED/REVIEWED BY: Alan Kennedy Date: 06-10-11

VALIDATED BY: Virgin / Wooten Date: 07-10-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim D – NRC 2011

Task: Establish auxiliary feedwater flow

Alternate Path: ☐ YES ☒ NO

PRA Top Critical Action: ☒ YES ☐ NO

Safety Function: 4 (Secondary)

K/A Rating/Importance: 061G2.1.20 RO 4.6 SRO 4.6

Task Number: 115050502003

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

Task Standard: Establish auxiliary feedwater flow IAW EOP-14, Enclosure 7.

Preferred Evaluation Location:

☒ SIM ☐ PLANT ☐ ADMIN

Preferred Evaluation Method:

☒ PERFORM ☐ SIMULATE

References:

EOP-14, Enclosure 7, Rev 24

Validation Time: 10 minutes **Time Critical:** ☐ YES ☒ NO

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **144** (FATHER) developed for this JPM. (Exam 3 directory)
2. Freeze the simulator and notify the examiner.

OR

If creating IC perform the following:

1. Restore 100% (BOC) IC
2. Insert LOOP
3. Fail EFP-2 (ASV-50 closed) and EFP-3 (fuel rack trip) to start
4. Close MUV-49
5. Minimize decay heat (TARR01SP = 3600)
6. Store IC

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EOP-14, Enclosure 7

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Balance of Plant operator.

A loss of off-site power has occurred.
EFP-2 and EFP-3 have failed to start.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-14, Enclosure 7, EFWP Management.

TIME START _____

STEP 1: Obtain a copy of appropriate procedure. STANDARD: Candidate obtains a copy of EOP-14, Enclosure 7. **EXAMINER NOTE**: **When the candidate locates the correct procedure provide him/her with a copy of EOP-14, Enclosure 7.** **Unfreeze the simulator when candidate is ready to perform JPM.** COMMENTS:	SAT_____ UNSAT_____
STEP 2: (Step 7.1) PROCEDURE STATUS: EFW required. ___ Verify EFP-3 is running. ___ IF EFP-3 is NOT running, THEN **GO TO** Step 7.6 in this enclosure. STANDARD: Per cue EFP-3 is not running. Candidate progresses to Step 7.6. COMMENTS:	SAT_____ UNSAT_____

STEP 3: (Step 7.6) PROCEDURE STATUS: EFP-3 not running. ___ Verify EFP-2 is running. ___ IF EFP-2 is NOT running, THEN **GO TO** Step 7.8 in this enclosure. STANDARD: Per cue EFP-2 is not running. Candidate progresses to Step 7.8. COMMENTS:	SAT_____ UNSAT_____
STEP 4: (Step 7.8) ___ IF EDG A is supplying power to A ES 4160V Bus, THEN **GO** TO Step 7.15 in this enclosure. STANDARD: Candidate determines that EDG-1A is supplying the A ES 4160V Bus and progresses to Step 7.15. COMMENTS:	SAT_____ UNSAT_____

STEP 5: (Step 7.15) PROCEDURE STATUS: Any of the following exist: EDG A supplying power to the A ES 4160V bus or EFP-1 not available. ___ Verify AFW is available. • ___ Verify all of the following exist: ___ Neither ES 4160V Bus aligned to alternate AC Diesel ___ FWP-7 available ___ CDT-1 level > 9 ft STANDARD: Candidate verifies ES buses aligned to their respective ES diesels. Candidate verifies green light ON for FWP-7. Candidate verifies CDT-1 level. COMMENTS:	SAT_____ UNSAT_____

STEP 6: (Step 7.16) ___ Verify 4160V Reactor Aux Bus 3 is energized. ___ IF 4160V Reactor Aux Bus 3 is NOT energized, THEN energize 4160V Reactor Aux Bus 3 1. Open Bkr 3223 2. Select alternate AC Diesel to "START" and hold until "EGDG-1C AVAILABLE" white light is lit (normally < 10 seconds). **(CS)** 3. Close Bkr 3225 **(CS)** 4. Verify 4160V Reactor Aux Bus 3 voltage is stable. 5. Notify SPO to open all doors to Non-1E battery and battery charger rooms. STANDARD: Candidate determines that 4160V Reactor Aux Bus 3 is NOT energized. Candidate performs the following: 1. Opens Bkr 3223 and verifies green light ON. 2. Starts EGDG-1C and verifies white light ON. **(CS)** 3. Closes Bkr 3225. **(CS)** 4. Verifies bus voltage stable. 5. Notifies SPO to open Non-1E battery doors. **EXAMINER CUE;** **When asked respond as SPO and acknowledge request.** COMMENTS:	**Critical Step (CS)** **Basis: Required to supply power to FWP-7.** SAT_____ UNSAT_____

STEP 7: (Step 7.17) ___ IF EFP-2 is running, THEN ensure EFW control valves are closed. STANDARD: Candidate N/As step. Per cue EFP-2 has failed to start. COMMENTS:	SAT_____ UNSAT_____
STEP 8: (Step 7.18) ___ Ensure AFW control valves are closed. STANDARD: Candidate verifies green lights ON for FWV-216 and FWV-217. COMMENTS:	SAT_____ UNSAT_____
STEP 9: (Step 7.19) ___ Start FWP-7 STANDARD: Candidate selects FWP-7 control switch to START and verifies red light ON and pump current indication. COMMENTS:	**Critical Step** **Basis: Pump start required for AFW flow.** SAT_____ UNSAT_____

STEP 10: (Step 7.20) ___ Establish AFW flow to each available OTSG. • ___ IF adequate SCM exists, AND OTSG level is ≤ 12 ½ in, THEN feed each available dry OTSG with continuous AFW flow to 1 line within the following limits: ____ Cooldown rate minimized ____ Maintain total AFW flow < 600 gpm • ___ IF adequate SCM exists, AND OTSG level is > 12 ½ in, THEN ensure AFW flow is controlled. **(CS)** ____ Maintain total AFW flow < 600 gpm [Rule 3, EFW/AFW Control] • ___ IF adequate SCM does NOT exist, THEN feed available OTSGs at inadequate SCM flow rate. ____ Maintain total AFW flow < 600 gpm [Rule 3, EFW/AFW Control] STANDARD: Candidate throttles FWV-216 and FWV-217 to maintain total AFW flow < 600 gpm. **EXAMINER NOTE;** **Critical part of step is to throttle AFW flow. If flow momentarily rises above 600 gpm the critical step will still be satisfied as long as < 600 gpm flow is established prior to exiting JPM.** COMMENTS:	**Critical Step (CS)** **Basis: Pump protection (runout).** SAT_____ UNSAT_____
TERMINATION CRITERIA: Controlled AFW flow.	

TIME STOP _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Balance of Plant operator.

A loss of off-site power has occurred.
EFP-2 and EFP-3 have failed to start.

INITIATING CUE:

The Control Room Supervisor has directed you to perform EOP-14, Enclosure 7, EFWP Management.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM E

NRC 2011

SAFETY FUNCTION 5

ALTERNATE PATH

INITIATE BUILDING SPRAY

PREPARED/REVIEWED BY: Jim Gregitis Date: 06-10-11

VALIDATED BY: Webster / Wooten Date: 07-10-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim E – NRC 2011

Task: Ensure Building Spray (BS) actuation.

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 5

K/A Rating/Importance: 026A3.01 RO 4.3 SRO 4.5

Task Number: 0260502001

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

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

Preferred Evaluation Location:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

EM-225C, Rev 5

Validation Time: 10 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment**:** _____

_____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Restore simulator to IC# **145** (FATHER) developed for this JPM. (Exam 3 directory)

2. If creating IC then perform the following:

   a. A LOCA is in progress (RC-002C_TVHH0303 = 0.005)
   b. Reactor Building pressure is < 30 psig.
   c. BSP-1A will not start in manual (BS-001A_TFB60201 = True)
   d. The BWST level is > 20 ft
   e. Use EOP-03 for setup conditions
   f. Execute EOP-14 Enclosures 1 & 2
   g. Acknowledge SCM alarm
   h. Check CRTs to ensure RB temperatures are high
   i. Insert BSV-4 auto flow control failure (A1_A2_A8_6 = 0.1, conditional on H_A1_A2_DS809_1, ramped over 2 minutes)
   j. Insert BSV-4 control Local/Remote setpoint (A1_A2_A8_5 = False, conditional on H_A1_A2_DS809_1)

SIMULATOR OPERATOR INSTRUCTIONS:

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

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of EM-225C, Rev 5, completed through Step 4.5.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

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

INITIATING CUE:

The Control Room Supervisor has directed you to start Building Spray (BSP-1A preferred) per EM-225C Step 4.6.

TIME START _____

STEP 1: Obtain a copy of appropriate procedure. STANDARD: Candidate obtains a copy of EM-225C. **EXAMINER CUE**: **Provide candidate a copy of EM-225C.** COMMENTS:	SAT_____ UNSAT_____
STEP 2: (Step 4.6) IF a building spray pump is required and EC concurrence has been obtained, THEN perform the following: STANDARD: Candidate performs the following steps. COMMENTS:	SAT_____ UNSAT_____

STEP 3: (Step 4.6.1) Ensure load is available on the emergency diesel generators per EOP-13, Rule 5. STANDARD: Candidate determines that the emergency diesel generators are not supplying the bus. Step is N/A. COMMENTS:	SAT_____ UNSAT_____

STEP 4: (Step 4.6.2) Ensure Building Spray flow controls are set at 1500 gpm and "Remote" if pumps are aligned to BWST, or 1200 gpm and "Local" if aligned to the RB sump. STANDARD: Candidate verifies suction source to Building Spray pumps and ensures the REMOTE/LOCAL lever on BSV-3 and BSV-4 is set to "Remote" and to 1500 gpm. COMMENTS:	SAT_____ UNSAT_____

STEP 5: (Step 4.6.3) Notify the control room to start one building spray pump. STANDARD: Candidate operates BSP-1A control switch to start position and notes that the pump did not start (Breaker is failed open). Pump start failure is reported to the Control Room Supervisor. Candidate repeats the guidance of EM-225C Section 4.6 for the "B" train of Building Spray (some of the required steps may have been performed in parallel with BSP-1A alignment). Candidate starts BSP-1B and ensures flow is established. **(CS)** **EXAMINER CUE:** **If required, inform the candidate that the TSC requests that you start Building Spray.** **Role play as CRS when candidate discovers start problem with BSP-1A. When informed of the malfunction on the "A" train, direct candidate to establish Building Spray flow with the "B" train.** **EXAMINER NOTE:** **After BSP-1B is started flow will initially be high (expected) then will lower below required value of 1500 gpm. Candidate may select "Local" and attempt to raise flow with the thumbwheel (optional). Candidate MUST select "MAN" and adjust flow with lever to approximately 1500 (± 100) gpm.** COMMENTS:	**Critical Step (CS)** **Basis: Provide cooling to the RB as directed.** SAT_____ UNSAT_____
TERMINATION CRITERIA: BSP-1B running with indicated flow.	

TIME STOP _____

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

INITIATING CUE:

The Control Room Supervisor has directed you to start Building Spray (BSP-1A preferred) per EM-225C Step 4.6.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM F

NRC 2011

SAFETY FUNCTION 6

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

PREPARED/REVIEWED BY: Jim Gregitis Date: 06-10-11

VALIDATED BY: Virgin / Wooten Date: 07-10-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim F – NRC 2011

Task: Synchronize with off-site power and unload/shutdown EDG-1A.

Alternate Path: ☐ **YES** ☒ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 6

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 with off-site power and unload/shutdown EDG-1A using AP-770.

Preferred Evaluation Location:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

AP-770, Rev 39

Validation Time: 20 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment**:** _____

_____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **146** (FATHER) developed for this JPM. (Exam 3 directory)
2. Freeze the simulator and notify the examiner.

OR

If creating IC perform the following:

1. Insert LOOP.
2. Delete LOOP after plant trips.
3. Perform AP-770 up to Step 3.61 (restoring a bus).
4. Close breakers 4900 and 4902.
5. Disable nuisance alarm (EP 0947 & 1079)
6. 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 in 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 signed off through Step 3.61
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, Emergency Diesel Generator Actuation, is in progress and completed through Step 3.61.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-770, Enclosure 6, "A ES DIESEL SHUTDOWN".

TIME START _____

STEP 1: Obtain a copy of appropriate procedure. STANDARD: Candidate obtains a copy of AP-770 starting with Step 6.1 of Enclosure 6. **EXAMINER NOTE**: **When the candidate locates the correct procedure provide him/her with a copy of AP-770, Enclosure 6.** COMMENTS:	SAT_____ UNSAT_____
STEP 2: (Step 6.1) Prepare A ES Diesel to synchronize with offsite power source. 1. Ensure plant conditions are stable. 2. Ensure HPI is bypassed or reset. 3. Notify PPO to obtain key 94 from Control Room. 4. IF A ES 4160V bus will be connected to the BEST XFMR, THEN ensure Bkr 3237 is open. 5. Depress "4160V ESA UV RESET" push button. **(CS)** 6. Select "EDG A EXC VOLT ADJ SELECT" to "CONT RM". **(CS)** 7. Maintain voltage at 4160V (4150 to 4200V) using "EDG A EXC VOLT ADJUST". **(CS)** 8. Maintain frequency at 60 Hz (59.9 to 60.1 Hz) using "EDG A SPEED". **(CS)** 9. Notify PPO to select A ES Diesel "SPEED DROOP" to "60" in increments of 10 (119 ft AB A ES Diesel Engine Room). 10. Notify PPO to select "A EDG Unit-Parallel" switch to "PAR" (119 ft AB A ES Diesel Control Room). 11. Ensure at least 1 of the following breakers is closed: ___ 1691 ___ 1692 ___ 4900 ___ 4902	**Critical Step (CS)** **Basis: Generator electrical alignment to share load.** SAT_____ UNSAT_____

STANDARD:

Candidate verifies plant stable (information also supplied in cue).

Candidate verifies on both “A” and “B” ES status panels that the channel function enable green light is on and the bypass reset green light is on.

Candidate notifies PPO to obtain key 94 from the Control Room.

Candidate N/As Detail 4 since the A ES 4160V bus will be connected to the OPT.

Candidate depresses the "4160V ESA UV RESET" push button and verifies that both reset/normal lights are on.

Candidate rotates "EDG A EXC VOLT ADJ SELECT" switch to “CONT RM” (Q-02-05 alarms).

Candidate rotates the “EDG A EXC VOLT ADJUST” knob to maintain voltage between 4150 and 4200 volts.

Candidate rotates the "EDG A SPEED" control handle to maintain frequency between 59.9 and 60.1 Hz.

Candidate notifies the PPO to complete Details 9 and 10 of Step 6.1 of Enclosure 6 in AP-770.

Candidate verifies that breakers 4900 and 4902 are closed.

EXAMINER CUE:

Inform candidate that the PPO has obtained key 94 from the Control Room.

EXAMINER / 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:

STEP 3: (Step 6.2) Synchronize A ES Diesel with offsite power source. 1. Select synchroscope for Bkr to be paralleled to “ON”. **(CS)** 2. Adjust "EDG A EXC VOLT ADJUST" to match incoming and running voltages. **(CS)** 3. Adjust "EDG A SPEED" to establish synchroscope moving slow in the "FAST" direction. **(CS)** 4. Close oncoming Bkr at ≈ 11 o'clock. **(CS)** 5. Select synchroscope to “OFF”. STANDARD: Candidate rotates synchroscope control handle 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 synchroscope control handle for breaker 3211 to “OFF” and verifies sync lights off. COMMENTS:	**Critical Step (CS)** **Basis: Meet requirements to parallel two electrical sources.** SAT_____ UNSAT_____

STEP 4: (Step 6.3) IF A ES Diesel is required to be restored to an operable status, THEN **GO TO** OP-707, Operation of The ES Emergency Diesel Generators and **EXIT** this enclosure. STANDARD: Candidate should mark this step as N/A and continue on in Enclosure 6. **EXAMINER CUE**: **Inform candidate that the A ES Diesel will NOT be restored to an operable status.** COMMENTS:	SAT_____ UNSAT_____

STEP 5: (Step 6.4)

SAT_____

UNSAT_____

STATUS A ES Diesel will NOT be restored to an operable state.

Reduce A ES Diesel load.

1. Maintain -1.5 to +1.5 MVAR by adjusting "EDG A EXC VOLT ADJUST".
2. IF A ES Diesel load is > 1200 KW,
   THEN reduce load to ≈ 1200 KW using "EDG A SPEED".
3. WHEN load has been ≤ 1200 KW for > 3 min,
   THEN reduce load to ≈ 200 KW using "EDG A SPEED".
4. Establish ≈ +0.1 MVAR using "EDG A EXC VOLT ADJUST".
5. Open Bkr 3209.

STANDARD:

Candidate rotates the “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 (time compression may be used), candidate rotates the "EDG A SPEED" control handle and reduces load to ≈ 200 KW.

Candidate establishes ≈ +0.1 MVAR using the “EDG A EXC VOLT ADJUST” knob.

Candidate rotates breaker 3209 control handle to open and verifies green light on and red light off.

EXAMINER NOTE:

Time compression allowed when EDG load reduced to ≤ 1200 KW.

COMMENTS:

TERMINATION CRITERIA: Breaker 3209 open.

TIME STOP _____

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, Emergency Diesel Generator Actuation, is in progress and completed through Step 3.61.

INITIATING CUE:

The Control Room Supervisor has directed you to perform AP-770, Enclosure 6, “A ES DIESEL SHUTDOWN”.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM G

NRC 2011

SAFETY FUNCTION 8

ALTERNATE PATH

START CWP-1C WHILE AT POWER

PREPARED/REVIEWED BY: Jim Gregitis Date: 06-09-11

VALIDATED BY: Webster / Wooten Date: 07-10-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

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SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim G – NRC 2011

Task: Start CWP-1C while at power.

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 8

K/A Rating/Importance: 075G2.1.31 RO 4.2 SRO 3.9

Task Number: 0750102001

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

Task Standard: Post maintenance start of CWP-1C while at power per OP-604.

Preferred Evaluation Location:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

OP-604, Rev 73

Validation Time: 18 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment**:** _____

_____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. "Restore" the simulator to IC# **147** (FATHER) developed for this JPM. (Exam 3 directory)

   OR

1. Restore the simulator to a 75% MOL IC.
2. Secure CWP-1C and ensure Waterbox delta T < 25 degrees.
3. Secure ARP-2B.
4. Disable nuisance alarms:
   - EP 1116 (LA ALA1116 to False) AULD Trouble
   - EP 0094 (LA ALA0094 to False) Hotwell B level high
   - EP 0098 (LA ALA0098 to False) CDV-88
   - EP 1914 (LA ALA1914 to False) Computer

5. Execute lesson plan Sim G – NRC 2011.
   TVKK1CFR = 0.35, ramped for 2 minutes, conditional on H_A4_A2_DS121_1
   ALA0129 = TRUE, 90 second delay, conditional on H_A4_A2_DS121_1

SIMULATOR OPERATOR INSTRUCTIONS:

1. Select CW-24 to "ENABLE" as directed by OP-604, Section 9.9.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of OP-604, Rev 73, Section 9.9 with Steps 9.9.1 through 9.9.3 signed off.

To more efficiently use simulator time candidates may review the cue sheet and OP-604 prior to entering the simulator.

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

CWP-1C has been secured for 24 hours due to maintenance.
CWP-1C maintenance is now complete.
A SPO is standing by at the Intake Structure for CWP-1C start.
An in-plant SPO is controlling Hotwell level in manual.

INITIATING CUE:

The Control Room Supervisor has directed you to start CWP-1C IAW OP-604, Section 9.9. Steps 9.9.1 through 9.9.3 have already been completed.

TIME START _____

STEP 1: Candidate will be given a copy of OP-604 with Steps 9.9.1 through 9.9.3 checked off. STANDARD: Candidate reviews the status of the plant. **EXAMINER NOTE**: **Examiner will provide candidate with a copy of OP-604 with appropriate steps checked off.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 9.9.4) **START** standby Condenser Waterbox Priming Pump, as necessary: • START ARP-2A **OR** • START ARP-2B STANDARD: Candidate may start ARP-2B. **EXAMINER NOTE**: **Candidate may or may NOT start ARP-2B. Either option is acceptable. If not started, ARP-2B will auto-start when the waterbox priming valves are opened.** **EXAMINER CUE**: **If requested, respond as the SPO that ARP-2B is ready to start.** COMMENTS:	SAT_____ UNSAT_____

STEP 3: (Step 9.9.5) **PERFORM** waterbox valve alignment: a. CLOSE the following: • ARV-52 • ARV-53 b. OPEN the following: • ARV-3 **(CS)** • ARV-4 **(CS)** STANDARD: Candidate verifies green lights illuminated on ARV-52 & 53. Candidate selects ARV-3 & 4 control switches to "Open" and verifies that both red lights illuminate. **(CS)** Candidate acknowledges annunciator M-03-05, Water Box Vacuum Lost. Candidate should pull the AR and determine that this is a normal alarm for starting CWP-1C. **EXAMINER CUE**: **Acknowledge annunciator information from the candidate as the CRS.** COMMENTS:	**Critical Step (CS)** **Basis: Proper alignment to ensure waterbox is primed.** SAT_____ UNSAT_____

STEP 4: (Step 9.9.6) **NOTIFY** Chemistry to monitor Hotwell conductivity while priming Waterbox STANDARD: Candidate notifies Chemistry to monitor Hotwell for conductivity via phone or radio. **EXAMINER CUE**: **When directed, acknowledge the notification as the Chemistry Department representative.** COMMENTS:	SAT_____ UNSAT_____
STEP 5: (Step 9.9.7) **PLACE** waterbox sightglass, CW-48-LI, in service: • **OPEN** CWV-214 • **OPEN** CWV-217 STANDARD: Candidate notifies the SPO to open CWV-214 & 217 and awaits confirmation that the valves are open. **EXAMINER CUE**: **When directed and after a brief delay, role play as the SPO and report that CWV-214 & 217 are OPEN.** COMMENTS:	SAT_____ UNSAT_____

STEP 6: (Step 9.9.8) **VERIFY** 'C' waterbox level ≥ 115 ft-H_2O (verified by water level visible in sightglass or 24-30 in-Hg on AR-31-PI) STANDARD: Candidate notifies the SPO to verify level in CWP-1C level sightglass or to verify that AR-31-PI indicates 24-30 in-Hg. **EXAMINER NOTE**: **Once alarm M-03-05 has cleared, time compression is allowed.** **EXAMINER CUE**: **When requested, wait for alarm M-03-05 to clear and inform candidate as the SPO that level does exist in the sightglass. If AR-31-PI is used, inform candidate that pressure reading is 26 in-Hg.** COMMENTS:	SAT_____ UNSAT_____
STEP 7: (Step 9.9.9) **POSITION** selector switch CW-24 to ENABLE STANDARD: Candidate directs the SPO to select CW-24 to ENABLE. **BOOTH INSTRUCTOR CUE:** **When directed, select CW-24 to ENABLE on simulator page "ar". Role play as the SPO and inform the candidate that CW-24 is selected to ENABLE.** COMMENTS:	SAT_____ UNSAT_____

STEP 8: (Step 9.9.10) **SELECT** CWFL-3 Debris Filter to "Continuous Flush" STANDARD: Candidate notifies SPO to select CWFL-3 Debris Filter to “Continuous Flush”. **EXAMINER CUE**: **When directed and after a brief delay, role play as the SPO and report that the CWFL-3 Debris Filter has been selected to “Continuous Flush”.** COMMENTS:	SAT_____ UNSAT_____
STEP 9: (Step 9.9.11) **ENSURE** the Condenser Tube Cleaning Mode Selector Switch is selected to “SHUTDOWN” for CWCP-4, Tube Cleaning Control Panel for “C” Waterbox STANDARD: Candidate notifies SPO to select the Condenser Tube Cleaning Mode Selector Switch to “SHUTDOWN” for CWCP-4. **EXAMINER CUE**: **When directed and after a brief delay, role play as the SPO and report that the Condenser Tube Cleaning Mode Selector Switch has been selected to “SHUTDOWN” for CWCP-4.** COMMENTS:	SAT_____ UNSAT_____

STEP 10: (Step 9.9.12) **IF** operation of the Tube Cleaning System is desired, **THEN CIRCULATE** Balls in the "C" Waterbox per OP-604B, Beaudrey Condenser Tube Cleaning System STANDARD: Candidate marks this step N/A following Examiner Cue. **EXAMINER CUE**: **Inform candidate that operation of the Tube Cleaning System is NOT desired.** COMMENTS:	SAT_____ UNSAT_____
STEP 11: (Step 9.9.13) **BYPASS** torque switch, if required: • **PLACE** CWFL-3 "Torque Sw Bypass" Switch in BYPASS STANDARD: Candidate notifies SPO to bypass the CWFL-3 torque switch. **EXAMINER CUE**: **If requested inform the candidate that bypassing the CWFL-3 torque switch IS required.** **EXAMINER CUE**: **When directed and after a brief delay, role play as the SPO and report that the CWFL-3 "Torque Sw Bypass" Switch has been placed in BYPASS.** COMMENTS:	SAT_____ UNSAT_____

STEP 12: (Step 9.9.14) **NOTIFY** CR Units 1&2 Control Room of intent to place a CWP in service. STANDARD: Candidate notifies CR Units 1&2 Control Room via land line. **EXAMINER CUE**: **Role play as the CR-1&2 Shift Manager and acknowledge notification.** COMMENTS:	SAT_____ UNSAT_____
STEP 13: (Step 9.9.15) **IF** operating at power, **AND** the AULD is in Auto, **THEN NOTIFY** System Dispatcher that CR3 will be starting a CWP and to expect an rise in megawatts generated STANDARD: Candidate notifies System Dispatcher via land line. **EXAMINER CUE**: **Role play as the System Dispatcher and acknowledge notification.** COMMENTS:	SAT_____ UNSAT_____

STEP 14: (Step 9.9.16) **NOTE:** When starting a CWP-1C after an extended shutdown (> 2 days), transient abnormal conditions may be expected for as long as 15 minutes. These conditions include discharge pressures above alarm setpoints, unusual noises in the vicinity of the waterbox inlets, and high pump vibrations. System Engineering guidance during this condition is desirable CWP motor oil level will change when the pump is started: • When in standby, main CWP motor oil levels should be even with the indication mark on the oil sightglass • Normal running level is 1/2" to 5/8" below the mark **CAUTION:** Do **NOT** allow waterbox inlet pressures to exceed 10.5 psig STANDARD: Candidate reads and acknowledges Note and Caution. **EXAMINER CUE**: **If directed by the candidate, role play as the SPO and/or System Engineer to monitor the CWP and inlet water box pressure.** COMMENTS:	SAT_____ UNSAT_____

STEP 15a: (Step 9.9.16) **START** CWP-1C STANDARD: Candidate directs the SPO to clear the Unit 4160V switchgear room and makes PA announcement to stand clear of equipment. Candidate verifies start permits for CWP-1C and starts CWP-1C. Candidate requests that the SPO evaluate CWP-1C locally. Candidate secures CWP-1C. **(CS)** **EXAMINER NOTE**: **1 minute and 30 seconds after pump start alarm M-03-02 will annunciate, motor overload alarm.** **EXAMINER CUE**: **When directed, role play as the SPO the sweeping of the Unit 4160V switchgear room.** **If asked, report as the intake SPO that CWP-1C is running; however, pump noise is louder and there is significant more vibration than the adjacent pumps.** **If candidate requests permission to secure the CWP based on plant indications then give permission as the CRS to secure the pump.** COMMENTS:	**Critical Step (CS)** **Basis: Action required to protect plant equipment.** SAT_____ UNSAT_____
STEP 15b: **EXPECTED TERMINATION** **EXAMINER**: **If CWP-1C is secured at this time, terminate the JPM. If not, continue on with the JPM. The JPM may be terminated at any time once CWP-1C is secured.**	

TIME STOP _____

STEP 16: (Step 9.9.17) **VERIFY** proper operation of CWFL-3 • **IF** CWFL-3 is **NOT** operating properly, **THEN NOTIFY** Control Room to stop CWP-1C STANDARD: Candidate directs the SPO to verify proper operation of CWFL-3. **EXAMINER CUE**: **When directed, role play as the SPO and inform the candidate that CWFL-3 is operating properly.** COMMENTS:	SAT_____ UNSAT_____

STEP 17: (Step 9.9.18)

SAT_____

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

UNSAT_____

a. **ENSURE** water boxes are full and CWP(s) are operating
b. **ENSURE** only one Condenser Waterbox Priming Pump is running:
   - ARP-2A in NORMAL-AFTER-STOP
     OR
   - ARP-2B in NORMAL-AFTER-STOP
c. **WHEN** CWP-1C has operated for > 30 minutes, **THEN ALIGN** CWFL-3 as follows:
   1) **SELECT** Debris Filter(s) to AUTOMATIC
   2) **ENSURE** "Torque Sw Bypass" Switch is in NORMAL position

STANDARD:

Candidate directs the SPO to ensure water boxes are full and to verify that CWP-1C parameters are normal.

Candidate secures ARP-2B.

Candidate directs the SPO to select the Debris Filter to AUTOMATIC and to select the "Torque Sw Bypass" Switch to NORMAL.

EXAMINER NOTE:

Time compression is allowed for 30 minute CWP-1C operation.

EXAMINER CUE:

When directed, role play as the SPO and inform the candidate that the "C" water box is full.

If asked and not reported per previous step, report as the intake SPO that CWP-1C is running; however, pump noise is somewhat louder than the adjacent pumps.

When directed, role play as the SPO and inform the candidate that the Debris Filter has been selected to AUTOMATIC and the "Torque Sw Bypass" Switch has been selected to NORMAL.

COMMENTS:

STEP 18: (Step 9.9.19) **IF** operating at power, **AND** SG/RX Master is in Manual, **THEN RESTORE** control station to normal operation per OP-504, Integrated Control System STANDARD: Candidate marks this step N/A since the SG/RX Master is already in Auto. COMMENTS:	SAT_____ UNSAT_____
STEP 19: (Step 9.9.20) **SELECT** vacuum breakers and priming valves to AUTO: • ARV-3 • ARV-52 • ARV-4 • ARV-53 STANDARD: Candidate selects ARV-3, 4, 52 and 53 control switches to AUTO. COMMENTS:	SAT_____ UNSAT_____
TERMINATION CRITERIA: Terminate JPM at this time if the candidate has not secured CWP-1C. If candidate fails to secure CWP-1C then this JPM is UNSAT.	

TIME STOP _____

SIMULATOR JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS:

You are the Reactor Operator.

CWP-1C has been secured for 24 hours due to maintenance.
CWP-1C maintenance is now complete.
An SPO is standing by at the Intake Structure for CWP-1C start.
An in-plant SPO is controlling Hotwell level in manual.

INITIATING CUE:

The Control Room Supervisor has directed you to start CWP-1C IAW OP-604, Section 9.9. Steps 9.9.1 through 9.9.3 have already been completed.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

SIMULATOR JPM H

NRC 2011

SAFETY FUNCTION 9

ALTERNATE PATH

RESPOND TO A WASTE GAS HEADER LEAK

PREPARED/REVIEWED BY: Jim Gregitis Date: 06-10-11

VALIDATED BY: Virgin / Webster Date: 07-10-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07-28-11
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

SIMULATOR JOB PERFORMANCE MEASURE

JPM #: Sim H – NRC 2011

Task: Perform actions specified following a radiation monitor actuation.

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 9

K/A Rating/Importance: 060AA2.05 RO 3.7 SRO 3.5

Task Number: 0720402003

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:

☒ **SIM** ☐ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☒ **PERFORM** ☐ **SIMULATE**

References:

AP-250, Rev 19

Validation Time: 15 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment**:** _____

_____

_____

_____

SIMULATOR SETUP INSTRUCTIONS:

1. Initialize previously stored IC# **148** (FATHER) developed for this JPM. (Exam 3 directory)

   OR

1. Initialize 100% IC.
2. Insert the following malfunctions:
   - AHF-30 fail to trip (TFC7030R = True)
   - AHF-30 released when switch is taken to Trip (TFC7030R = Delete, conditional on A7_A1_S56_1)
   - Elevate release radiation levels in A & B WGDTs to maximum
   - Maximize leak size and open relief valves on both tanks
3. Unfreeze the simulator and allow to run until RM-A2 reaches its High Alarm setpoint (about 2 minutes).
4. Freeze the simulator and notify lead examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

1. Unfreeze the simulator when directed by examiner.

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Consumable copies of AP-250, Rev 19

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Reactor Operator.

The plant is at 100% power.
RM-A2 Gas “Atmospheric Radiation High” alarm has just been received.
AP-250, Radiation Monitor Actuation, has been entered.

INITIATING CUE:

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

TIME START _____

STEP 1: 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. STANDARD: Candidate reviews the status of the plant and locates a copy of AP-250. **EXAMINER CUE**: **Examiner will provide candidate a copy of AP-250.** **EXAMINER NOTE**: **Notify simulator operator when candidate is ready to perform the JPM.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 3.1) Ensure Auto actions of affected radiation monitor(s). See Table 1. Stopped: AHF-30 **(CS)** AHF-10 AHF-11A AHF-9A AHF-11B AHF-9B STANDARD: 1. Candidate will verify the listed fans have stopped (GREEN light ON, RED light OFF). 2. Candidate recognizes AHF-30 is still running. 3. Candidate selects control switch to OFF and verifies GREEN light ON and RED light OFF. **(CS)** 4. Candidate reports failure of AHF-30 to automatically trip to the CRS. **EXAMINER CUE**: **Examiner acknowledges report of AHF-30 failure to trip automatically.** COMMENTS:	**Critical Step (CS)** **Basis:** **Fan must be secured to reduce spread of contamination.** SAT_____ UNSAT_____
STEP 3: (Step 3.2) Notify personnel of entry into AP-250. STANDARD: N/A **EXAMINER CUE**: **Inform the candidate that the other operator performed these notifications.** COMMENTS:	SAT_____ UNSAT_____

STEP 4: (Step 3.3) Ensure proper radiation monitor operation. 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. **(CS)** 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. STANDARD: 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 1.0E5. Candidate will review Release Permit and check high alarm setpoint. **(CS)** 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 rising. COMMENTS:	**Critical Step** **Basis: Required to ensure valid alarm.** SAT_____ UNSAT_____

STEP 5: (Step 3.4) Notify Health Physics and Chemistry of radiation monitor actuation. STANDARD: N/A **EXAMINER CUE**: **Inform the candidate that the other operator performed these notifications.** COMMENTS:	SAT_____ UNSAT_____
STEP 6: (Step 3.5) IF alarm is NOT valid, THEN perform corrective actions. STANDARD: Candidate determines that the alarm is valid and continues in procedure. COMMENTS:	SAT_____ UNSAT_____

STEP 7: (Step 3.6) Evacuate affected areas, as required. STANDARD: N/A **EXAMINER CUE**: **Inform the candidate that the other operator performed this step and the Auxiliary Building has been evacuated.** COMMENTS:	SAT_____ UNSAT_____

STEP 8: (Step 3.7) Stop any activities suspected of causing the radiation monitor actuation and restore systems as required. STANDARD: N/A **EXAMINER CUE**: **Inform the candidate that the other operator performed this step and is evaluating plant activities.** COMMENTS:	SAT_____ UNSAT_____
STEP 9: (Step 3.8) Concurrently perform the appropriate enclosures in this procedure. STANDARD: Candidate continues to Enclosure 2. **EXAMINER CUE**: **If candidate also attempts to perform Enclosure 3 for RM-A3 then inform the candidate that he/she should perform those actions after performing Enclosure 2.** COMMENTS:	SAT_____ UNSAT_____

STEP 10: (Enclosure 2, Step 2.1) Verify AHF-34A is stopped. STANDARD: Candidate observes Events Recorder point 515 which indicates this fan is stopped. COMMENTS:	SAT_____ UNSAT_____
STEP 11: (Enclosure 2, Step 2.2) Ensure AHU-3 is stopped. STANDARD: Candidate observes this unit is stopped by GREEN light ON and RED light OFF on HVAC panel. COMMENTS:	SAT_____ UNSAT_____
STEP 12: (Enclosure 2, Step 2.3) CAUTION: If WGDTs are leaking into AB, hydrogen concentrations may reach explosive levels. IF AB has NOT been evacuated, THEN notify PPO to isolate WG system. STANDARD: Candidate reads Caution statement. Per the earlier examiner's cue the AB has been evacuated. No actions are required. COMMENTS:	SAT_____ UNSAT_____

STEP 13: (Enclosure 2, Step 2.4) IF at any time, RM-A2 GAS approaches off-scale high, THEN align RM-A2 LMH valve controller. 1. Select "RM-A2 MID/HI RANGE CONTROLLER" to "AUTO". **(CS)** 2. IF TSC is manned, THEN notify Accident Assessment Team of RM-A2 status. STANDARD: 1. Candidate verifies RM-A2 is approaching off-scale high and selects the "RM-A2 MID/HI RANGE CONTROLLER" to "AUTO". **(CS)** 2. Candidate requests status of the TSC. **EXAMINER CUE**: **Inform candidate that the TSC is not manned and terminate the JPM.** COMMENTS:	**Critical Step** **Basis: Accurate radiation readings are required.** SAT_____ UNSAT_____
TERMINATION CRITERIA: RM-A2 MID/HI RANGE CONTROLLER" selected to "AUTO".	

TIME STOP _____

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 at 100% power.
RM-A2 Gas "Atmospheric Radiation High" alarm has just been received.
AP-250, Radiation Monitor Actuation, has been entered.

INITIATING CUE:

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

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

PLANT JPM I

NRC 2011

SAFETY FUNCTION 3

RESPOND TO A CORE FLOOD TANK LOW PRESSURE CONDITION

PREPARED/REVIEWED BY: Alan Kennedy Date: 05-31-11

VALIDATED BY: Bryan Wooten / Brandon Webster Date: 07-08-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07/28/11
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

PLANT JOB PERFORMANCE MEASURE

JPM #: Plant I – NRC 2011

Task: Add nitrogen to CFT-1A/1B from the LP manifold.

Alternate Path: ☐ **YES** ☒ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 3

K/A Rating/Importance:

006A1.13	RO 3.5	SRO 3.7
021AG2.1.30	RO 4.4	SRO 4.0

Task Number: 0060402001

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

Task Standard: Align the nitrogen system to pressurize CFTs in accordance with AP-404, Enclosure 5.

Preferred Evaluation Location:

☐ **SIM** ☒ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☐ **PERFORM** ☒ **SIMULATE**

References:

AP-404, Enclosure 5, Rev 13

Validation Time: 13 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Required PPE

2. Consumable copies of AP-404, Enclosure 5, Rev 13

READ TO THE OPERATOR

INITIAL CONDITIONS

You are the Secondary Plant Operator.

The plant is in AP-404, Loss of Decay Heat Removal.

INITIATING CUES

The Control Room Supervisor has directed you to perform AP-404, Enclosure 5, to pressurize the "A" Core Flood Tank.

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

TIME START: _____

STEP 1: Locate correct procedure. STANDARD: Candidate should obtain TB copy of AP-404. **EXAMINER NOTE**: **Once the candidate demonstrates that he/she can locate AP-404, Enclosure 5, provide him/her with a copy of the enclosure.** COMMENTS:	SAT_____ UNSAT_____

STEP 2: (Step 5.1)

Align the N_2 system to pressurize CFTs.

1. Open "LOW PRESSURE NITROGEN HEADER ISO" valves (119 ft TB by rollup door):
   - NGV-154 **(CS)**
   - NGV-156 **(CS)**
2. Close breaker ACDP 4-18 for NGHE-1 (Unit 480V SWGR Room). **(CS)**
3. Ensure NGV-9 "HIGH PRESSURE NITROGEN HEADER ISO" is closed (95 ft TB by FWP-1A).
4. Ensure NGHE-1 "NITROGEN HEATER CONTROL SWITCH" is selected to "ON" (95 ft IB by EFP-2).
5. Unlock and open NGV-4 "LOW PRESSURE NITROGEN CROSS-TIE ISO" (95 ft IB by EFP-2). **(CS)**

STANDARD:

1. Candidate locates NGV-154 and NGV-156 and places in the open position. Candidate should remove valves ¼ turn off their backseats.
2. Candidate locates breaker ACDP 4-18 and places in the "on" position.
3. Candidate locates NGV-9 and verifies it is in the closed position.
4. Candidate locates NGHE-1 and places control switch in the "on" position.
5. Candidate unlocks and moves NGV-4 to the open position.

EXAMINER CUE:

1. **NGV-154 and 156 handwheels rotate CCW, stems rise and handwheels come to a hard stop.**
2. **Breaker ACDP 4-18 snaps to the "on" position.**
3. **Stem for NGV-9 is "out".**
4. **NGHE-1 Control Switch is in the "on" position.**
5. **NGV-4 handle rotates CCW and comes to a hard stop when parallel to piping.**

COMMENTS

Critical Step (CS)

Basis: Proper system alignment and equipment protection from cryogenic gas.

SAT_____

UNSAT_____

STEP 3: (Step 5.2) IF pressurizing CFT-A, THEN notify Control Room to open CFV-28. STANDARD: Candidate notifies Control Room that nitrogen is aligned to the "A" CFT and requests control room to open CFV-28. **EXAMINER CUE:** **Control Room acknowledges request to open CFV-28.** COMMENTS:	SAT_____ UNSAT_____
TERMINATION CRITERIA: Control Room notified to perform Step 5.2 (open CFV-28).	
END OF TASK	

TIME STOP: _____

PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

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

INITIAL CONDITIONS

You are the Secondary Plant Operator.

The plant is in AP-404, Loss of Decay Heat Removal.

INITIATING CUES

The Control Room Supervisor has directed you to perform AP-404, Enclosure 5, to pressurize the "A" Core Flood Tank.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

PLANT JPM J

NRC 2011

SAFETY FUNCTION 5

PLACE A HYDROGEN ANALYZER IN SERVICE

PREPARED/REVIEWED BY: Alan Kennedy Date: 05-31-11

VALIDATED BY: Bryan Wooten / Brandon Webster Date: 07-08-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07-28-11
(Operations Representative)

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PLANT JOB PERFORMANCE MEASURE

JPM #: Plant J – NRC 2011

Task: Place a hydrogen analyzer in service.

Alternate Path: ☒ **YES** ☐ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 5

K/A Rating/Importance: 028A4.03 RO 3.1 SRO 3.3

Task Number: 0090503001

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

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

Preferred Evaluation Location:

☐ **SIM** ☒ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☐ **PERFORM** ☒ **SIMULATE**

References:

EOP-14, Enclosure 2, Rev 16

Validation Time: 25 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

Tools/Equipment/Procedures Needed:

1. Required PPE

2. Consumable copies of EOP-14, Enclosure 2, Rev 16 with Step 2.1 completed

READ TO THE OPERATOR

INITIAL CONDITIONS

You are the Primary Plant Operator.

The plant has just tripped due to a LOCA.

DHV-3 has been energized per EOP-14, Enclosure 2, Step 2.1.

INITIATING CUE

The Control Room directs you to complete EOP-14, Enclosure 2, beginning with Step 2.2.

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

TIME START: _____

STEP 1: Obtain a copy of EOP-14, Enclosure 2, PPO Post Event Actions. STANDARD: Candidate obtains a copy of EOP-14, Enclosure 2, PPO Post Event Actions. **EXAMINER NOTE:** **Once candidate demonstrates that he/she can locate the procedure, provide him/her with a copy that of EOP-14 Enclosure 2, with Step 2.1 completed.** COMMENTS:	SAT _____ UNSAT _____
STEP 2: (Step 2.2) Energize HPI recirc to sump valves. • Unlock and close DPDP 8A-4 "MUV-543, MUV-544" (A ES 4160V SWGR Room) STANDARD: Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 4. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____

STEP 3: (Step 2.3) Energize PZR vent valves. • Unlock and close DPDP 8A-13 "RCV-159, RCV-160" (A ES 4160V SWGR Room) STANDARD: Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 13. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____
STEP 4: (Step 2.4) Energize WS valves for H2 analyzers. • Unlock and close DPDP 8A-14 "WSV-28, 30, 34, 42" (A ES 4160V SWGR Room) STANDARD: Candidate locates DPDP 8A (A ES 4160V switchgear room) and unlocks switch 14. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____

STEP 5: (Step 2.5) Align "A" Train DC cooling control to Control Room. • Ensure "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-177-MS" (A ES 4160V SWGR Room) STANDARD: Candidate verifies that "DHHE-1A OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-177-MS". **EXAMINER CUE:** **Decay Heat Heat Exchanger outlet temperature control is selected to the Control Room.** COMMENTS:	SAT _____ UNSAT _____
STEP 6: (Step 2.6) Energize HPI recirc to sump valves. • Unlock and close DPDP 8B-8 "MUV-545, MUV-546" (B ES 4160V SWGR Room) STANDARD: Candidate locates DPDP 8B (B ES 4160V switchgear room) and unlocks switch 8. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____

STEP 7: (Step 2.7) Energize WS valves for H2 analyzers. • Unlock and close DPDP 8B-21 "WSV-26, 32, 38, 41" (B ES 4160V SWGR Room) STANDARD: Candidate locates DPDP 8B (B ES 4160V switchgear room) and unlocks switch 21. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____
STEP 8: (Step 2.8) Align "B" Train DC cooling control to Control Room. • Ensure "DHHE-1B OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-178-MS" (B ES 4160V SWGR Room) STANDARD: Candidate verifies that "DHHE-1B OUTLET TEMPERATURE CONTROL LOCATION" switch is selected to "CONTROL ROOM DCV-178-MS". **EXAMINER CUE:** **Decay Heat Heat Exchanger outlet temperature control is selected to the Control Room.** COMMENTS:	SAT _____ UNSAT _____

STEP 9: (Step 2.9) Energize "A" hot leg high point vents. • Unlock and close DPDP 5A-1 "RCV-157, RCV-158" (A ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 1. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____
STEP 10: (Step 2.10) Energize WS valves for H2 analyzers. • Unlock and close DPDP 5A-2 "WSV-29, 31, 35, 43" (A ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 2. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____

STEP 11: (Step 2.11) Energize PASS valves. • Unlock and close DPDP 5A-27 "CAV-429, 430, 433, 434 SV" (A ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5A (A ES 480V switchgear room) and unlocks switch 27. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____
STEP 12: (Step 2.2) Energize "B" hot leg high point vents. • Unlock and close DPDP 5B-1 "RCV-163, RCV-164" (B ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 1. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____

STEP 13: (Step 2.13) Energize PASS valves. • Unlock and close DPDP 5B-8 "CAV-432, 435 & 436" (B ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 8. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	SAT _____ UNSAT _____
STEP 14: (Step 2.14) Energize WS valves for H2 analyzers. • Unlock and close DPDP 5B-27 "WSV-27, 33, 39, 40" (B ES 480V SWGR Room) STANDARD: Candidate locates DPDP 5B (B ES 480V switchgear room) and unlocks switch 27. Candidate rotates the switch handle to the "ON" position. **EXAMINER CUE:** **Switch handle rotates up and stays in position.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____

STEP 15: (Step 2.15) Verify "A" H_2 analyzer is in standby. IF "A" H_2 analyzer is NOT in standby, THEN GO TO step 2.22 in this enclosure. • Amber "STANDBY" light lit (A EFIC Room, RELAY RACK RR4A) STANDARD: Candidate locates "A" hydrogen analyzer (A EFIC room, relay rack RR4A) standby light. Candidate transitions to Step 2.22 upon discovery that standby light is NOT lit. **EXAMINER CUE:** **The "STANDBY" light is NOT lit.** COMMENTS:	SAT _____ UNSAT _____

STEP 16: (Step 2.22) PROCEDURE STATUS NOTE - "B" H_2 analyzer to be placed in service. Verify "B" H_2 analyzer is in standby. • Amber "STANDBY" light lit. (B EFIC Room, RELAY RACK RR4B) STANDARD: Candidate reads the status box. Candidate locates "B" hydrogen analyzer (B EFIC room, relay rack RR4B) standby light. **EXAMINER NOTE:** **Candidate acknowledges the information contained in the STATUS box.** **EXAMINER CUE:** **The "STANDBY" light is lit.** COMMENTS:	SAT _____ UNSAT _____

STEP 17: (Step 2.23) Notify Control Room to verify at least 1 RB cooling unit is running. • AHF-1A • AHF-1B • AHF-1C STANDARD: Candidate contacts Control Room to determine RB fan status (may walk to nearest telephone to simulate – radios are not allowed in the EFIC rooms). **EXAMINER NOTE:** **The examiner cue sets up the alternate path for performance of the next step.** **EXAMINER CUE:** **No RB cooling unit is in operation.** **If asked, inform candidate that no RB cooling unit is available for start.** COMMENTS:	SAT _____ UNSAT _____

STEP 18: (Step 2.24) Align B H_2 analyzer. • IF at least 1 RB cooling unit is running, THEN align "B" H_2 analyzer to RB Recirc Duct (B EFIC Room, RELAY RACK RR4B): o Open WSV-26 "CONTAINMENT MON. H2 SAMPLING VALVE" o Open WSV-27 "CONTAINMENT MON. H2 SAMPLING VALVE" • IF no RB cooling units are running, THEN align B H_2 analyzer to RB Dome (B EFIC Room, RELAY RACK RR4B): o Open WSV-38 "CONTAINMENT MON. H2 SAMPLING VALVE" **(CS)** o Open WSV-39 "CONTAINMENT MON. H2 SAMPLING VALVE" **(CS)** STANDARD: Candidate locates control switches for WSV-38 and WSV-39 and rotates switches to open. Candidate verifies both valves are open by red light 'ON' and green light 'OFF'. **EXAMINER CUE:** **Both WSV-38 and WSV-39's green position indicating lights are 'OFF' and the red position indicating lights are 'ON'.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling with no RB fan units in operation.** SAT _____ UNSAT _____

STEP 19: (Step 2.25) Open B H_2 analyzer return valves. (B EFIC Room, RELAY RACK RR4B) • WSV-41 "CONTAINMENT MON. H2 SAMPLING VALVE" • WSV-40 "CONTAINMENT MON. H2 SAMPLING VALVE" STANDARD: Candidate locates control switches for WSV-41 and WSV-40 and rotates switches to open. Candidate verifies both valves are open by red light 'ON' and green light 'OFF'. **EXAMINER CUE:** **Both WSV-41 and WSV-40's green position indicating lights are 'OFF' and the red position indicating lights are 'ON'.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____
STEP 20: (Step 2.26) Energize B H_2 analyzer. • Select "System Power" switch to "ON" on WS-10-CS "CONTAINMENT MONITOR MAIN SYSTEM CONTROL" (B EFIC Room, RELAY RACK RR4B) STANDARD: Candidate locates system power toggle for "B" hydrogen analyzer and selects toggle to on. Candidate verifies power light 'ON'. **EXAMINER CUE:** **Switch toggles up. Power "ON" light is illuminated.** COMMENTS:	**Critical Step** **Basis: Necessary to align H2 sampling.** SAT _____ UNSAT _____

STEP 21: (Step 2.27) Notify Control Room that PPO post event actions are complete with the B H_2 analyzer in service. STANDARD: Candidate notifies control room that PPO post event actions are complete. **EXAMINER CUE:** **Acknowledge completion of PPO post event actions.** COMMENTS:	SAT _____ UNSAT _____
TERMINATION CRITERIA: Candidate exits enclosure.	
END OF TASK	

TIME STOP: _____

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS

You are the Primary Plant Operator.

The plant has just tripped due to a LOCA.

DHV-3 has been energized per EOP-14, Enclosure 2, Step 2.1.

INITIATING CUE

The Control Room directs you to complete EOP-14, Enclosure 2, beginning with Step 2.2.

CRYSTAL RIVER UNIT 3
JPM COVER SHEET

PLANT JPM K

NRC 2011

SAFETY FUNCTION 9

PERFORM A WASTE GAS RELEASE TO THE CONTAINMENT BUILDING

PREPARED/REVIEWED BY: Alan Kennedy Date: 05-31-11

VALIDATED BY: Bryan Wooten / Brandon Webster Date: 07-08-11

APPROVAL BY: Mark VanSicklen Date: 07-27-11
(Nuclear Training Supervisor)

CONCURRED BY: Mike Kelly Date: 07-28-11
(Operations Representative)

Validation is not required for minor enhancements, procedure revisions that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.

Operations concurrence is required for new JPMs and changes that affect the flow, critical steps or time critical steps of the JPM. Operations concurrence is not required for changes that are required due to a procedure revision.

PLANT JOB PERFORMANCE MEASURE

JPM #: Plant K – NRC 2011

Task: Perform a waste gas release to the Containment Building.

Alternate Path: ☐ **YES** ☒ **NO**

PRA Top Critical Action: ☐ **YES** ☒ **NO**

Safety Function: 9

K/A Rating/Importance: 071G2.3.11 RO 3.8 SRO 4.3

Task Number: 0710403012

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

Task Standard: Perform a waste gas release to the containment building.

Preferred Evaluation Location:

☐ **SIM** ☒ **PLANT** ☐ **ADMIN**

Preferred Evaluation Method:

☐ **PERFORM** ☒ **SIMULATE**

References:

OP-412A, Rev 26

Validation Time: 20 minutes **Time Critical**: ☐ **YES** ☒ **NO**

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

Time Finish: _____

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

Examiner: _____ _____
Printed Name Signature Date

Comment: _____

_____

_____

TOOLS / EQUIPMENT / PROCEDURES NEEDED:

1. Required PPE

2. Consumable copies of OP-412A, Rev. 26, Section 4.4

READ TO THE OPERATOR

INITIAL CONDITIONS:

You are the Primary Plant Operator.

INITIATING CUE:

You are directed to perform a waste gas release of WGDT-1A, to the containment building, in accordance with OP-412A, Section 4.4.

Lower WGDT-1A pressure to 10 psig.

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

TIME START: _____

PROCEDURE NOTE: This section will be performed following an accident, as directed by the TSC. PROCEDURE NOTE: Addition of a full (80 psig) WGDT to the Containment Bldg should result in a building pressure increase of less than 0.1 psig. STEP 1: (Step 4.4.1) CONTACT the CRS/SM to ensure that containment integrity exists STANDARD: Candidate contacts Control Room or TSC to ask about containment integrity. **EXAMINER NOTE**: **Examiner will provide candidate with a copy of OP-412A Section 4.4.** **EXAMINER CUE:** **CRS reports that containment integrity exists.** COMMENTS:	SAT _____ UNSAT _____

STEP 2: (Step 4.4.2) VERIFY a WGDT is to be discharged to Containment STANDARD: Candidate obtains CRS signature verifying WGDT release. **EXAMINER CUE:** **CRS/SM or TSC has approved discharge of WGDT-1A to the Reactor Building.** COMMENTS:	SAT _____ UNSAT _____
PROCEDURE NOTE: Instrument numbers are for reference only. Other instruments may be used for convenience. STEP 3: (Step 4.4.3) VERIFY Containment Building pressure is less than 10 psig and RECORD below: • (BS-16/17-PI, BS-90/91-PI) _____ psig STANDARD: Candidate contacts Control Room for Containment Building pressure and records. **EXAMINER CUE:** **Control Room reports containment pressure is 0.1 psig and stable.** COMMENTS:	SAT _____ UNSAT _____

STEP 4: (Step 4.4.4) RECORD WGDT to be vented: • WDT-1 _____ STANDARD: Candidate records WGDT-1A. COMMENTS:	SAT _____ UNSAT _____
STEP 5: (Step 4.4.5) RECORD pressure of WGDT to be vented: • (WD-16-PI for WDT-1A) _____ psig STANDARD: Candidate locates and records pressure of WGDT-1A. **EXAMINER CUE:** **Indicate (using pen or pointer, etc) that WGDT-1A pressure is 80 psig.** COMMENTS:	SAT _____ UNSAT _____

STEP 6: (Step 4.4.6) ENSURE CLOSED the following Waste Gas Header valves inside Containment Building: • WDV-60, RC Drain Tank Vent Isolation • WDV-61, RC Drain Tank Vent Isolation • CFV-15, "B" CFT Vent to WD System • CFV-16, "A" CFT Vent to WD System • CFV-29, Vent Control Valve to WD System STANDARD: Candidate calls Control Room to perform this step. **EXAMINER CUE:** **Control Room has completed Step 4.4.6.** COMMENTS:	SAT _____ UNSAT _____

STEP 7: (Step 4.4.7) ENSURE WGDT to be discharged is isolated: 1. TRIP RMA-11 2. RESET RMA-11 3. CLOSE the following valves: • WDV-405, RB Vent Header Isolation • WDV-406, RB Vent Header Isolation 4. CLOSE the following valves at the Remote Gas Waste Venting Panel: • WDV-393, WGDT WDT-1A Outlet Isolation to Recycle • WDV-394, WGDT WDT-1B Outlet Isolation to Recycle • WDV-395, WGDT WDT-1C Outlet Isolation to Recycle • WDV-436, WGDT WDT-1A Isolation to Vent Filters • WDV-437, WGDT WDT-1B Isolation to Vent Filters • WDV-438, WGDT WDT-1C Isolation to Vent Filters • WDV-1018, WDT-1A/1B/1C Vent Isolation **(CS)** • WDV-1022, WGDT Containment Vent • WDV-1017, RB Vent Line Control **(CS)** STANDARD: Candidate contacts Control Room to perform Details 1, 2 and 3. For Detail 4 the candidate will locate and close/verify closed each valve. **EXAMINER NOTE:** **Candidate can operate WDV-393, 394, 395, 436, 437 and 438 from the Rad Waste Panel.** **EXAMINER CUE:** **Control Room has performed Details 1, 2 and 3. For Detail 4 provide light indications for each valve (Green light 'ON' and red light 'OFF').** COMMENTS:	**Critical Step (CS)** **Basis: Ensures WGDT will be released to containment.** SAT _____ UNSAT _____

STEP 8: (Step 4.4.8) OPEN the following valves at the Remote Gas Waste Venting Panel to align Waste Gas System to the Containment Building: • WDV-1019, WGDT Containment Discharge Isolation • WDV-1022, WGDT Containment Vent STANDARD: As each valve is located the candidate should rotate the switch to the open position. **EXAMINER CUE:** **For each valve which is opened provide light indication (Red light 'ON' and green light 'OFF').** COMMENTS:	**Critical Step** **Basis: Ensures WGDT will be released to containment.** SAT _____ UNSAT _____

STEP 9: (Step 4.4.9) OPEN Waste Gas outlet to header for WGDT to be discharged: • IF WGDT "A", THEN OPEN WDV-393 **(CS)** OR • IF WGDT "B", THEN OPEN WDV-394 OR • IF WGDT "C", THEN OPEN WDV-395 STANDARD: Candidate locates and opens WDV-393. **EXAMINER CUE:** **Provide light indication for opened valve (Red light 'ON' and green light 'OFF').** COMMENTS:	**Critical Step (CS)** **Basis: Ensures correct WGDT will be released to containment.** SAT _____ UNSAT _____

STEP 10: (Step 4.4.10) VENT the selected WGDT to the Containment Building: 1. OPEN the following valves on the Main Control Board: • WDV-405 • WDV-406 2. Record date and time of vent start • Date • Time STANDARD: Candidate calls Control Room to perform Detail 1. Candidate records date and time. **EXAMINER CUE:** **The Control Room has performed Detail 1.** COMMENTS:	SAT _____ UNSAT _____

PROCEDURE NOTE: Instrument numbers are for reference only. Other instruments may be used for convenience. STEP 11: (Step 4.4.11) WHEN WGDT is at desired pressure, THEN PERFORM the following to stop the venting process: 1. CLOSE WDV-1022 2. RECORD WGDT final pressure _____ psig STANDARD: When gas tank pressure is 10 psig the candidate should locate and close the vent valve and record the final pressure. **EXAMINER CUE:** **Indicate, using a pen or pointer, that WGDT-1A pressure is steady at 10 psig.** **Provide light indications to candidate for closed valve (Green light 'ON' and red light 'OFF')** COMMENTS:	SAT _____ UNSAT _____

STEP 12: (Step 4.4.12) PERFORM the following to restore Waste Gas System to standby operation: 1. CLOSE the following valves at the Remote Gas Waste Venting Panel: • WDV-393 • WDV-394 • WDV-395 2. OPEN WDV-1018 3. CLOSE WDV-1019 4. IF required for current plant conditions, THEN CLOSE the following: • WDV-405 • WDV-406 5. OPEN WDV-1017 STANDARD: Candidate locates and positions control switches as required and calls control room to perform Detail 4. **EXAMINER CUE:** **Provide light indications for valves (Green light 'ON' and red light 'OFF' for closed valves; red light 'ON' and green light 'OFF' for open valves).** **Report that Detail 4 has been performed by the Control Room.** COMMENTS:	SAT _____ UNSAT _____

STEP 13: (Step 4.4.13) NOTIFY CRS/SM that venting is complete STANDARD: Candidate notifies CRS/SM and reports venting completion. **EXAMINERS CUE:** **Control Room / TSC acknowledge completion of release.** COMMENTS:	SAT ____ UNSAT ___
TERMINATION CRITERIA: WGDT isolated and CRS/SM notified.	
END OF TASK	

TIME STOP: _____

IN-PLANT JOB PERFORMANCE MEASURE

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Primary Plant Operator.

INITIATING CUE:

You are directed to perform a waste gas release of WGDT-1A, to the containment building, in accordance with OP-412A, Section 4.4.

Lower WGDT-1A pressure to 10 psig.