

B.1 Control Room Systems

System I JPM Title	Type Code	Safety Function
a. 062/Re-energize 2ETA from Unit 1 (New)	N, C	VI
b. OOSI Loss of ND (Leak) at Midloop (Not from bank)		
c. 0281 Verify Proper VX System Operation (CSF4)02)	D, S, A	V
d. 004/ Borate the Reactor Coolant System to Satisfy Rod insertion Limits (New)	N, C	
e. 059/ Enstire Proper Feedwater Isolation Following a Reactor Trip (CF-001)	D, S, A	IV
f. 015/Take Power Range Drawer Out of Service (ENB-002)	D, C	VII
g. 006 Transfer Emergency Core Cooling System to Cold Leg Recirculation (NI-088)	M, S, A	III

B.2 Facility Walk-Through

- a. 013/Transfer HVAC Controls to "Local" Following Control D, R It
VI

C. 0281 Start the Hydrogen Recombiner ('X-020)

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path1 (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Bolded items are from the 1999 initial exam at Catawba

ES-301 Control Room Systems and Facility Walk-Through Test Outline Form ES-301-2

B.1 Control Room Systems

System I JPM Title	Type Code*	Safety
	M, S, L	
a. 005/Loss of ND (Leak) at Midloop (Not from bank)		
b. 004/ Emergency Borate the Reactor Coolant System (NV-017)	0, C, A	
c. 006/Transfer Emergency Core Cooling System to Cold, Leg M1 S, A Recirculation (NI-OSS)		

B.2 Facility Walk-Through

- a. 013/Transfer HVAC Controls to "Local" Following Control D, R
Room Evacuation (RSS-003)

_____F?

- b. 063/Shutdown Battery Charger 1 ECA (EPL-1 16) 0

* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path (C)ontrol room, (S)imulator, (L)ow-Power1 (R)CA

Bolded items are from the 1999 initial exam at Catawba.

JPM 114/CR

Page 1 of 11

CATAWBA
 INITIAL LICENSE EXAMINATION
 JOB PERFORMANCE MEASURE

JPM 114 Control Room

Re-energize 2ETA From Unit 1

CANDIDATE

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Restore power to bus 2ETA from Unit 1 following a loss of normal power per AP/2/A'5500/07 (Loss of Normal Power), Enclosure 5

Alternate Path:

No

Facility JPM U:

NEW

KIA Rating(s):

062 A2.05 (2.9/3.3*)

Task Standard:

SATA is powered from Unit 1, and bus 2ETA is re-energized.

Preferred Evaluation Location: Preferred Evaluation Method:
Simulator ___ In-Plant X Perform Simulate X

References:

API2/AI5500107, (Loss of Normal Power), Enclosure 5, Rev. 31.

Validation Time: N/A Minutes Time Critical: No

Candidate: _____ Time Start: _____

NAME

Time Finish: _____

Performance Rating: SAT _____ UNSAT Question Grade _____ Performance Time _____

Examiner: _____

I

NAME

SIGNATURE

DATE

COMMENTS

JPM IA/CR
Page 3 of 11

SIMULATOR SETUP SHEET

1. N/A

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

JPM 114/CR
Page 4 of ii

Tools/Equipment/Procedures Needed:

Clean copy of Enclosure 5 of AP/2/A/5500107 for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and responses on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Unit 2 OATC. Unit 2 is at full power, and Unit 1 is shutdown.

A loss of all power to bus 2ETA has occurred and API2IA/5500107 has been completed through step 27 of Case II.

D~G 2A output breaker will not close.

Offsite power remains unavailable to 2TC.

2ETA has been load shed in accordance with AP/21A15500/07, Enclosure 8.

INITIATING CUE:

The SRO directs you to re-energize 2ETA from Unit 1 by completing Enclosure 5 per step 28.a. RNO of AP121N5500107.

JPM 11-4/CR
Page 5 of 11

START TIME: _____

STEP 1: Obtain a copy of the appropriate procedure.

SAT

STANDARD: Operator obtains a copy of AP/21A15500/07, Enclosure 5.

*•EXAMINER'S CUE: Give the candidate a copy of enclosure 5.

UNSAT

COMMENTS:

STEP 2: Verify that it is desired to power 2ETA from Unit 2. (STEP 1 a)

STANDARD: The Operator recalls from initiating cue that it is desired to power 2ETA from Unit 1 and goes to RNO. _____ SAT

COMMENTS:

UNSAT

STEP 3: Ensure 1TC- ENERGIZED. (RNO 1a).

SAT

STANDARD: Operator verifies 1TC is energized by checking "7KV ITC FDR FRM ITIA" RED "CLSD" light LIT and GREEN "OPEN" light DARK and "7KV 1TC FDR FRM 1T2B" RED "CLSD" light LIT and GREEN "OPEN" light DARK; Proceeds to step 2. UNSAT

Initiating CUE: "7KV ITC FDR FRM ITIA" RED "CLSD" light LIT; GREEN "OPEN" light DARK and the "7KV ITC FDR FRM ITIB" RED "CLSD" light LIT and GREEN "OPEN" light is DARK

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 114/CR

Page 6 of 11

STEP 4: Verify 2ETA - ENERGIZED (step 2)

SAT

STANDARD: Operator checks 2ETA undervoltage status lights (2S1-14) - DARK.

Operator determines that the undervoltage status lights are LIT and goes to RNO 2.

UNSAT

'-CUE: 2ETA undervoltage status lights (2SI-14) are ~

EXAMINER NOTE: There will be three undervoltage status lights lit for SWGR ETA UV for Phases X, Y, and Z.

COMMENTS:

STEP 5: Do not continue until 2ETA has been load shed. (RNO 2)

STANDARD: The operator determines that the initiating cue says 2ETA has been load shed and goes to Step 3. ____ SAT

COMMENTS:

UNSAT

STEP 6: Verify Unit 1 power alignment on IMC-11 (step Se)

STANDARD: Operator checks (RED indicating light - LIT) "4KV XFMR 1ATC FDR" - CLOSED and "ETA NORM FDR FRM ATC" - CLOSED on 1 MC-1 1 by verifying the RED "CLSD" light- LIT and the GREEN "OPEN" light DARK. ____ SAT

UNSAT

'-CUE: "4KVXFMR IATC FDR" RED "CLSD" light-LIT, GREEN "OPEN" light is DARK and "ErA NORM FDR FRM ATC" RED indicating light-LIT, and GREEN "OPEN" light is DARK

COMMENTS:

'-Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 11-4/CR

Page 10 of 11

STEP 7: Verify "4KV XFMR SATA FDR" from Unit 1 -RACKED OUT. (Step 3.b)

SAT

STANDARD: Operator checks that 4KV XFMR SATA FDR" from Unit 1 is RACKED

OUT by identifying both the RED "CLSD light and GREEN "OPEN" light are DARK.

UNSAT

~CUE: Both the RED and GREEN indicating lights for "4KV XFMR SATA FORT' from Unit I are DARK

COMMENTS:

STEP 8: Verify it is desired to energize SATA from Unit 1. (Step 3.c)

SAT

STANDARD: Operator determines from initial conditions that it is desired to energize 2ETA from Unit 1.

UNSAT

COMMENTS:

STEP 9: Verify "4KV XFMR SATA FDR" (2MC-11) is RACKED OUT. (Step 3.d.1)

___ SAT

STANDARD: Operator checks that the GREEN "OPEN" and RED "CLSD" lights for "4KV XFMR SATA FDR" (2MC-11) are DARK

UNSAT

**CUE: "4KVXFMR SATA FOR" (2MC-II) GREEN and RED Indicating lights are DARK

COMMENTS:

*t•Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 11-4/CR

Pages of 11

STEP 10: Dispatch NLO to RACK IN breaker 17CM. (Step 3.d.2)

STANDARD: Operator dispatches NLO to RACK IN 17CM. ___ SAT

~CUE: NLO reports that breaker IT0*4 Is RACKED IN. "4KVXFMR SATA FOR" (IMC-1 1) GREEN Indicating light Is Ut

UNSAT

COMMENTS:

STEP 11 Close "4KV XFMR SATA FOR" (1MC-11) when 17CM is RACKED IN. CRITICAL (Step 3.d.3) STEP

STANDARD: Operator closes "4KV XFMR SATA FOR" (IMC-11) by depressing the RED "CLOSE" pushbutton and verifying that the RED "CLSD" light is LIT and the GREEN "OPEN" light is DARK. ___ SAT

~CUE: '4KV XFMR SATA FOR" RED Indicating light Is LIT and the GREEN indicating light is DARK. ___ UNSAT

COMMENTS:

STEP 12 Ensure "ETA NORM FOR FRM ATC" is OPEN and RACKED OUT (Step 5.a & b) ___ SAT

STANDARD: Operator determines that 'ETA NORM FOR FRM ATC" is OPEN (GREEN indicating light is LIT), and its breaker is RACKED IN. Operator goes to step 5.b. RNO. UNSAT

"CUE: "ETA NORM FOR FRM ATC" GREEN indicating light Is LIT, and the
RED indicating light is DARK

COMMENTS:

italicized Cues Are To Be Used Only if JPM Pedormance Is Being Simulated.

JPM 11-4/CR

Page 9 of 11

STEP 13 Dispatch NLO to RACK OUT 2ETA#3. (RNO 5.b)

STANDARD: Operator dispatches NLO to RACK OUT 2ETA#3. ____ SAT

"EXAMINER'S CUE: NLO reports that 2ETA#3 is RACKED OUT and the
"GREEN" indicating light is DARK.

UNSAT

COMMENTS:

STEP 14 Dispatch NLO to RACK IN 2ETA#4. (Step 5.c)

STANDARD: Operator dispatches NLO to RACK IN 2ETA#4. ____ SAT

"EXAMINER'S CUE: NLO reports that 2ETA#4 is RACKED IN and it's
"GREEN" indicating light is LIT.

UNSAT

COMMENTS:

STEP 15 Verify DIG 2A output breaker is closed. (Step 5.d).

STANDARD: Operator determines that DIG 2A output breaker is OPEN and
transitions to RNO 5.d. ____ SAT

"CUE: The "GREEN" indicating light for the DIG 2A output breaker Is LIT,
the RED indicating light is DARK ____ UNSAT

COMMENTS:

""Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 11-4/CR

Page 10 of 11

STEP 16 Close "ETA ALT FDR FRM SATA", verify 2ETA - ENERGIZED, CRITICAL
proceed to step 6 (RNO 5.d). STEP

STANDARD: Operator closes "ETA ALT FDR FRM SArA", verifies "ETA ALT FDR ___ SAT
FRM SATA" RED indicating light is LIT, and verifies 2ETA -
ENERGIZED. Proceeds to step 6.

"CUE: When the operator Closes "ETA ALT FDR FRM SATA", the RED ___ UNSAT
indicating light is LIT and the GREEN Indicating light is DARK

"CUE: If asked, "The 2ETA undervoltage status lights (251-14) are DARK
(For 2ETA undervoltage).

COMMENTS:

STEP 17 Dispatch operator to close breakers 2ELXA-4B and 2ELXC-4B
(step 6).

SAT

STANDARD: Directs Operator to close Breakers 2ELXA-4B and 2ELXC-4B.

"CUE: Breaker 2ELXA4B and 2ELXC4B are Closed. ___ UNSAT

EXAMINER NOTE: Breakers 2ELXAAE and 2ELXCAB am normally closed,
however, for the current plant conditions, they would have
been opened per Enclosure 8 of this procedure during the
load shed of 2ETA.

COMMENTS:

Step 18 Return to step in effect.

STANDARD: Operator reports the Bus is energized and Attachment 5 of
AP~2/AI5500/O7 is complete.

COMMENTS:

This JPM is corn lete.

TIME STOP: _____

mitalized Cues Are To Be Used Only It JPM Pedormance Is Being Simulated.

JPM 11-4/CR

Page 11 ofli

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Unit 2 OATC. Unit 2 is at full power, and Unit I is shutdown.

A loss of all power to bus 2ETA has occurred and API2IA/5500/07 has been completed
through step 27 of Case II.

DIG 2A output breaker will not close.

Offsite power remains unavailable to 2TC.

2ETA has been load shed in accordance with AP121A15500107, Enclosure

INITIATING CUE:

The SRO directs you to re~nergize 2ETA from Unit 1 by completing Enclosure 5
per step 28.a. RNO of API21A'5500107.

~tallcized Cues Are To Be Used Only It JPM Pedormance Is Being Simulated.

JPM I-21s1M

Page 1 of 10

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1-2/SIM

Loss of ND (Leak) at Mid-loop

CANDIDATE

EXAMINER

JPM 1-2/SIM

Page 2 of 10

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Establish makeup to the NCS following an ND system leak at mid-loop per AP/1/N5500119 (Loss of

Residual Heat Removal System)

Alternate Path:

NO

Facilitv JPM #:

NEW

KIA Rating(s):

Task Standard:

Operator establishes makeup to the NCS in accordance with Endosure 7 of AP/11AI5500/19.

Preferred Evaluation Location: Preferred Evaluation Method:

Simulator ☒ In-Plant _____ Perform ☒ Simulate _____

References:

AP/1/AI5500119 (Loss of Residual Heat Removal System), Rev. 35

Validation Time: 10 mm. Time Critical: No

Candidate: _____ Time Start _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____
NAME SIGNATURE DATE

COMMENTS..

JPM 1-2/SIM

Page 3 of 10

SIMULATOR SET-UP SHEET

1. RecalIIC#30
2. NR NCLT 6810/6820 at 6.9%.
3. LOA-N1004 (NI pump IB Rack-out), RACKED IN insert.
4. Go to RUN until NCS level increases to 7%.
5. Have valves 1NI-147B, 1NV-135, 1NV-25~, 1NV253B, 1ND-24A, and
1 ND-58B closed from the control board.
- 6 1NI-147B in "DISC".
- 7 'vIAL NVOO6B (Charging pump IB Failure), both, insert.
- B. StopIBNVPump
- 9, Insert 'VIAL-N DOO4A Severity Value =100.
9. Acknowledge alarms.
10. Freeze simulator when NC level is at 6.5% and write to a SNAP.
11. SNAPNO.: 159
12. Place simulator in run when directed by the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

Install appropriate covers/flags for Pumps NV-IA and Nt-IA.

JPM 1-2/SIM

Page 4 of 10

Tools/Equipment/Procedures Needed:

Have enough copies of API1/AI5500/19 available for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Unit I OATC.

Unit 1 is in Mode 5 following core reloading.

The NCS was drained to mid-loop (7.25 %) in preparation for vacuum refill operations.

ND train "A" was in service for decay heat removal. NCS temperature is 1300F.

The NCS is vented through the 3" NCS head vent.

NI Pump IA is being overhauled, and is unavailable.

NV Pump IA breaker has been removed from the cubicle for breaker maintenance.

INITIATING CUE:

A leak has occurred in the ND piping in the auxiliary building, and APII/A/5500/I9 has been implemented.

The available NV Pump 1 B has failed to start.

NCS level is decreasing.

The ND pumps are OFF.

NCS temperature is rising.

The SRO desires you to makeup to the NC System using the NI System and injecting into the cold legs using APII/A/5500/I9 Enclosure 7.

JPM 1-2/SIM
Page 5 of 10

START TIME: _____

STEP 1: Obtain a copy of the appropriate procedure.

SAT

STANDARD: Operator locates AP1/A/5500/19, Enclosure 7.

EXAMINER'S CUE: When the candidate locates AP111AI5500119, hand him/her a clean copy of Enclosure 7 and tell him/her ____ UNSAT that it is current and complete.

COMMENTS:

STEP 2: Dispatch operator to restore available NV and NI pumps to an operating condition. (Enclosure 7, STEP 1.) ____ SAT

STANDARD: Operator dispatches an NLO to rack in the breaker for NI pump IB. The SRO desires this pump to be used per the Initial Conditions.

UNSAT

EXAMINER'S CUE: After 2 minutes (or immediately if using time compression), the NLO reports back that NI Pump is breaker is racked in.

COMMENTS:

CAUTION: Use of NV pump(s) or NI pump requires careful control to prevent over pressurizing the NC S stem.

STEP 3: If using available NV pump(s), then align SII flowpath to the cold legs as follows: (Enclosure 7, STEP 2). ____ SAT

STANDARD: Candidate should determine from the Initial Conditions that no NV pump is available. Step does not apply.

UNSAT

COMMENTS:

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.*

JPM I-2~SIM

Page 6 of 10

STEP4: Note:

- If NC level is off scale low, then use of a hot leg flowpath is ____ SAT preferred if readily available.
- If NC System is intact and level is on scale, then cold leg flowpath may be preferable for purposes of removing decay heat.

UNSAT

STANDARD: Operator determines that NC level indication on the Narrow Range and/or Mid Range level transmitters are on scale, and the NCS is not intact (vented thru 3" vent). Therefore, either path may be used, but Initial Conditions specify cold leg injection path.

***CUE: The Narrow Range and Mid Range NC level transmitters read 6.5%.*

COMMENTS:

STEP 5: If using available NI pumps, then establish S/I flow path from one NI pump as follows: (Step 3.b) ____ SAT

STANDARD: Operator determines from initial conditions that NI pump IA is unavailable. Concludes that NI pump B must be used.

UNSAT

COMMENTS:

STEP 6: Ensure INI-IOOB-OPEN. (Step 3.b.1) ____ SAT

STANDARD: Operator locates and verifies NI pump suction from FWST (INI-IOOB) has RED "OPEN" light LIT.

UNSAT

***CUE: The RED "OPEN" light for INI-IOOB is LIT, and the GREEN "CLOSED" light is DARK*

COMMENTS:

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.*

JPM I-2~SIM

Page 7 of 10

STEP 7: Ensure the following valves - OPEN

- 1NI-144A
- 1NI-147B (Step 3.b.2) SAT

STANDARD: Operator locates the NI pump mini-flow recirc valves and determines that the RED "OPEN" lights for INI-144A and 1NI-147B are LIT, and the GREEN "CLOSED" lights are DARK. ____ UNSAT

***CUE: The RED "OPEN" lights for INI-144A and 1NI-147B are LIT, and*

the GREEN "CLOSED" lights are DARK.

COMMENTS:

STEP 8: Start NI pump IB. (Step 3.a.3) CRITICAL
STEP

STANDARD: Operator depresses the red pushbutton for NI Pump 18 and
determines that the RED "ON" light is LIT. SAT

**CUE: The RED "ON" light for NI Pump IB is LIT and the GREEN "OFF"
light is DARK.

UNSAT

COMMENTS:

**Itajicized Cues Are To Be Used Only It JPM Performance Is Being Simulated.

JPM -2/SIM

Page 8 of 10

STEP 9: Align the S~I flowpath to either the hot legs or the cold legs as follows: CRITICAL

- Hot Leg STEP
- Open 1NI-152B SAT
- Cold Leg
- Open 1NI-150B UNSAT
- Open 1NI-162A

STANDARD: The operator decides to align the cold leg flowpath per the Initial
Conditions. (Step 3.b.4 cold legs)

Operator determines that 1NI-150B is currently "OPEN" by observing
the RED "OPEN" light is LIT and the GREEN "CLOSED" light is
DARK.

**CUE: The RED "OPEN" light far INI-150B IS LIT, the GREEN "CLOSED"
light is DARK.

Operator locates 1NI-162A, depresses the RED pushbutton, and
determines that the RED "OPEN" light for 1NI-162A is LIT, the
GREEN "CLOSED" light is DARK.

**CUE: The RED "OPEN" light for INI-162A is LIT, the GREEN "CLOSED"
light Is DARK

EXAMINER'S NOTE: This step completes the JPM and the operator may
stop at this point. If so go to JPM Step 12. JPM
Steps 10 and 11 of the JPM are for information in
the event the operator elects to complete Enclosure
7. (They are unused options).

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-2/SIM

Page 9 of 10

Step 10 IF desired to align FWST through IND-33 (ND Sys Rtn to FWST) to hot legs or cold legs for gravity feed, THEN perform the SAT following: (Step 4)

STANDARD: Operator determines gravity feed not desired due to NI pump 1 B being in service.
UNSAT

EXAMINER CUE: It is not desired to align the FWST for gravity feed.

COMMENTS:

Step 11 IF desired to align FWST through ND pump suction nozzles to hot legs for gravity feed, THEN perform the following: (Step 5) SAT

STANDARD: Operator determines gravity feed not desired due to NI pump 1B being in service.

UNSAT

EXAMINER CUE: It is not desired to align the FWST for gravity feed.

COMMENTS:

Step 12 Notify SRO that enclosure 7 of AP/IIA/5500/19 has been completed.
SAT

STANDARD: Operator notifies SRO that enclosure 7 of AP/1~A/5500/19 has been completed.

UNSAT

COMMENTS:

This JPM is complete.

TIME STOP: _____

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-2/SIM

Page 10 of 10

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are the Unit 1 OATC.

Unit 1 is in Mode 5 following core reloading.

The NCS was drained to mid-loop (7.25%) in preparation for vacuum refill operations.

ND train "A" was in service for decay heat removal. NCS temperature is 1 300F.

The NCS is vented through the 3" NCS head vent.

NI Pump IA is being overhauled, and is unavailable.

NV Pump IA breaker has been removed from the cubicle for breaker maintenance.

INITIATING CUE:

A leak has occurred in the ND piping in the auxiliary building, and APIIINSSOOI19 has been implemented.

The available NV Pump I B has failed to start.

NCS level is decreasing.

The ND pumps are OFF.

NCS temperature is rising.

The SRO desires you to makeup to the NC System using the NI System and injecting into the cold legs using AP111AI5500119, Enclosure 7. -

****Italicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.
JPM I-3ISIM**

Page1 of1

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM I-3151M

Verify Proper VX System Operation

CANDIDATE

EXAMINER

JPM 1-3/SIM
Page2 of1

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Alternate Path:

Yes: H2 Skimmer Fan IA does not start automatically.

Facility JPM #:

OP-CN-EP-CSF-002

KIA Rating(s):

028 A2.02 (3.4~34)

Task Standard:

HSF IA started manually and all other Vx fans and dampers are left in the proper alignment for greater than 3 psig in containment.

Preferred Evaluation Location: Preferred Evaluation Method:
Simulator x In-Plant _____ Perform X Simulate _____

References:

EPI1IA/5000/FR-Z.1 (Response to High Containment Pressure) Rev. 8
Validation Time: 6 mm. Time Critical: No

Candidate: _____ Time Start _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____
NAME SIGNATURE DATE

COMMENTS

JPM -SISIM
Page3of11

SIMULATOR SETUP SHEET

1. Select EOL 100% IC snap.
 2. Insert MAL-NCOI3A, (RCS Cold Leg A Leak), Severity Value = 20.
 3. Insert MAL-W003A1 (Hydrogen Skimmer Fan A Auto Failure)
 4. RUN simulator and perform the required actions of EPIE-0 and EPIE-1. The minimum run time will be that which allows 9 minutes to elapse after actuation of the Phase B isolation on containment pressure greater than 3 psig.
 5. After CSF Containment Integrity alarms orange perform steps 1-5 of EPIFR-Z.11 (Response to High Containment Pressure).
 6. Ensure that the key for VX fan IA is NOT left in the switch after each JPM.
 7. Place the simulator in FREEZE.
- B. Write to an AVAILABLE SNAP.
ICSELECIED 154

SIMULATOR OPERATOR INSTRUCTIONS:

None.

JPM 1-3/SIM
Page4of11

Ensure enough copies of EPI11A/5000/FR-Z.1 are available in the Simulator for each candidate.
Be sure a key is available to examiner for H2 Skimmer Fan 1A.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

A LOCA has occurred on Unit 1. Containment pressure exceeded 3 psig at 1015.

INITIATING CUES:

You have been directed to verify proper VX System operation per step S of EP/1/A/5000IFR-Z.1 (Response to High Containment Pressure). The time is now 1021.

JPM -3/SIM

Page Sof 11

START TIME: _____

- STEP 1: Verify proper VX System operation as follows:

Elapsed time since Phase B actuation - GREATER THAN 9
MINUTES. SAT

STANDARD: Candidate checks time at which Phase B actuation occurred and determines that 6 minutes have passed since the Phase B actuation. UNSAT
Transitions to Step 6.a RNO.

EXAMINER NOTE: Phase B occurs at 3 psig in containment.

**CUE: 6 minutes have elapsed since Phase B actuation

COMMENTS:

STEP 2: Perform the following:

1. When 9 minutes have elapsed, then perform steps 6.b through ____ SAT
6.d.

STANDARD: Operator determines that 3 more minutes must elapse prior to performing steps 6.b through 6.d. UNSAT

EXAMINER CUE: Current time is 1024.

COMMENTS:

STEP 3: Operator transitions to step 6.b A/ER column and continues..

SAT

STANDARD: Operator determines that 9 minutes have elapsed and transitions to step 6.b A/ER and continues.

COMMENTS: ____ UNSAT

EXAMINER NOTE: In JPM steps 4 through 7, it is acceptable for the candidate to determine equipment positions using the equipment indications on the rear of 1 MC-4. _____

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-3/SIM

STEP 4: Verify the following Containment Air Return Fan dampers ~PEN:

- ARF-D-2 _____ SAT
- ARF-DA

STANDARD: ARF-D-2:

- At 1MC-14 Monitor light 1MD-4, 1/5 LIT _____ UNSAT

"CUE: Monitor light IMD4 115 Lir

EXAMINER NOTE: If candidate uses equipment indication on rear of 1MCA:

- At rear of 1MC-4 RED "OPEN" light LIT and GREEN "CLSD" light DARK for ARF-D-2 switch

CUE: RED "OPEN" light LIT and GREEN "CLSD" light DARK for ARF-D-2 switch

STANDARD: ARF-D-4:

- At 1MC-14 Monitor light 1MD-4, I/Slit

- CUE: Monitor light IMDA, 118 LIT

EXAMINER NOTE: If candidate uses equipment indication an rear of 1 MCA:

- At rear of 1 MC-4 RED "OPEN" light LIT and GREEN "CLSD"

light DARK for ARF-D-4 switch

"CUE: RED "OPEN" light LIT and GREEN "CLSD" light DARK for ARF-DA switch

COMMENTS:

"Italicized Cues Are To Be Used Only If JPM Performance IS Being Simulated.

JPM I-3~SIM

PBge 7 of 11

STEP 5: Verify the following equipment alignment:

- 1VX-1Aopen _____ SAT
- 1VX-2B open

STANDARD: 1VX-1A:

- At 1MC-14 Monitor light 1MD-4, 116 LIT _____ UNSAT

**CUE: Monitor light IMDA ff6 LIT

EXAMINER NOTE: If candidate uses equipment indication on rear of 1 MCA:

- At rear of 1MC-4 RED, "OPEN" light LIT and GREEN "CLSD" light DARK for 1VX-1A switch

**CUE: RED "OPEN" light LIT and GREEN "CL SD " light DARK for 1W-1A

STANDARD: IVX-2B:

- At 1MC-14 Monitor light IMD-4, '7 LIT

****CUE:** Monitor light IMD4 Ia LIT

EXAMINER NOTE: If candidate uses equipment indication on rear of I MCA:

- At rear of 1 MC-4 RED, "OPEN" light LIT and GREEN "CLSD" light DARK for 1VX-2B switch.

****CUE:** RED "OPEN" light Lir and GREEN "CLSD" light DARK for 1W-2B

COMMENTS:

****Italicized Cues Are to Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-3/SIM

Pageflow 11

STEP 6: Verify Containment Air Return Fans on

- Containment Air Return Fan IA ___ SAT
- Containment Air Return Fan 1 B

STANDARD: Containment Air Return Fan IA:

- At 1MC-14 Monitor light 1MD-4, 113 LIT ___ UNSAT

****CUE:** Monitor light IMDA U3 LIT

EXAMINER NOTE: If candidate uses equipment indication on mar of 1 MCA:

- At rear of 1MC-4 RED indicating light LIT for ARF-IA switch.

****CUE:** RED "ON" light LIT and GREEN "OFF" light DARK for Containment Air Return Fan IA

STANDARD: Containment Air Return Fan 1 B:

- At 1MC-14 Monitor light IMD-4, 1/10 LIT

****CUE:** Monitor light IMD4 Ulo Lir

EXAMINER NOTE: If candidate uses equipment indication on mar of 1 MCA:

- At rear of 1 MC-4 RED indicating light LIT for ARF-1 B switch.

****CUE:** RED "ON" light LIT and GREEN "OFF" light DARK for Containment Air Return Fan IB

COMMENTS:

~¶ItaIicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.

JPM 1-3/SIM

Page 9 of 11

STEP 7 Verify H2 Skimmer Fans on

- H2 Skimmer Fan IA
- H2 Skimmer Fan IB SAT

STANDARD: H2 Skimmer Fan IA:

- At 1MC-14 Monitor light IMD-4, 114 DARK. ____UNSAT

**CUE: Monitor light IMD4 '14 DARK

EXAMINER NOTE: If candidate uses equipment indication on mar of I MCA:

- At rear of 1MC-4 GREEN OFF light LIT for HSF-1A switch

**CUE: RED "ON" light DARK and GREEN "OFF" light LIT for Hydrogen Skimmer Fan IA

Candidate determines Hydrogen Skimmer Fan IA is not operating as required and needs to be manually started per RNO

STANDARD: H2 Skimmer Fan IB:

- At 1MC-14 Monitor light IMD-4, 119 LIT.

**CUE: Monitor light IMD4 '19 LIT

:XAMINER NOTE: If candidate uses equipment indication on rear of i MCA:

- At rear of 1 MC-4 RED "ON" light LIT for HSF-1 B switch

**CUE: RED "ON" light LIT and GREEN "OFF" light DARK for Hydrogen Skimmer Fan IB

COMMENTS:

•r.Italicized Cues Are To Be Used Only If JPM Pedarmance Is Being Simulated.

JPM 1-3/SIM

Page 10 of 11

STEP 6: Manually start H2 Skimmer Fan IA. CRITICAL

STEP

STANDARD: Candidate obtains a key for Hydrogen Skimmer Fan IA. At the rear of

1MC-4, place key in key switch for HSF-IA and rotate to the "ON" position. Verify RED indicating light LIT.

SAT

"CUE: Key placed in key switch for HSF IA and rotated to the "ON" position RED "ON" light IS LIT, the GREEN "OFF" light is DARK

EXAMINER NOTE: Candidate may contact the WCC for a key or may choose to ____ UNSAT remove a key from another component. Either method is acceptable for current plant conditions. If candidate contacts the WCC, then supply a key to the candidate.

COMMENTS:

STEP 9: Verify containment air returns fans operate as containment pressure changes as follows: SAT

- If at anytime containment pressure is greater than 0.4 psig, then ensure containment air returns fans are on.
- If at anytime containment pressure is less than 0.3 psig, then ensure containment air return fans are off. ____ UNSAT

STANDARD: Candidate checks containment pressure and if greater than 0.4 psig states he would verify monitor lights IMD-4, 1/3 and 1/10 LIT (1MC-14) or RED "ON" lights on 1MC4 for containment air return fans IA and IB LIT.

If containment pressure is less than 0.3 psig states he would verify monitor lights 1MD-4, 1/3 and 1/10 DARK (1MC-14) or GREEN "OFF" lights on 1 MC4 for containment air return fans IA and 1 B LIT.

"CUE: Containment pressure is 2.5 psig.

EXAMINER NOTE: Plant conditions and this step only require the operator to monitor. He is not required to do anything else for this JPM.

COMMENTS:

This JPM is corn lete. _____

TIME STOP: _____

"Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-3/SIM

Page 11 of 11

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A LOCA has occurred on Unit 1. Containment pressure exceeded 3 psig at 1015.

INITIATING CUES:

You have been directed to verify proper Vx System operation per step 6 of EPIIIW500OIFR-Z.1 (Response to High Containment Pressure). The time is now 1021.

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-4/SIM

Page i of S

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM IAISIM

Borate the Reactor Coolant System to Satisfy Rod Insertion
Limits

CANDIDATE

EXAMINER

JPM 1-4/SIM

Page 2 of 8

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Borate the Reactor Coolant System per Enclosure 3 of API1/A/5500/03 (Load Rejection) and determine
allowable Rod Insertion Limits.

Alternate Path:

NO

Facility JPM #:

New JPM

K/A Rating(s):

004 A4.01 (3.8/3.9)

Task Standard:

Boration has been initiated per Enclosure 3 of AP/1/AI5500/03 and required rod height has been determined to

be approximately 70-80 steps on Bank 0 Per Section 2.4, Page 7 of the Core Operating Limits Report (COLR).

Preferred Evaluation Simulator:

Preferred Evaluation Perform

Simulator X

In-Plant _____

Perform X

Simulate _____

References:

AP/i/AI5500/03 (Load Rejection) Enclosure 3 Rev. 25

Cycle 12 Core Operating Limits Report Rev. 17

Validation Time: 10 mm. Time Critical: No

Candidate:

NAME

Time Finish: _____

Time Start: _____

Performance Rating: SAT _____

UNSAT _____

Question Grade _____

Performance Time _____

Examiner:

NAME

SIGNATURE

DATE

COMMENTS

JPM I-41S1M

Page 3 of B

SIMULATOR SETUP SHEET

1. Pick any 100% power IC set.
2. Place simulator in RUN.
3. Trip IA CF Pump.
4. Perform actions of APIOS.
5. Allow simulator to run until the plant is stable.
6. Freeze, and write to a snap.

SNAPNo.: 158

7. Place simulator in run when directed by the examiner.

SIMULATOR OPERATOR INSTRUCTIONS:

None.

JPM 1-4/SIM

Page 4 of 8

Tools/Equipment/Procedures Needed:

Ensure enough copies of Enclosure 3 to AP/1IA/5500103 are available in the Simulator for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room

steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are the Unit 1 OATC.

Unit 1 has experienced a Load Rejection due to the loss of IA Feedwater Pump.
AP/1/A15500103 (Load Rejection) is in progress.

Current power level is 63%.

The OAC is out of service.

INITIATING CUES:

The SRO instructs you to determine the rod insertion limit for the present power level and perform Enclosure 3 of API1IN5500~O3 (Load Rejection) to initiate boration.

JPM I-41s1M

Page 5 of 8

START TIME: _____

STEP 1: Obtain a copy of the appropriate procedure.

SAT

STANDARD: Operator obtains a copy of AP~1IA~5500I03.

EXAMINER'S CUE: When the candidate locates the appropriate procedure,
give him/her a copy of Enclosure 3 and tell him/her that ____ UNSAT
it is current and complete.

COMMENTS:

STEP 2: If the control rods cannot be maintained above the rod insertion limits
then:

SAT

IF OAC is available, THEN verify OAC point C1L4409 is in alarm

STANDARD: No action required. Initial conditions state that the OAC is out of
service

UNSAT

COMMENTS:

STEP 3: Determine Rod Insertion Limit for current power level.

SAT

STANDARD: Operator determines from the Unit 1 Core Operating Limits Report
(COLR) that the Rod Insertion Limit is 70-80 steps withdrawn on
Control Bank "D".

UNSAT

COMMENTS:

STEP 4: Ensure one NV Pump - ON

SAT

STANDARD: Operator determines that one NV Pump is in service

**CUE: The RED "ON" light for IB NV Pump is LIT and the GREEN "OFF" light is DARK
UNSAT

COMMENTS:

NOTE: A boration rate significantly higher than 30 gpm may have an undesired effect on power reduction.

STEP 5: Establish boric acid flow of greater than or equal to 30 GPM from the CRITICAL BAT as follows:

STEP

Ensure at least one Boric Acid Transfer Pump ON

SAT

STANDARD: Operator locates controls for Boric Acid Transfer Pumps and starts at least one pump by turning B/A XFR pump IA or IB switch to the on position and verifies RED "ON" light LIT.

UNSAT

**CUE: The RED "ON" light is LIT for Boric Acid Pump IA and the GREEN "OFF" light is DARK. The RED "ON" light is LIT for Boric Acid Pump IB and the GREEN "OFF" light is DARK

COMMENTS:

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-4/SIM

Page 7 of 8

STEP 6: Open the following valves

CRITICAL

- 1NV-238A
- 1NV-186A

STEP

STANDARD: Operator rotates the switches for 1NV-238A and 1NV-186A to the ____ SAT open position on IMC-11 and verifies that boration flow is greater than or equal to 30 gpm as indicated on 1 NVCR5450.

**CUE: The switch for 1NV-238A has been rotated to the open ____ UNSAT position. The RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK.

The switch for 1NV-186A has been rotated to the open position. The RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK.

COMMENTS:

STEP 7: When OAC point C1L4409 (Ctrl Bank Tech Spec Insertion Limit) CRITICAL

The SRO instructs you to determine the rod insertion limit for the present power level and perform Enclosure a of APIIINS500IO3 (Load Rejection) to initiate boration.

****Italicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.**

JPM -5/SIM
Page 1 of 7

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM I-5151M

Ensure Proper Feedwater Isolation Following a Reactor
Trip

CANDIDATE

EXAMINER

JPM 1-5/SIM
Page 2 of 7

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Ensure Proper Feedwater Isolation following a Reactor Trip per EPI11IN5000IES-0.1 (Reactor Trip Response).

Alternate Path:

Yes: 1CF-51 must be manually closed from the Control Room.

Facility JPM #:

OP-CN-CF-CF-001

K/A RatinQts):

059 A3.06 (3.213.3)

Task Standard:

Status lights for SIG A (B) (C) (D) CF Cont 1501 VIVs Cisci all lit and 1 CF-51 manually closed from i MC-2.
Preferred Evaluation Simulator: Preferred Evaluation Perform
Simulator X In-Plant _____ Perform X Simulate _____

--References:

Validation Time: 5 mm. Time Critical: No

Candidate: _____ Time Start: _____

NAME _____ Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____

NAME _____ SIGNATURE _____ DATE _____

COMMENTS

JPM 1-5/SIM
Page 3 of 7

SIMULATOR SETUP SHEET

1. Pick any t'AT POWER IC set.
3. Block manual CF isolation:
 - OVR-ISE006C DIGITAL VALUE = OFF
 - OVR~jSE-008C DIGITAL VALUE = OFF
4. Insert: VLV-CFO12A (CF-051 Feedwtr Cont Iso VIv Fail Auto Action)
5. Manually trip the Reactor and perform required actions of EPIE-O and EPIES-O.1 through step 5.
6. Acknowledge annunciators and write to a snap.

SNAPNo.: 157

SIMULATOR OPERATOR INSTRUCTIONS:

None.

JPM I-5~SIM
Page 4 of 7

Tools/Equipment/Procedures Needed:

Ensure enough copies of EP/1/A/5000/ES-O.1 for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

A Reactor Trip has occurred on Unit 1.

EPIIINSOOOIES-O.1 (Reactor Trip Response) has been implemented.

INITIATING CUES:

The CR SRO instructs you to verify feedwater status per step 6.

JPM I-5~SjM
Page 5 of 7

START TIME: _____

STEP 1: Verify feedwater status as follows:

SAT

STANDARD: No expectation. Examinee continues.

COMMENTS:

UNSAT

STEP 2: T-Avg-LESS THAN 5640F

SAT

STANDARD: "NC Loop A (B) (C) (D) Lo Tavg 1(11) (III) (IV)" status lights lit on 1SI-7
or NC Loop A, B, C, D Tave meters on 1MC-5 less than 5640 F.
1NCP5423, 1NCP5463, 1NCP55031 1NCP5543 OR Actioneered Hi
Tavg chart recorder (MC-1) less than 5540 F. ____ UNSAT

~CUE: T-Avg IS 560 F.

COMMENTS:

STEP 3: All Feedwater Isolation status lights (1SI-5) LIT.

SAT

STANDARD: "SIG A (B) (ID) CF CONT ISOL VLVS CLSD" status light lit and "SIG C
CF CONT ISOL VLVS CLSD" status light DARK on 151-5.

**CUE: SIG A, B, D, CF CONT ~SOL VLVS CLSD status lights on 151-5 are ____ UNSAT
Lir "SIG C CF CONT ISOL VLVS CLSD" status light on 151-5 is
DARK

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM -5/SIM

Page 6 of 7

STEP 4: Manually initiate Feedwater Isolation.

SAT

STANDARD: Depress CF Isolation "INITIATE" pushbuttons on 1MC-2. Examinee
verifies "INITIATE" light not LIT on CF Isolation switches.

**CUE: &G C CF CONT ISOL VLVS CLSD status light on ISI-5 is DARK ____ UNSAT
"INITIATE" lights on CF Isolation switches Train A and Train B are
DARK

COMMENTS:

STEP 5: If proper status light indication is not obtained, THEN manually close CRITICAL
valves. STEP

STANDARD: RED "OPEN" light LIT for 1CF-51. CLOSED pushbutton is depressed ____ SAT
and held until GREEN "CLSD" light LIT for 1CF-51. When 1CF-51
goes closed, the status light "SIG C CF CONT ISOL VLVS CLSD" will
light and should be noted.

UNSAT

**CUE: 1C~51 GREEN Closed light is LIT "BIG C CF CONT ISOL VLVS
CLSD" status light on ISI-5 is LIT

\$OMMENTS:

STEP 6: Total feed flow to SIG(s) - Greater than 450 gpm.
SAT

STANDARD: Verify total feed flow to SIG(s) - Greater than 450 gpm.

**CUE: "Total feed flow to BIG(s) is 800 gpm".

UNSAT

COMMENTS:

This JPM is corn lete.

TIME STOP: _____

**Italicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.

JPM 1-5/SIM

Page7of7

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A Reactor Trip has occurred on Unit 1

EPIIINSOOOIES-O.1 (Reactor Trip Response) has been implemented.

INITIATING CUES:

The CR SRO instructs you to verify feedwater status per step 6.

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-6/CR
Page 1 of 9

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM I-6/CR

Take Power Range Drawer Out of Service

CANDIDATE

EXAMINER

JPM I-6~CR
Page 2 of 9

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Remove Power Range Channel N-41 from service per API/AISSOOIS (Malfunction of Nuclear Instrumentation System), Case IV Power Range Malfunction.

Alternate Path:

NO

Facility JPM U:

OP-CN-IC-ENE-002

'A Rating(s):

015 A4.03 (3.8/3.9)

Task Standard:

Power Range Detector is NAI removed from service with Control Power fuses removed.

Preferred Evaluation Simulator: Preferred Evaluation Perform
Simulator X In-Plant _____ Perform X Simulate _____

References:

AP~1IA/55OOI16 (Malfunction of Nuclear Instrumentation System), Case IV Power Range
Malfunction Rev. IS

Validation Time: 10 mm.

Time Critical: No

Candidate:

NAME

Time Finish: _____

Time Start: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

COMMENTS

JPM 1-6/CR
Page 3 of 9

SIMULATOR SETUP SHEET

- 1 Place simulator on Run.
2. Insert MAL-ENBOIIA (Power Range Detector NAlA Failure), Severity Value = 100%.
3. Perform actions of API16 through step 5.
4. FREEZE simulator.
5. Write to Protected IC.

SNAP No.: 161

SIMULATOR OPERATOR INSTRUCTIONS:

None.

JPM 1-6/CR
Page 4 of 9

Tools/Equipment/procedures Needed:

Ensure enough copies of AP/11A/5500/16 for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit I is operating at 100% power.

NAI, Power Range, Upper IDetector has failed offscale high.

API1~A'5500116, Case IV, Power Range Malfunction, has been implemented.

INITIATING CUES:

The Control Room SRO instructs you to remove NAI from service per step 6 through 9 of Case IV of AP111AI5500116.

JPM 1-6/CR
Page 5 of 9

START TIME: _____

STEP 1: Perform the following actions at the Miscellaneous Control and CRITICAL

- Indication Panel: (Step 6) STEP
- Place the appropriate "ROD STOP BYPASS" switch to the affected channel position. SAT
 - Verify NUC OVER PWR ROD STOP CH BYP status light (ISI 19) for affected channel - LIT.
 - Place "POWER MISMATCH BYPASS" switch to the affected channel position. UNSAT

STANDARD: Locates Miscellaneous Control and Indication Panel and performs the following:

- Places ROD STOP BYPASS switch to BYPASS PRN41.

**CUE: The ROD STOP BYPASS switch is rotated to the BYPASS PRN*1 position.

* Locates ISI-19 and verifies NUC OVER PWR ROD STOP CH BYP status light for N-41 - LIT.

"CUE: The NUC OVER PWR ROD STOP CH BYP status light for N41 is Lit

- Places POWER MISMATCH BYPASS switch to BYPASS

PRN41.

"CUE: The POWER MISMATCH BYPASS switch is rotated to the BYPASS PRAMI position.

EXAMINER NOTE: * This step not critical.

COMMENTS:

**Italicized Cues Are to Be Used Only If JPM Performance Is Being Simulated.

JPM I-6ICR

Page 6 of 9

STEP 2: Perform the following actions at the Detector Current Comparator panel: (Step 7) STEP CRITICAL

- Place "UPPER SECTION" channel defeat switch to the affected channel. SAT
- Verify "CHANNEL DEFEAT" light for upper section-LIT.
- Place "LOWER SECTION" channel defeat switch to the affected channel.
- Verify "CHANNEL DEFEAT" light for lower section-LIT. UNSAT

STANDARD: Locates Detector Current Comparator Panel and performs the following:

- Places "UPPER SECTION" channel defeat switch to PR N41.

**CUE: The UPPER SECTION channel defeat switch is rotated to the PR 'WI position.

- Verify "CHANNEL DEFEAT" light for upper section lit

"CUE: The CHANNEL DEFEAT light for the upper section IS LIT

- Places "LOWER SECTION" channel defeat switch to PR N41.

"CUE: The LOWER SECTION channel defeat switch is rotated to the PR

"WI position.

- *Verify "CHANNEL DEFEAT" light lit for lower section.

"CUE: The CHANNEL DEFEAT light for the lower section is LIT

EXAMINER NOTE: * These steps are not critical.

COMMENTS:

"Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-6/CR

Page 7 of 9

STEP 3: At the Comparator and Rate panel, place the "COMPARATOR CHANNEL DEFEAT" switch to the affected channel position. (Step 8) CRITICAL STEP

STANDARD: Locates Comparator and Rate panel and places "COMPARATOR CHANNEL DEFEAT" switch to N41. ____ SAT

**CUE: the COMPARATOR CHANNEL DEFEAT switch is rotated to the 1441 position. ____ UNSAT

COMMENTS:

STEP 4: De-energize affected channel. (Step 9.a) CRITICAL

- Remove "CONTROL POWER" fuses at Power Range A drawer. STEP

SAT

STANDARD: Locates N41 Power Range Drawers:

- Remove fuses far enough to de-energize "CONTROL POWER".

UNSAT

**CUE: The CONTROL POWER fuse holders are rotated counter-clockwise and pulled out

COMMENTS:

NOTE: Replacement of the affected PIR control power fuses shall not occur without authorization of the Superintendent or his designee.

STEP 5: Request the OSM to maintain the "CONTROL POWER" fuses under his control. (Step 9.b) ____ SAT

STANDARD: Operator hands both "Control Power" fuses to the OSM to maintain under his/her control. ____ UNSAT

"EXAMINER CUE: OSM replies that he will keep the control power fuses in his possession.

COMMENTS:

•*Italicized Cues Are To Be Used Only If JPM Pedormance Is Being &'mulated.

JPM 1-6/CR

Page8of9

SAT

STEP 6: Verify the affected Power Range cabinet shows no physical signs of ____
damage. (Step 9.c)

STANDARD: Operator checks outside of the Power Range cabinet for signs of
damage. ____ UNSAT

*r•tCUE: rhe Power Range cabinet shows no sign of damage.

COMMENTS:

This JPM is corn lete.

TIME STOP: _____

~Itallcized Cues Are To Be Used Only It JPM Pedormance Is Being Simulated.

JPM 1-6/CR

Page 9 of S

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 is operating at 100% power.

NAI, Power Range, Upper Detector has failed ofiscale high.

AP~1IA'5500~16, Case IV, Power Range Malfunction, has been implemented.

INITIATING CUES:

The Control Room SRO instructs you to remove NAI from service per steps 6 through 9 of Case IV of APII 1AI550011 6.

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM I-7181M

Page 1 of 16

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM I-7151M

Transfer the Emergency Core Coolant System to Cold Leg
Recirculation

CANDIDATE

EXAMINER

JPM 1-7/SIM

Page 2 of 16

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Transfer the Emergency Core Coolant System to Cold Leg Recirculation per EP/i/A/5000/ES-1 .3 Crransfer to Cold Leg Recirculation)

Alternate Path:

Yes: 1 FW-27A does not fully close on Low FWST Level

Facility JPM #:

OP-CN-ECCS-Nt-058

K/A Rating(s):

006 A3.08 (4.2M.3)

Task Standard:

EP/1 ~N5000IES-1 .3 Transfer to Cold Leg Recirculation), steps 1 thm 6 are performed. The FWST is isolated with both NV and both NI pumps aligned and injecting fmm 18 ND pump prior to FWST level decreasing to less than 5% as read on the OAC. IAND pump is shutdown.

Preferred Evaluation Location: Preferred Evaluation Method:

Simulator X In-Plant _____ Perform X Simulate _____

References:

EP/1/A/5000/ES-1.3 Transfer to Cold Leg Recirculation) Rev. 11

Validation Time: 15 mm. Time Critical: Yes (prior to FWST level decreasinQ to less than 5%.~

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____
NAME SIGNATURE DATE

COMMENTS

JPM 1-7/SIM

Page 3 of 16

SIMULATOR SET-UP SHEET

1. Reset to any "at poweC IC Set.
2. Fail 1 FW-27A open by inserting VLV-FWOO2F, set Severity Value = .03.
3. Insert MAL-NCOI3A (Cold Leg Break LOCA), set Seventyvalue = 27.5.
4. Run the simulator until the FWST 2/4 10 level alarm is received, performing all required actions of EP/E-O and EPIE-1. Stabilize SIG levels etc. and acknowledge alarms.
5. Ensure ECCS and Sequencer are reset.
6. Ensure 1 NV-202B and 1 NV-203A closed.
7. FREEZE the simulator and write to a SNAP.
IC Selected 155

SIMULATOR OPERATOR INSTRUCTIONS:

Tools/Equipment/Procedures Needed:

Have enough copies of EP/1/AI5000/ES-1 .3 available for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

A LOCA has occurred on Unit 1.

The "FWST 2/4 LO LEVEL" annundator is lit.

INITIATING CUES:

The SRO instructs you, as the BOP, to transfer to Cold Leg Recirculation using EPIIIA/5000IES-1.3 (Transfer to Cold Leg Recirculation), steps I through 6.
THIS JPM IS TIME CRITICAL.

START TIME: _____

STEP 1: Monitor Enclosure I (Step 1)

SAT

STANDARD: Candidate acknowledges that Enclosure 1 must be monitored.

EXAMINER'S CUE: The OATC and Control Room SRO will monitor Enclosure 1.

UNSAT

EXAMINER NOTE: Normally the entire crew will monitor Enclosure i. For this manipulation, the OATC and the Control Room SRO will be expected to monitor Enclosure I while the BOP operator performs the procedure.

COMMENTS:

CAUTION: SII Recirculation flow to NC System must be maintained at all times.

STEP 2: Perform steps 3-8 without delay. CSF's should not be implemented prior to completion of these steps (Step 2)

SAT

STANDARD: Candidate completes JPM prior to FWST level decreasing to less than 5%.

UNSAT

COMMENTS:

STEP 3: Verify Containment Sump Level greater than 3.5 ft. (Step 3)

SAT

STANDARD: Checks sump level to be greater than 3.5 ft. (1N1P5260 or 1NIPS2TO or 1MICR-5340, 5350 pen 1 on 1MC-7).

****CUE:** Containment sump level is S feet ____ UNSAT

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-7/SIM

Pa eBofl6

STEP 4: Verify KC flow to ND heat exchangers - GREATER THAN 5000 ORM.
(Step 4) SAT

STANDARD: Checks KC Outlet Flow to NDHX1A and NDHXIB to be greater than 5000 gpm (1KCP5670 and 1KCP5680 on 1MC-7).

UNSAT

****CUE:** KC outlet flow to NDHX IA is greater than 5000 gpm. KC outlet flow to NDHX IB is greater than 5000 gpm.

COMMENTS:

STEP 5: Ensure S/I reset (Steps 5.a and 5.b) ____ SAT

- ECCS
- DIG load sequencers

STANDARD: Verify ECCS TRN A YELLOW "RESET" light LIT. (1MC-11). ____ UNSAT

Verify ECCS TRN B YELLOW "RESET" light LIT. (1MC-11).

Verify D/G IA LOAD SEQ YELLOW "RESET" light LIT.

Verify DIG IB LOAD SEQ YELLOW "RESET" light LIT.

****CUE:** ECCS Train A and ECCS Train B YELLOW reset lights are LIT.
DIG load sequencer Train A and Train B YELLOW reset lights are LIT.

COMMENTS:

STEP 5: If at any time a BIO occurs, then restart S/I equipment previously on. ____ SAT
(Step 5.c)

STANDARD: Examinee should evaluate step, determine that a BIO does not exist at this time and continue. ____ UNSAT

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance IS Being Simulated.**

JPM -7/SIM

Pa e7ofl6

STEP 7: Verify following valves - OPEN: (Step 6.a)
• INI-185A (ND Pump IA Cont Sump Suct) ____ SAT
• INI-184B (ND Pump IB Cont Sump Suct)

STANDARD: INI-185A RED "OPEN" light LIT, GREEN "CLSD" light DARK. ____ UNSAT

INI-184B RED "OPEN" light LIT, GREEN "CLSD" light DARK.
(1MC-11).

****CUE:** INI-185A RED "OPEN" light is LIT, GREEN "CLOSED" light is

DARK
INI-184B RED "OPEN" light IS LIT GREEN "CLOSED" light is
DARK

COMMENTS:

STEP 8: Verify following valves - CLOSED: (Step 6.b) SAT

- IFW-27A (ND Pump IA Suct From FWST)
- IFW-55B (ND Pump IB Suct From FW~

STANDARD: Observes that: ____ UNSAT

- IFW-27A GREEN "CLSD" light LIT and RED "OPEN" light LIT (1MC-II). (Valve is in intermediate position)
- IFW-55B GREEN "CLSD" light LIT and RED "OPEN" light DARK (IMC-I 1).

"CUE: 1FMA2TA GREEN "CLSD" light is LIT, Red "OPEN" light is LIT
IFVL455B GREEN "CLSD" light is LIT, RED "OPEN" light Is DARK

COMMENTS:

""Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-7/SIM

Pa eSofl6

STEP 9: Manually close affected valve (Step 6.b.1) RNO).

SAT

STANDARD: 1FW-27A GREEN "CLOSED" pushbutton is depressed. GREEN
"CLOSED" light is LIT, RED "OPEN" light remains LIT.

**CUE: 1FW-27A GREEN "CLOSED" pushbutton depressed. RED "OPEN" ____ UNSAT
light is LIT, GREEN "CLSD" light is LIT

EXAMINER NOTE: Operator may wait for up to a minute to determine valve will not
close due to long stroke time of this valve.

COMMENTS:

STEP 10: Stop associated ND Pump (Step 6.a.2)a)RNO). CRITICAL

STEP

STANDARD: ND Pump IA GREEN "OFF" pushbutton is depressed. GREEN "OFF"
light is LIT, RED "ON" light is DARK. SAT

"CUE: ND Pump IA GREEN "OFF" light is LIT and RED "ON" light is
DARK

UNSAT

COMMENTS:

STEP 11: Depress "DEFEAT" pushbutton for "C-LEG RECIR FWST TO CONT SUMP SWAP TRN A". (Step 6.b.2)b)RNO) CRITICAL
STEP

STANDARD: "DEFEAT" pushbutton for "C-LEG RECIRC FWST TO CONT SUMP SWAP TRN A" depressed. "ENABLE" light is DARK. ____ SAT

"CUE: "DEFEAT" pushbutton for "C-LEG RECIR FYIST TO CONT SUMP
SWAP TRN A" depressed "ENABLE" light is DARK ____ UNSAT

COMMENTS:

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM I-fSIM
Pa eSof16

STEP 12: Manually close 1NI-155A. (Step 6.b.2)c)RNO)
SAT

STANDARD: Depress 1NI-185A GREEN "CLOSE" pushbutton and verify GREEN
"CLSD" light LIT and RED "OPEN" light DARK for 1NI-185A.

**CUE: 1NI-185A GREEN "CLSD" light LIT. RED "OPEN" light DARK. ____ UNSAT

COMMENTS:

STEP 13: If both containment sump suction valves are closed, then
(Step 6.b.2)d)RNO) SAT

STANDARD: This step is not applicable examinee should continue in procedure.

COMMENTS: ____ UNSAT

STEP 14: Verify ND pumps - ON. (Step S.c)

SAT

STANDARD: ND Pump 1B RED "ON" light LIT (1MC-11).

ND Pump 1A GREEN "OFF" light LIT (1MC-11). Notes ND pump 1A
was stopped per guidance of step 6.b.2)a) RNO. The RNO does not ____ UNSAT
address this situation. Examinee should continue in A/ER column.

**CUE: ND Pump 1A RED "ON" light is DARK, the GREEN "OFF" light is
LIT. ND Pump 1B RED "ON" light is LIT, the GREEN "OFF" light is
DARK

COMMENTS:

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-7/SIM
Page 10 of i6

STEP 15: Isolate NI Pump miniflow as follows: (Step 6d.1)
Verify NC pressure - LESS THAN 1620 PSIG. ____ SAT

STANDARD: Candidate checks PLASMA displays on 1MC-1 or 1NCP5120 or
1NCP 5140 on IMC-5 and confirms current NC pressure is less than
1620 psig. UNSAT

**CUE: NC pressure IS S psig.

COMMENTS:

STEP 16: Close the following valves: (RNO 6.d.2) CRITICAL

- INI-I ISA (NI Pump IA Miniflow Iso) STEP
- INI-144A (NI Pump IB Miniflow Iso) SAT

STANDARD: Depress 1 NI-i ISA GREEN "CLOSE" pushbutton and verify GREEN "CLSD" light LIT and RED "OPEN" light DARK. (iMC-i 1).

Depress INI-144A GREEN "CLOSE" pushbutton and verify GREEN ____ UNSAT

"CLSD" light LIT and RED "OPEN" light DARK. (iMC-li).

**CUE: INI-115A GREEN "CLOSED" light is LIT and the RED "OPEN" light

is DARK INI-144A GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK

EXAMINER NOTE: Due to the valve configuration, only JPM step 16 or 18 needs to be completed correctly to meet the intent of the CRITICAL STEP. (i.e. If step 16 is completed satisfactorily, then step 18 is not CRITICAL).

COMMENTS:

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.
JPM 1-7/SIM

Page ii of 16

STEP 17: Place "PWR DISCON FOR INI-147B" switch in "ENABLE". (Step

6.d.3) SAT

STANDARD: Place the "PWR DISCON FOR INI-147B" switch to "ENABLE".

**CUE: "PWR DISCON FOR INI-147B" switch is rotated to the "ENABLE" position. UNSAT

COMMENTS:

STEP 18: Close INI-147B (NI Miniflow Hdr to FWST Isol). (Step 6.d.4) CRITICAL STEP

STANDARD: Depress INI-147B "CLOSE" pushbutton. Verify GREEN "CLSD" light LIT and RED "OPEN" light DARK (iMC-11). SAT

**CUE: Close pushbutton for INI-147B depressed. GREEN "CLOSED" light is LIT and RED "OPEN" light is DARK

UNSAT

EXAMINER NOTE: Due to the valve configuration, only JPM step 16 or 18 needs to be completed correctly to meet the intent of the CRITICAL STEP. (i.e. If step 16 is completed satisfactorily, then step 18 is not CRITICAL).

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 1-7/SIM

Pa ei2ofl6

STEP 19: Close the following valves: (Step G.e) CRITICAL

- 1ND-32A (ND Train IA Hot Leg Inj Isol) STEP

- 1ND-65B (ND Train IB Hot Leg Inj Isol)

SAT

STANDARD: Depress 1ND-32A GREEN "CLOSE" pushbutton. Verify GREEN "CLSD" light LIT and RED "OPEN" light DARK (IMC-1).

Depress 1ND-65B GREEN "CLOSE" pushbutton. Verify GREEN ____ UNSAT "CLSD" light LIT and RED "OPEN" light DARK (IMC-1).

****CUE:** IND42A GREEN "CLOSED" pushbutton depressed The GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK
IND-65B GREEN "CLOSED" pushbutton depressed. The GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK

EXAMINER NOTE: Either valve closed provides train separation and meets the intent of the CRITICAL STEP.

COMMENTS:

STEP 20: Verify at least one of the following NV pumps miniflow valves -

CLOSED: (Step 6.0 SAT

- I NV-203A (NV Pumps A&B Recirc Isol)

or

- I NV-202B (NV Pumps A&B Recirc 1501)

UNSAT

STANDARD: INV-203A GREEN "CLSD" light LIT and RED "OPEN" light DARK. (IMC-10)

INV-202B GREEN "CLSD" light LIT and RED "OPEN" light DARK. (IMC-10)

****CUE:** INV-203A GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK INV-202B GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated**

JPM 1-7/SIM

Pa el3ofl6

STEP 21: Align ND train discharges to NI and NV pump suctions as follows: CRITICAL

Open the following valves: (Step 6.g.1) STEP

- INI-332A (NI Pump Suct X-Over from ND)
- INI-333B (NI Pump Suct from ND) ____ SAT

STANDARD: Depress 1NI-332A RED "OPEN" pushbutton. Verify RED "OPEN" light LIT and GREEN "CLSD" light DARK. (1MC-11)

UNSAT

Depress 1NI-333B RED "OPEN" pushbutton. Verify RED "OPEN" light LIT and GREEN "CLSD" light DARK. (1MC-11)

"CUE: INI-332A RED "OPEN" pushbutton is depressed. The RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK
INI-333B RED "OPEN" pushbutton is depressed. The RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK

COMMENTS:

STEP 22: Ensure 1NI-334B (NI Pump Suct X-over From ND) - OPEN. (Step 6.g.2) ____ SAT

STANDARD: Verify 1NI-334B RED "OPEN" light LIT and GREEN "CLSD" light DARK. (1MC-11).

UNSAT

"CUE: 1NI-334B RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK

COMMENTS:

"Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM I-7ISIM

Pa el4ofl6

STEP 23: Open the following valves: (Step 6.g.3) CRITICAL

- IND-28A (ND Supply To NV & IA NI Pmps) STEP
- INI-136B (ND Supply To NI Pump IB).

SAT

STANDARD: Depress 1IND-28A RED "OPEN" pushbutton. Verifies RED "OPEN" light DARK and GREEN "CLSD" light remains LIT. (1MC-II).

Depress 1INI-136B RED "OPEN" pushbutton. Verify RED "OPEN" light ____ UNSAT
LIT and GREEN "CLSD" light DARK. (1MC-II).

**CUE: The RED "OPEN" pushbutton for IND-28A is depressed. The RED "OPEN" light is DARK and the GREEN "CLOSED" light is LIT
The RED "OPEN" pushbutton for INI-136B is depressed. The RED "OPEN" light is LIT and the GREEN "CLOSED" light is DARK.

EXAMINER NOTE: IND-28A will not open due to interlock with INI-185A.

COMMENTS:

STEP 24: Isolate FWST from NV and NI pumps as follows: (Step 6.h) CRITICAL

- Place "PWR DISCON FOR INI-IOOB" switch in "ENABLE". STEP
- Close INI-IOOB (NI PMPS SUCTION FROM FWST).

SAT

STANDARD: Place the "PWR DISCON FOR INI-IOOB" switch in "ENABLE".

Depress INI-IOOB GREEN "CLOSE" pushbutton.

Verify GREEN "CLSD" light LIT and RED "OPEN" light DARK.

(IMC11). _____ UNSAT

****CUE:** "PWR DISCON FOR INI-IOOB" Is rotated to the "ENABLE" position.

The GREEN "CLOSE" pushbutton is depressed. The GREEN "CLOSED" light is LIT and the RED "OPEN" light is DARK.

COMMENTS:

****Jtalkized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

'1PM -VISIM

Pa el5oflG

STEP 25: Close the following valves: (Step 6.h.3)

CRITICAL

- INV-252A (NV Pumps Suction From FWST)

STEP

- INV-253B (NV Pumps Suction From FWST)

SAT

STANDARD: Depress INV-252A GREEN "CLOSE" pushbutton. Verify GREEN

"CLSD" light LIT and RED "OPEN" light DARK. (IMC-10).

Depress INV-253B GREEN "CLOSE" pushbutton. Verify GREEN _____ UNSAT

"CLSD" light LIT and RED "OPEN" light DARK. (IMC-10).

****CUE:** The GREEN "CLOSED" pushbutton for INV-252A is depressed.

The GREEN "CLOSED" light is LIT and the RED "OPEN" light is

DARK. The GREEN "CLOSED" pushbutton for INV-253B is

depressed. The GREEN "CLOSED" light is LIT and the RED

"OPEN" light is DARK.

COMMENTS:

STEP 26: Verify proper recirc flow as follows: (Step 6.i)

- "NV S/I FLOW" - INDICATING FLOW _____ SAT

- NI pumps - INDICATION FLOW

- ND pumps - INDICATING FLOW

STANDARD: Verify "NV S/I FLOW" (INVP60SO on 1MC-5). _____ UNSAT

Verify NI pump discharge flows (1N1P5450 and 1N1P5120 on 1MC-11)

Verify ND Pump IB indicates flow (IMC-II)

Observes ND Pump IA has no discharge flow (IMC-1I).

****CUE:** NV S/I flow indicates flow

NI Pump A indicates flow

NI Pump B indicates flow

ND Pump IA indicates no flow

ND Pump IB indicates flow

COMMENTS:

This JPM is complete.

TIME STOP: _____ FWST LEVEL: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A LOCA has occurred on Unit 1.

The "FWST 2/4 LO LEVEL" annunciator is lit.

INITIATING CUES:

The SRO instructs you, as the BOP, to transfer to Cold Leg Recirculation using EPI11A'SOOOIES-1 .3 (Transfer to Cold Leg Recirculation), steps I through 6.
THIS JPM IS TIME CRITICAL.

Transfer HVAC Control to ULOCALPI Following Control
Room Evacuation

CANDIDATE

EXAMINER

JPM 1-8/PLANT
Page 2 of 10

CATAWEA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Transfer HVAC Control to "LOCAL" following Control Room Evacuation per AP/1/A/5500/17 (Loss of
Control Room), Endorsement 5.

Alternate Path:

NO

Facility JPM #:

OP-CN-CP-RSS-003

KIA Rating(s):

013 A4.02 (4.3/4.3)

Task Standard:

Both trains of VCIYC shifted to "LOCAL" and 'B' train VC/YC placed in operation, and 'A1 and 'B' train VA have
been verified in operation using AP/1/A/5500/17 (Loss of Control Room), Endorsement 5.

Preferred Evaluation Location: Preferred Evaluation Method:

Simulator___ In-Plant X Perform Simulate X

References:

AP/1/A/5500/17, (Loss of Control Room), Endorsement 5 Rev. 42

Validation Time: 27 mm. Time Critical: No

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner: _____
NAME SIGNATURE DATE

COMMENTS

'1PM I-B/PLANT

Page 3 of 10

SIMULATOR SET-UP SHEET

1. N/A

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

JPM I-B/PLANT
Page 4 of 10

Tools/Equipment/Procedures Needed:

Have enough copies of Enclosure 5 of APII/AI550011 7 available for each candidate.
READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All steps shall be simulated for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

"A" train VCIYC is out of service fo condenser tube cleaning.

A fire has occurred that causes a Control Room evacuation.

INITIATING CUES:

You am the Auxiliary Building operator and am directed by the ASP IA operator to perform Enclosure 5 of APIIIA'55001i7 (Loss of Control Room).

You are to ensure "B" train VCYC equipment and "A" and "B" train VA equipment am operating.

JPM 1-5/PLANT
Page 5 of 10

START TIME: _____

STEP 1: Provide a copy of Enclosure 5 HVAC Actions to the candidate. ____ SAT

STANDARD: None

COMMENTS: UNSAT

STEP 2: Verify Train A VC'YC desired to be started in "LOCAL".

SAT

STANDARD: Examinee should determine from initiating cue that "B" train is to be placed in service (per step 1 RNO) and proceeds to Step 5 of End. 5.

COMMENTS: UNSAT

STEP 3: Place "VC'YC AHU TRAIN B" switch to "LOCAL". (STEP 5.a) CRITICAL
STEP

STANDARD: VCIYC AHU TRN B switch on 2ELCPOO58 (AB-594, HH-58, Rm 580) turned to the "LOCAL" position. ____ SAT

**CUE: VOJYC AHU mN B switch turned to the "LOCAL" position.

COMMENTS: UNSAT

STEP 4: Place "VC/YC AHU TRAIN S1" switch to "ON". (STEP 5.b) CRITICAL
STEP

STANDARD: VCIYC AHU TRN B on/off switch positioned to the "ON" position. RED "ON" light is LIT above local control switch on 2ELCPOO5B. ____ SAT

**CUE: Vayc AHU TRN B on/off switch is in the "ON" position. The RED "ON" light is LIT

UNSAT

COMMENTS:

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM I-B/PLANT
Pa eSoflo

- VC'YC AHU Train B "ON" _____ SAT
- 2CRA-AHU-1 "ON"
- 2CR-AHU-1 "ON"
- 1SWGR-AHU-2 "ON"
- 2SWGR-AHU-2 "ON" _____ UNSAT
- 1SWGR-AHUA "ON"
- 2SWGR-AHU-4 "ON"

- RED "ON" status light LIT
- RED "ON" status light LIT, left panel, third row
- RED "ON" status light LIT, left panel, third row
- RED "ON" status light LIT1 left panel, first row
- RED "ON" status light LIT, left panel, first row
- RED "ON" status light LIT, left panel, first row
- RED "ON" status light LIT, left panel, first row

****CUE: RED "ON" status light is Lir for each AHU.**

STEP 6: After 2 minutes, verify 2CRA-P-1 - ON. SAT

****CUE:** 2 minutes have passed, RED "ON" light is Lir UNSAT

COMMENTS:

JPM -BIPLANT

STEP 7: Place "VC'YC AHU Train A" switch to "LOCAL". (STEP 6.a) CRITICAL STEP

STANDARD: VC/YC AHU TRN A switch on 1ELCPOO58 (AB 594, HH-56, RM 570) turned to the "LOCAL" Position. SAT

COMMENTS: UNSAT

SAT

COMMENTS: UNSAT

****Italicized Cues Are to Be Used Only If JPM Performance Is Being Simulated.**

JPM I-B/PLANT

Page 8 of 10

STEP 9: Verify VA equipment in operation: (STEP 7)

- "AUXILIARY BLDG. SUPPLY UNIT 1A" (ABSU-1A) - ON ____ SAT
(1 ELCPO1 11)
- 'AUXILIARY BLDG. SUPPLY UNIT 1B" (ABSU-1B) - ON
(1ELCPO111) ____ UNSAT
- AUX. BLDG. UNFILTERED EXHAUST FAN 1A (ABUXF-1A) -
ON (1ELCPO111)
- 'AUX. BLDG. UNFILTERED EXHAUST FAN 1B (ABUXF-1B) -
ON (1ELCPO111)
- AUX. BLDG. FILTD EXH FAN 1A" (ABFXF-1A) - ON
(1 ELCPO1 12)
- AUX. BLDG. FILTO EXH FAN 1 B" (ABFXF-1 B) - ON
(1ELCPO113)
- 'AUXILIARY BLDG. SUPPLY UNIT 2A" (ABSU-2A) - ON
(2ELCPO1 11)
- 'AUXILIARY BLDG. SUPPLY UNIT 2B" (ASSU-2B) - ON
(2ELCPO1 11)
- AUX. BLDG. UNFILTERED EXHAUST FAN 2A" (ABUXF-2A)
-ON (2ELCPO111)
- "AUX. BLDG. UNFILTERED EXHAUST FAN 2B" (ABUXF-2B)
-ON (2ELCPO111)
- "AUX. BLDG. FILTD EXH FAN 2A" (ABFXF-2A) - ON
(2ELCPO1 12)
- AUX. BLDG. FILTD EXH FAN 2B" (ABFXF-2B) - ON
(2ELCPO1 13)

STANDARD: Indication on each panel:

- ABSU-1A Red "ON" light lit on left panel on 1 ELCPO1 11
- ABSU-1 B Red "ON" light lit on left panel on 1 ELCPO1 11
- ABUXF-1A Red "ON" light lit on right panel on 1ELCPO111
- ABUXF-1B Red "ON" light lit on right panel on 1ELCPO111
- ABFXF-1A Red "ON" light lit on right panel on 1ELCPO1 12
- ABFXF-1B Red "ON" light lit on 1ELCPO113
- ABSU-2A Red "ON" light lit on left panel on 2ELCPO1 11
- ABSU-2B Red "ON" light lit on left panel on 2ELCPO1 11
- ABUXF-2A Red "ON" light lit on right panel on 2ELCPO1 11
- ABUXF-2B Red "ON" light lit on right panel on 2ELCPO1 11
- ABFXF-2A Red "ON" light lit on right panel on 2ELCPO1 12
- ABFXF-2B Red "ON" light lit on 2ELCPO1 13

****CUE: RED "ON" light Lir for each fan.**

COMMENTS:

*****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.
JPM I-S/PLANT

Pa e9ofiO

STEP 10: Notify ASP operator (x5549, x5548) status of VCIYC and VA
equipment. _____ SAT

STANDARD: Call ASP operator (5549 or 5548) and reports that B Train VC/YC is in
service, and that A and B Train VA equipment is in operation.

UNSAT

**CUE: This is the ASP Operator I understand that B Train VCPYC and A
and B Train VA are operating.

COMMENTS:

This JPM is complete.

TIME STOP: _____

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.
JPM I-8~PLANT

Page 10 of 10

INITIAL CONDITIONS:

A fire has occurred that causes a Control Room evacuation.

It has been reported that "A" train VC/YC has failed to start and can't be started.

INITIATING CUES:

You are the Auxiliary Building operator and are directed by the ASP IA operator to perform Enclosure 5 of AP111AI5500117 (Loss of Control Room).

You are to ensure "B" train VCIYC equipment and "A" and "B" train VA equipment are operating.

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM -9/PLANT

Page 1 of 11

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 1-9/PLANT

Shutdown Battery Charger I ECA

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Shutdown Charger IECA per OP/11A/63501008 (125 VDC/120 VAC Vital Instrument and Control Power

System), Enclosure 4.5

Alternate Path:

No

Facility JPM #:

OP-CN-EL-EPL-1 16

K'A Rating(s):

063 Ki .03 (2.9/3.5))

Task Standard:

Battery Charger IECA is shutdown. OP/1/A/63501008, End. 4.5 is complete through step 2.12.

Preferred Evaluation Location: Preferred Evaluation Method:

Simulator ____ In-Plant X Perform Simulate X

References:

OP/i IA/63501008 (125 VDC/120 VAC Vital Instrument and Control Power System), Enclosure 4.5.
Rev. 041

Validation Time: 15 mn. Time Critical: No

Candidate: _____ Time Start: _____

NAME Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Question Grade ____ Performance Time ____

Examiner: _____
NAME SIGNATURE DATE

COMMENTS

JPM I-S/PLANT

Page 3 of 11

SIMULATOR SET-UP SHEET

1. N/A

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

JPM I~9/PLANT
Page 4 of 11

Tools/Equipment/Procedures Needed:

Have enough copies of Enclosure 4.5 of OPI1/A/6350/008 and procedure limits and precautions available for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is operating at 100% power.

Battery Charger 1 IECA needs to be removed from service for PMs.

Independent Verification (IV) requirements are waived during the performance of this JPM

INITIATING CUES:

The SRO instructs you to shutdown Battery Charger IECA per Enclosure 4.5 of OPI1~AI6350IQ08 (125 VDC/2Q VAC Vital Inst. And Control Power System).

JPM 1-9/PLANT
Page 5 of 11

STARTTIME: _____

~STEP 1: Review Limits and Precautions. (Step 1.1)

SAT

STANDARD: Limits and Precautions of OPI1~AI63501008 are reviewed.

EXAMINER NOTE: Candidate determines NOTE following step 1.1 does not apply and continues. _____ UNSAT

COMMENTS:

STEP 2: Verify IECS is aligned per End. 4.3 or 4.4 of OPI1/A16350/OO8.
(Step 1.2) SAT

STANDARD: Candidate checks Control Copy of procedure for completed Enclosure 4.3 or 4.4.

UNSAT

EXAMINER'S CUE: Once the candidate has verified that a completed Enclosure 4.3 or 4.4 is in the Control Copy of the procedure, inform him that IECS is aligned per Enclosure 4.3.

I-CUE: Completed Enclosure 4.3 is filed in Control Copy at procedure

COMMENTS:

STEP 3: Verify IECA is aligned per End. 4.1 of OPI1/A163501008. (Step 1.3)

SAT

STANDARD: Candidate checks Control Copy of procedure for completed Enclosure 4.1.

UNSAT

I-CUE: Completed Enclosure 4.1 is filed in Control Copy of procedure.

COMMENTS:

STEP 4: Obtain Kirk-key #695 from WCC. (Step 1.4)

SAT

STANDARD: Operator obtains key #695 from the Work Control Center.

**CUE: Key #695 obtained from WCC.

UNSAT

EXAMINER NOTE: Once the candidate demonstrates the ability to obtain the key, inform him that the key has been obtained.

COMMENTS:

STEP 5: Perform T.S. assessment for battery charger IECA being removed from service. (Step 2.1) ____ SAT

STANDARD: Candidate contacts an SRO and requests the SRO to perform the Tech Spec Assessment.

UNSAT

"CUE: SPO has logged IECA in TSAIL and initiated step 21.

COMMENTS:

STEP 6: If IECS is aligned to IEMXJ (trains cross-connected), perform the following: (Step 2.2) ____ SAT

- Ensure a TSAIL entry is made requiring the completion of this Enclosure before entering Mode 6 from NO Mode.
- Declare 1RNLT7400 and ORNLT73~O inoperable. ____ UNSAT

STANDARD: Candidates determines that IECS was verified to be aligned to 1 EMXA per Step 1.2 of the procedure.

"CUE: IECS is not aligned to IEMKJ and SRO has WA 'd and initiated Sep 2.2

COMMENTS:

**Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM I-9IPLANT

Pa e7ofll

STEP 7: Notify IAE to support 1 ECA shutdown. (Step 2.3)

SAT

STANDARD: Candidate notifies the WCC SRO to initiate Model W/O 91003522.

"CUE: WOC notified to initiate Model W/O #91003522.

UNSAT

COMMENTS:

STEP 8: Verify the appropriate breaker to IECS is closed. (Step 2.4)

STANDARD: Candidate verifies IEMS-FOiB is closed. (Incoming BKR from MCC 1 EMXA-FO4A Feeder A). ____ SAT

"CUE: Breaker IEMS-FOiB is in the "ON" position.

UNSAT

COMMENTS:

STEP 9: I&E adjusts 1 ECS charger output voltage to a value of 0.75 volts to 1.25 volts below the terminal voltage of 1 EBA. (Step 2.5) ____ SAT

STANDARD: Candidate does not continue in the procedure until IAE support has arrived.

UNSAT

"CUE IAE has just arrived. Voltage has been adjusted to a value of 0.75 to 1.25 volts below the terminal voltage of battery IEBA, and IAE has initiated step 2.5.

COMMENTS:

"Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

JPM 1-9/PLANT

Pa eSofil

STEP 10: Ensure IEDS-FOiB (Feeder to 01st centers IEDA and IEDC) is CRITICAL
closed. (Step 2.6) STEP

STANDARD: Kirk-key inserted and turned clockwise. Breaker IEDS-FOiB rotated ___ SAT
clockwise to the "ON" position.

""CUE: Kirk-key inserted and turned clockwise. Breaker IEDS-FOiB
rotated clockwise to the "ON" position. ___ UNSAT

EXAMINER NOTE: Candidate should evaluate NOTES prior to step 2.6 and
determine the second note is not applicable.

COMMENTS:

STEP 11: Close IEDA-FO3B. (125 VOC Bus IEDA TIE BKR to 125V0C Bus CRITICAL
IEOC). (Step 2.7) STEP

SAT

STANDARD: Breaker IEDA-FO3B rotated clockwise to the "ON" position.

""CUE: Breaker IEDA-FO3B rotated clockwise to the "ON" position.
UNSAT

COMMENTS:

STEP 12: Open the "DC OUTPUT" breaker on IECA. (Step 2.8) CRITICAL
STEP

STANDARD: IECA DC output breaker pushed down to "OFF".
___ SAT

""CUE: IECA DC output breaker is in the "OFF" position.

COMMENTS:

UNSAT

*t*Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.*

JPM 1-9/PLANT

Pa eSofil

STEP 13: IAE adjusts output voltage on IECS to 2.21 times the lowest number
of connected cells. (Step 2.9) ___ SAT

tsTANDARD: Candidate determines that IEBA is aligned to the bus and informs the
IAE technician to adjust the output voltage on IECS to 2.21 times the
lowest number of connected cells on IEBA. ___ UNSAT

""CUE: Voltage is 221 times the lowest number of connected cells and IAE
has initiated step 2 a

COMMENTS:

STEP 14: Verify IECS is supplying power to distribution center IEDA. SAT
(Step 2.10)

STANDARD: Candidate checks DC output ammeter on IECS reading above zero
amps and Bus IEDA voltage between 130 and 135 volts. ____ UNSAT

""CUE: IEDA voltage is 132 Volts and IECS output IS 15 amps.

COMMENTS:

STEP 15: Open IEDA-FO3A (Battery charger IECA). (Step 2.11)CRITICAL
STEP

STANDARD: Breaker IEDA-FO3A rotated counterclockwise to the "OFF" position.
SAT

""CUE: Breaker IEDA-FO3A rotated counterclockwise to the "OFF"
position.

COMMENTS: ____ UNSAT

""italicized Cues Are to Be Used Only If JPM Performance Is Being Simulated.

JPM 1-9/PLANT

Pa eloofli

STEP 16: Open "IACA INPUT" breaker on IECA. (Step 2.12) CRITICAL

STEP

STANDARD: IECA AC input breaker pushed down to "OFF" position.

SAT

""CUE: IECA AC input breaker in the "OFF" position

COMMENTS:

UNSAT

This JPM is complete.

TIME STOP: _____

*****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

JPM 1-9/PLANT

Page 11 of 11

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 is operating at 100% power.

Battery Charger 1 ECA needs to be removed from service for PMs.

Independent Verification (IV) requirements are waived during the performance of this JPM.

INITIATING CUES:

The SRO instructs you to shutdown Battery Charger iECA per Enclosure 4.5 of OPI1~N635OIO08 (125 VDC/112Q VAC Vital Inst. And Control Power System).

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM II-8IPLANT

Start the Hydrogen Recombiner

CANDIDATE

EXAMINER

JPM 11-5/Plant
Page 2 of 13

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Start a Unit 2 Hydrogen Recombiner per 0P121A/6450/O10 (Containment Hydrogen Control Systems),
Enclosure 4.10

Alternate Path:

Yes: Failed power supply to H2 recombinder 2A.

Facility JPM #:

OP-CN-CNT-VX-020

KIA Rating(s):

028 A2.02 (3.5/3.9)

Task Standard:

Hydrogen Recombiner 2B is in service with Power Adjust POT set to greater than 60 KW.

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator _____ In-Plant _____ X

Perform _____ Simulate X

References:

x

OP~2/A/6450/010 (Containment Hydrogen Control Systems), Enclosure 4.10. Rev. 019A

OP/2/A/6700/001 (Unit Two Revised Data Book), Figure 10. Rev. 0

Validation Time; 25 mm. Time Critical: No

Candidate:

NAME

Time Finish: _____

Time Start _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____

Examiner:

NAME

SIGNATURE

DATE

COMMENTS

SIMULATOR SETUP SHEET

1. N/A

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

Tools/Equipment/Procedures Needed:

Enough copies of OP/2/A/64501010, Enclosure 4.10 for each candidate.

READ TO OPERATOR

DIRECTIONS TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All in-plant steps, including any required communications, shall be simulated for this JPM. Under no circumstances are you to operate any plant equipment. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

You are a spare Unit 2 Ra.

A Unit 2 LOCA has occurred.

EP/2/A/5000/FR-C.1 (Response to Inadequate Core Cooling) has been initiated due to a Red Path on core cooling.

FR-C.1 is complete to Step 5.d.

Containment H₂ concentration is 1.5%.

INITIATING CUES:

The SRO directs you to place a Hydrogen Recombiner in service at the required power level per OP/2/A16450/010 (Containment Hydrogen Control Systems)

Notify the Control Room SRO once the Hydrogen Recombiner is in service.

START TIME: _____

STEP 1. Obtain a copy of the appropriate procedure.

STANDARD: Operator obtains a copy of OPI2/AI6450~010, Enclosure 4.10 ____ SAT

EXAMINER'S CUE: When the candidate locates the appropriate procedure, give him/her a copy and tell him/her that it is current and complete.

UNSAT

COMMENTS:

STEP 2: Review the Limits and Precautions. (Step 1.1)

STANDARD: Candidate reviews Limits and Precautions and determines that the

2.6, 2.9, and 2.10 are applicable. _____ SAT

EXAMINER'S CUE: If the candidate asks if coordination with the TSC and OSC has taken place per Limit and Precaution 2.9, inform him that it has. _____ UNSAT

COMMENTS:

STEP 3: Verify operation of the Hydrogen Recombiner is required per appropriate emergency procedures. (Step 1.2)

STANDARD: Candidate notes from the Initial Conditions that EPI2/A~5000IFR-C.1 (Response to Inadequate Core Cooling) is in progress. _____ SAT

COMMENTS:

UNSAT
JPM II-B/Plant
Page 6 of 13

STEP 4: Request RP coverage due to increasing radiation levels at Hydrogen Recombiner panels during a LOCA. (Step 1.3)

STANDARD: Candidate notifies RP and records the name of the technician notified in the blank in step 1.3 _____ SAT

EXAMINER'S CUE: This is Darrell Hutton. RP will provide coverage for placing the Hydrogen Recombiner in service. _____ UNSAT

COMMENTS:

STEP 5: If not already running, start the H2 skimmer fans per Enclosure 4.13 (Emergency Manual Operation of the H2 Skimmer Fans). (Step 2.1)

SAT

STANDARD: Candidate checks that the H2 Skimmer Fans 2A and 2B are running by confirming that the Red ON lights are LIT.

EXAMINER'S CUE: H2 Skimmer Fans 2A and 2B are in operation. _____ UNSAT

COMMENTS:

STEP 6: Measure and record containment H2 concentration for use in Step 2.3.9 of this enclosure. (Step 2.2) _____ SAT

STANDARD: Operator determines per the initial conditions that H2 concentration is 1.5%, and records that value in the space provided in Step 2.2.

UNSAT

COMMENTS:

JPM 11-8/Plant
Page 7 of 13

STEP 7: CAUTION:

If H2 concentration is greater than 6%, do not energize Hydrogen Recombiners unless TSC approval has been obtained. _____ SAT

STANDARD: Examinee notes that Initial Condition stated H2 concentration is 1.5% and the CAUTION does not apply. _____ UNSAT

COMMENTS:

EXAMINER'S NOTE: Per the procedure NOTE, it is preferable to start H2

recombiner 2A. If the candidate chooses to start 2B, cue him/her to start H2 recombiner 2A.

STEP 8: Place Hydrogen Recombiner 2A in service; perform the following at Hydrogen Recombiner Control Pnl 2A (2ELCPO139). (Step 2.3) ____ SAT

1. Ensure the "POWER OUT SWITCH" is in the "OFF" position;
2. Ensure the "POWER ADJUST" potentiometer is set to zero (000);
and ____ UNSAT
3. Verify that the white "POWER IN AVAILABLE" light is lit.

STANDARD: Operator confirms that the "POWER OUT SWITCH" is in the "OFF" position and the "POWER ADJUST" pot is set to 000, but the WHITE "POWER IN AVAILABLE" light is DARK.

EXAMINER'S CUE: The "POWER OUT SWITCH" is in the "OFF" (down) position and the "POWER ADJUST" pot is set to 000. The WHITE "POWER IN AVAILABLE" light is DARK.

COMMENTS:

JPM II-B/Plant
Pages of 13

STEP 9: If the light is DARK1 ensure that the appropriate breaker is in the "ON" position. (Step 2.3.4) STEP CRITICAL

STANDARD: Operator locates breaker 2EMXK-FO7C, and simulates verifying it is "ON" by noting the operator points to ON and the locking device is pushed in. SAT

Operator determines that the 2EMXK-FO7C operator points to the "OFF" position, and simulates pushing in locking device in, and rotating the breaker clockwise to the "ON" position. UNSAT

EXAMINER'S CUE: When the candidate locates 2EMXK-FO7C, the 2EMXK-FO7C operator points to the "OFF" position.

When the candidate simulates pushing the breaker locking device in, and rotating the operator clockwise to the "ON" position, the 2EMXK-FO7C operator moves back to the TRIP position (will not stay "ON").

COMMENTS:

EXAMINER'S NOTE: The candidate will either decide on his own to start H2 recombiner 2S, or simulate contacting the control room, in which case cue him/her to start H2 recombiner 2B.

EXAMINER'S NOTE: JPM STEPS 11 - 15 cannot be performed unless STEP 10 is properly completed.

JPM II-BiPlant
Page 9 of 13

STEP 10: Place Hydrogen Recombiner 2B in service; perform the following at Hydrogen Recombiner Control Pnl 2B. (Step 2.3) ____ SAT

1. Ensure the "POWER OUT SWITCH" is in the "OFF" position;
2. Ensure the "POWER ADJUST" potentiometer is set to zero (000);
and ____ UNSAT
3. Verify that the white "POWER IN AVAILABLE" light is LIT.

STANDARD: Operator determines that the "POWER OUT SWITCH" is in the "OFF" position, the "POWER ADJUST" potentiometer is set to "Zero" (000), and the WHITE "POWER IN AVAILABLE" light is LIT.

EXAMINER'S CUE: The "POWER OUT SWITCH" is in the "OFF" position and the "POWER ADJUST" pot is set to 000. The WHITE "POWER IN AVAILABLE" light is LIT.

COMMENTS:

STEP 11: If the light is DARK, ensure that the appropriate breaker is in the "ON" position. SAT

~TANDARD: Examinee determines that this step does not apply and continues.

COMMENTS: _____ UNSAT

STEP 12: Place the "POWER OUT SWITCH" in the "ON" position and verify that the red indicating light is lit. (Step 2.3.5) STEP CRITICAL

STANDARD: Operator pushes up the "POWER OUT SWITCH" to the "ON" position and verifies the "RED" light on the switch plate is LIT. _____ SAT

EXAMINER'S CUE: The "POWER OUT SWITCH" is pushed up, and the "RED" light on the switch plate is LIT. _____ UNSAT

COMMENTS:

JPM 11-8/Plant

Page 10 of 13

STEP 13: Slowly turn the "POWER ADJUST" potentiometer clockwise until 5KW is indicated on the "POWER OUT" meter. Maintain a 5KW output for STEP 10 minutes. (Step 2.3.6) CRITICAL

SAT

STANDARD: Operator simulates adjusting the "POWER ADJUST" potentiometer clockwise until the "POWER OUT" meter rises to 5KW.

EXAMINER'S CUE: As the "POWER ADJUST" pot is adjusted clockwise, show that the "POWER OUT" meter rises to 5KW. _____ UNSAT

** CUE: 10 minutes have elapsed.

COMMENTS:

STEP 14: Slowly advance the "POWER ADJUST" setting until an output of 10KW is indicated on the "POWER OUT" meter. Maintain a 10KW output for 10 minutes. (Step 2.3.7) STEP CRITICAL

SAT

STANDARD: Operator simulates adjusting the "POWER ADJUST" pot clockwise until the "POWER OUT" meter rises to 10KW.

UNSAT

EXAMINER'S CUE: As the "POWER ADJUST" pot is adjusted clockwise, show that the "POWER OUT" meter rises to 10KW.

**CUE: 10 minutes have elapsed.

COMMENTS:

JPM II-B/Plant

Page 11 of 13

STEP 15.. Advance the "POWER ADJUST" setting until an output of 20KW is obtained on the "POWER OUT" meter. Maintain a 20KW output for 5 minutes. (Step 2.3.8) STEP CRITICAL

SAT

STANDARD: Operator simulates adjusting the "POWER ADJUST" pot clockwise until the "POWER OUT" meter rises to 20KW.

UNSAT

EXAMINER'S CUE: As the "POWER ADJUST" pot is adjusted clockwise, show that the "POWER OUT" meter rises to 20KW.

**CUE: 5 minutes have elapsed.

COMMENTS:

STEP 16: Request the SRO or NCO to determine the Hydrogen Recombiner power setting using Figure 10 from OP12/A/6700/001, Unit Two Revised Data Book. (Step 2.3.9) _____ SAT

STANDARD: Operator simulates contacting the control room to determine the power setting for Hydrogen Recombiner 2B, and determines that 60KW is the correct setting. _____ UNSAT

Operator determines that due to H2 concentration in step 2.2 = 1.5%, it is not required to add 4KW to the 60KW.

EXAMINER'S CUE: This is the Unit 2 SRO (Bill). The power setting for H2 Recombiner 2B is 60KW.

COMMENTS:

JPM li-S/Plant

Page 12 of 13

STEP 17: Advance the "POWER ADJUST" setting until the "POWER OUT" meter indicates the value calculated in Step 2.3.9. (Step 2.3.10) STEP CRITICAL

STANDARD: Operator simulates adjusting the "POWER ADJUST" pot clockwise until the "POWER OUT" meter rises to 60KW. 1 ____ SAT

EXAMINER'S CUE: As the "POWER ADJUST" pot is adjusted clockwise, show that the "POWER OUT" meter rises to 60KW. ____ UNSAT

COMMENTS:

STEP 18: Notify the NCO that Hydrogen Recombiner 2B is now in service. (Step 2.3.11)

SAT

STANDARD: Candidate simulates calling the Control Room and reports that Hydrogen Recombiner 2B is in service.

EXAMINER'S CUE: This is the Unit 2 SRO (Bill). I understand that Hydrogen Recombiner 2B is in service. ____ UNSAT

COMMENTS:

This JPM is complete.

STOP TIME:

JPM II-S/Plant

Page 13 of 13

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

You are a spare Unit 2 RO.

A Unit 2 LOCA has occurred.

EPI21N5000IFR-C.i (Response to Inadequate Core Cooling) has been initiated due to a Red Path on core cooling.

FR-C.1 is complete to Step S.d.

Containment H₂ concentration is 1.5%.

INITIATING CUE:

The SRO directs you to place a Hydrogen Recombiner in service at the required power level per OPI21AI6450IOiO (Containment Hydrogen Control Systems)

Notify the Control Room SRO once the Hydrogen Recombiner is in service.

JPM II-aISIM

Page 1 of 5

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

JPM 11-6 SIM

Emergency Borate the Reactor Coolant System

CANDIDATE

EXAMINER

JPM 11-6/SIM
Page 2 of 9

CATAWBA
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Emergency Borate the Reactor Coolant System.
Alternate Path:

Yes

Facility JPM #:

OP-CN-PS-NV-01 7
K~A Rating(s):

004 A4.18 (4.3M.1)
Task Standard:

One NV pump running with its suction aligned to the FWST.
Preferred Evaluation Location: Preferred Evaluation Method:
Simulator___ In-Plant X Perform ___ Simulate X

References:

EP/i/AI5000/FR-S.1, (Nuclear Power Generation/ATWS) step 4.

Validation Time: 6 Minutes Time Critical: No

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Question Grade _____ Performance Time _____
Examiner I

NAME SIGNATURE DATE

COMMENTS

JPM 11-6/SIM
Page 3 of 9

SIMULATOR SETUP SHEET

1. Reset to any 50% IC set.

2. Insert MAL-IPX03A and IPX03B, to disable the reactor trip breakers.
3. Fail NV-236B closed by inserting VLV-NVO43F, SET = 0.
4. Insert MAL-EHC-001
5. Complete all actions of EPIE-0 to step 4 of EPIFR-S.1.
6. FREEZE simulator and write to a SNAP.

SNAPNo.: 162

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

JPM II-6~SIM
Page 4 of 9

Tools/Equipment/procedures Needed:

Clean copy of EP/1/A/5000~FR-S.1 for each candidate.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

CANDIDATE CUE SHEET (TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The reactor has failed to trip from 100% power on a valid trip signal.
The immediate actions of EPI1IA/5000IFR-S.1 have been performed.
Attempts to open the reactor trip breakers have failed.
The OATC is manually inserting control rods.

INITIATING CUE:

The SRO directs you to emergency borate the reactor coolant system per EP/1/A/5000IFR-S.1 (Nuclear Power Generation/ATWS) Step 4.

JPM ti-GISIM
Page 5 of 9

START TIME: _____

STEP 1: Ensure at least one NV pump 'tON'. (Step 4.a.)

SAT

STANDARD: Candidate verifies RED "ON" light lit for "NV PMP 1A" or "1 B" (1MC-10).

**CUE: The RED "ON" light for NV pump 18 is LIT and the GREEN ____ UNSAT
"OFF" light is DARK.

COMMENTS:

STEP 2: Open 1NV-23eB (Boric Acid to NV Pump Suction). (Step 4.b.)

STANDARD: Candidate depresses RED "OPEN" pushbutton for INV-236B, ____ SAT
identifies RED "OPEN" light dark and GREEN "CLSD" light lit (1MC-10). Determines INV-236B will not open and continues in the procedure.

UNSAT

**CUE: The RED "OPEN" light for INV-236B is DARK and the GREEN "CLOSED" light IS LI~

COMMENTS:

STEP 3: Ensure both Boric Acid Transfer Pump switches: IN THE "ON" POSITION. (Step 4.c.) ____ SAT

STANDARD: Candidate rotates switches for "B~A XFER PMP IA" and "1 B" to "ON". Verifies RED indicating light lit for each pump switch.

UNSAT

**CUE: The switch for "WA XFER PMP IA" has been rotated to the "ON" position. The RED "ON" light is LIT and the GREEN "OFF" light is DARK.
The switch for "WA XFER PMP IB" has been rotated to the "ON" position. The RED "ON" light is LIT and the GREEN "OFF" light is DARK.

COMMENTS:

**Itajicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.
JPM 11-6/SIM
Page 6 of S

STEP 4: Verify emergency boration flow greater than or equal to 30 gpm. (Step 4.d.)

SAT

STANDARD: Candidate identifies "EMER BORATE FLOW" (1NVP5440) indicates 0 gpm (1MC-5). Goes to RNO action.

**CUE: "EMER BORATE FLOW" on INV P5440 Indcates 0 gpm. ____ UNSAT

COMMENTS:

STEP 5: Align NV Pump suction to the FWST as follows: (Step 4.d.1) RNO)
Open the following valves: CRITICAL
• 1 NV-252A (NV Pumps Suct From FWST) STEP
• 1 NV-253B (NV Pumps Suct From FWST)

STANDARD: Candidate depresses RED "OPEN" pushbutton for 1NV-252A. ____ SAT
Verifies RED "OPEN" light lit and GREEN "CLSD" light dark.

Candidate depresses RED "OPEN" pushbutton for 1NV-253B. Verifies

RED "OPEN" light lit and GREEN "CLSD" light dark. ____ UNSAT

**CUE: The RED "OPEN" light for INV-252A is LIT and the GREEN "CLOSED" light is DARK.

The RED "OPEN" light for INV-253B is LIT and the GREEN "CLOSED" light is DARK.

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.**

JPM 11-6/SIM

Page 7 of 9

STEP 6: Close the following valves: (Step 4.d.2) RNO) CRITICAL

- 1NV-188A (VCT OTLT ISOL) STEP
- 1NV-189B (VCT OTLT ISOL)

STANDARD: Candidate depresses GREEN "CLOSE" pushbutton for 1NV-1SBA. ____ SAT
Verifies GREEN "CLSD" light lit and RED "OPEN" light dark.

Depresses GREEN "CLOSE" pushbutton for 1NV-189B. Verifies

GREEN "CLSD" light lit and RED "OPEN" light dark ____ UNSAT

****CUE:** The GREEN "CLOSED" light is LIT. for INV-188A and the
RED "OPEN " light is DARK

The GREEN "CLOSED" light is LIT for INV-1 SOB and the
RED "OPEN " light is DARK.

COMMENTS:

STEP 7: Verify charging line isolation valves open: (Step 4.e.)

- 1NV-312A (Chrg Line Cont Isol).
- 1NV-314B (Chrg Line Cont Isol). ____ SAT

STANDARD: Candidate verifies RED "OPEN" light LIT and GREEN "CLSD" light
DARK for INV-312A (1MC-10).

UNSAT

Candidate verifies RED "OPEN" light LIT and GREEN "CLSD" light
DARK for INV-314B (1MC-10).

****CUE:** RED "OPEN" light LIT and GREEN "CLSD" light DARK for
INV-312A (1MC-10).

RED "OPEN" light LIT and GREEN "CLSD" light DARK for
INV-314B (1MC-10).

COMMENTS:

****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

JPM 11-6/SIM

Page 8 of 9

STEP 8: Verify PZR Pressure less than 2335 psig. (Step 4.f.)

STANDARD: Verifies PZR pressure instruments (1NCP5161, 1NCP5150 ____ SAT
1NCP5170, 1NCP5171) indicates less than 2335 psig (1MC-10).

COMMENTS:

UNSAT

TIME STOP: _____

*•italicized Cues Are To Be Used Only If JPM Pedormance Is Being Simulated.

JPM II-GISIM

Page 9 of 5

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The reactor has failed to trip from 100% power on a valid trip signal.
The immediate actions of EPI11AI50OWFR-S.i have been performed.
Attempts to open the reactor trip breakers have failed.
The OATC is manually inserting control rods.

INITIATING CUES:

The SRO directs you to emergency borate the reactor coolant system per
EPI1~N5000IFR-S.1 (Nuclear Power GenerauonlAlwS) Step 4.

*****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***