

Catawba Nuclear Station
JPM A
Sep. 2013 NRC Exam

JPM A

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EVALUATION SHEET

Task: Establish NC system Bleed and Feed per EP/1/A/5000/FR-H.1

Alternate Path: Yes -

Facility JPM #: NC-046

Safety Function: 4P **Title:** Reactor Coolant System

K/A 002 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of heat sinks

Rating(s): 4.3 / 4.6 **CFR:** 41.5 / 43.5 / 45.3 / 45.5

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator X In-Plant _____ Perform X Simulate _____

References: EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink) rev. 41

Task Standard: Aligns S/I feed path using NI and NV pumps and opens 1NC-32B and 1NC-34A PZR PORVs to establish NC system bleed path

Validation Time: 10 minutes **Time Critical:** Yes _____ No X

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Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

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COMMENTS

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #169.
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	XMT-NV011 FNV_6080 BORON INJ FLOW TO DCS/MCB/OAC (NVAA6080)	0				
	MAL-CA003A CAPT SA2 FAILS TO START	Active				
	MAL-CA003B CAPT SA5 FAILS TO START	Active				
	MAL-CA004A FAILURE OF CA PUMP A TO START	Both				
	MAL-CA004B FAILURE OF CA PUMP B TO START	Both				
	MAL-NI001B NI PUMP B FAILURE	Auto				
	OVR-ISE043 SAFETY INJECTION INITIATE PB TRN B	Off				
	MAL-ISE002B (AUTO SI TRN B FAILS TO ACTUATE)	Active				

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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 due to a loss of both Main Feedwater pumps.
- The CA system will not function.
- Attempts to restart the Main CF pumps have been unsuccessful.
- EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink) has been entered due to a "RED PATH" for the Heat Sink critical safety function while performing EP/1/A/5000/ES-0.1 (Reactor Trip Response).
- Bleed and Feed initiation criteria have been met.

INITIATING CUES:

- The CRS instructs you to initiate NC system bleed and feed per steps 19-24 of EP/1/A/5000/FR-H.1. Inform the CRS when the bleed and feed path has been initiated and verified.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of EP/1/A/5000/FR-H.1 pages 27-35.

Catawba Nuclear Station
JPM A
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 19. Perform Steps 20 through 24 quickly to establish NC heat removal by NC bleed and feed.</p> <p><u>STANDARD:</u></p> <p>Applicant acknowledges this step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 20. Ensure all NC pumps - OFF.</p> <p><u>STANDARD:</u></p> <p>Applicant ensures the NC pumps are off.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 3</u> 21. Initiate S/I.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> Applicant depresses the red train 'A' and 'B' "SAFETY INJECTION INITIATE" pushbuttons and verifies the red "SAFETY INJECTION ACTUATED" status light is lit on 1SI-13 or "ECCS TRN A" yellow reset light is dark on 1MC-11. </div> <p>This step is critical to start the NI pump and align the valves required for initiating an NC system feed path.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 4</u> 22. Verify NC System feed path as follows:</p> <p style="padding-left: 40px;">a. Verify the following pumps - ON:</p> <ul style="list-style-type: none"> • At least one NV pump • At least one NI pump. <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> Applicant determines that at least one NV pump and one NI pump are running. </div> <p><u>EXAMINER NOTE:</u> Applicant may start 1B NI pump and 1B NV pump at this time due to it being a failed auto action. If not, the procedure will direct starting these pumps in the upcoming steps.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5</u> 22 b. Verify "NV S/I FLOW" – INDICATING FLOW.</p> <p><u>STANDARD:</u></p> <p>Applicant determines that 1NVP6080 (NV S/I FLOW) on 1MC-3 indicates 0 GPM and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 6</u> 22 b. RNO Perform the following:</p> <p>1) Ensure the following pumps - ON:</p> <ul style="list-style-type: none"> • NV Pumps • NI Pumps. <p><u>STANDARD:</u></p> <p>Applicant ensures that all NV pumps and NI pumps are running by depressing the red ON pushbuttons for any non running pump, and verifying the red ON lights are lit and green OFF lights are dark for all pumps.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 7</u> 22 b. RNO 2) <u>IF</u> at least one NV pump in service, <u>THEN</u> perform the following:</p> <p>a) Ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NV-252A (NV Pumps Suct From FWST) • 1NV-253B (NV Pumps Suct From FWST). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant verifies the red OPEN lights lit and green CLSD lights dark on 1NV-252A and 1NV-253B.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8</u> 22 b. RNO 2) b) Ensure the following valves - CLOSED:</p> <ul style="list-style-type: none"> • 1NV-188A (VCT Otlt Isol) • 1NV-189B (VCT Otlt Isol). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant determines that the green CLSD light is lit and red OPEN light is dark on 1NV-188A. Applicant determines that the green CLSD light is dark for 1NV-189B, and depresses the green CLOSE pushbutton and verifies the green CLSD light is lit and the red OPEN light is dark</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 9</u> 22 b. RNO 2) c) Ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NI-9A (NV Pmp C/L Inj Isol) • 1NI-10B (NV Pmp C/L Inj Isol). <p><u>STANDARD:</u></p> <p>Applicant determines the red OPEN light is lit and green CLSD light is dark on 1NI-9A. Applicant determines that the red OPEN light is dark for 1NI-10B, and depresses the red OPEN pushbutton and verifies the red OPEN light is lit and the green CLSD light is dark.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10</u> 22 b. RNO 3) <u>IF</u> NI Pump 1A is in service, <u>THEN</u> ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NI-103A (NI Pump 1A Suct) • 1NI-118A (NI Pump 1A C-Leg Inj Isol) • 1NI-162A (NI To C-Legs Inj Hdr Isol) • 1NI-100B (NI Pmps Suct From FWST). <p><u>STANDARD:</u></p> <p>Applicant determines that the red OPEN lights are lit and green CLSD lights are dark on valves 1NI-103A, 1NI-118A, 1NI-162A, and 1NI-100B.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 11</u> 22 b. RNO 4) <u>IF</u> NI Pump 1B is in service, <u>THEN</u> ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NI-135B (NI Pump 1B Suct) • 1NI-150B (NI Pump 1B C-Leg Inj Isol) • 1NI-162A (NI To C-Legs Inj Hdr Isol) • 1NI-100B (NI Pmps Suct From FWST). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant verifies that the red OPEN light is lit and green CLSD light is dark on valves 1NI-135B, 1NI-150B, 1NI-162A, and 1NI-100B.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 12</u> 22 b. RNO 5) <u>IF</u> no feed path can be aligned, <u>THEN</u> perform the following:</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant determines that a feed path does exist and this step is N/A.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 13</u> 23. Establish NC System bleed path as follows:</p> <p style="padding-left: 40px;">a. Ensure all Pzr PORV isolation valves - OPEN.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant determines the RED lights are lit and GREEN lights are dark on valves 1NC-31B, 1NC-35B, and 1NC-33A.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14</u> 23 b. Select "OPEN" on the following PZR PORVs:</p> <ul style="list-style-type: none"> • 1NC-34A (PZR PORV) • 1NC-32B (PZR PORV). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant rotates switches for 1NC-34A and 1NC-32B, clockwise to the OPEN position and verifies RED lights are lit and GREEN lights are dark on both valves.</p> <p>This step is critical because it establishes an NC system Bleed path.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM A

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 15</u> 23 c. Align N₂ to Pzr PORVs by opening the following valves:</p> <ul style="list-style-type: none"> • 1NI-438A (Emer N₂ From CLA A To 1NC-34A) • 1NI-439B (Emer N₂ From CLA B To 1NC-32B). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant depresses the red OPEN pushbutton and verifies red OPEN light lit and green CLSD light dark on valves 1NI-438A and 1NI-439B.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16</u> 23 d. Verify power to all Pzr PORV isolation valves - AVAILABLE.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant verifies indicating lights lit on 1NC-31B, 1NC-35B, and 1NC-33A.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM A
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 17</u> 24. Verify the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NC-31B (PZR PORV Isol) • 1NC-32B (PZR PORV) • 1NC-33A (PZR PORV Isol) • 1NC-34A (PZR PORV). <p><u>STANDARD:</u></p> <div style="background-color: #e0e0e0; padding: 5px; margin: 10px 0;">Applicant verifies lights on 1NC-31B, 1NC-32B, 1NC-33A and 1NC-34A indicate OPEN.</div> <p><u>COMMENTS:</u></p> <p style="text-align: center; margin-top: 20px;">END OF TASK</p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

READ TO APPLICANT

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INITIAL CONDITIONS:

- **A reactor trip has occurred on Unit 1 due to a loss of both Main Feedwater pumps.**
- **The CA system will not function.**
- **Attempts to restart the Main CF pumps have been unsuccessful.**
- **EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink) has been entered due to a “RED PATH” for the Heat Sink critical safety function while performing EP/1/A/5000/ES-0.1 (Reactor Trip Response).**
- **Bleed and Feed initiation criteria have been met.**

INITIATING CUES:

- **The CRS instructs you to initiate NC system bleed and feed per steps 19-24 of EP/1/A/5000/FR-H.1. Inform the CRS when the bleed and feed path has been initiated and verified.**

Catawba Nuclear Station
JPM B
Sep. 2013 NRC Exam

JPM B

Catawba Nuclear Station
JPM B
Sep. 2013 NRC Exam

EVALUATION SHEET

Task: Restore Power to 1ETA from Offsite per EP/1/A/5000/ECA 0.0 Enclosure 7.

Alternate Path: Yes

Facility JPM #: EP-010

Safety Function: 6 **Title:** Electrical

K/A 062 A4.01 Ability to manually operate and/or monitor in the control room: All breakers (including available switchyard)

Rating(s): 3.3 / 3.1 **CFR:** 41.7 / 45.5 / to 45.8

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator ☒ In-Plant _____ Perform ☒ Simulate _____

References: EP/1/A/5000/ECA-0.0 (Loss OF All AC Power), Encl. 7, rev. 047

Task Standard: Restore normal offsite Power to 1ETA from the switchyard.

Validation Time: 15 minutes **Time Critical:** Yes _____ No ☒

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Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

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COMMENTS

Catawba Nuclear Station

JPM B

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #170
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	MAL-DG001A (DG 1A FAILS TO START)	Active				
	MAL-DG001B (DG 1B FAILS TO START)	Active				
	MAL-EQB003A (LOSS OF D/G 1A SEQUENCER CTRL PWR)	Active				
	MAL-EQB003B (LOSS OF D/G 1B SEQUENCER CTRL PWR)	Active				
	LOA-EP067 (600V LC ELXA BKR ELXA-4B)	Closed	10			2
	LOA-EP069 (600V LC ELXC BKR ELXC-4B)	Closed	20			2
	OVR-ISE043 SAFETY INJECTION INITIATE PB TRN B	Off				
	Open switchyard PCBs					
	Ensure load shed is complete.					

Catawba Nuclear Station 2013 NRC Exam JPM B

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INITIAL CONDITIONS:

- Unit One has experienced a Loss of All AC power.
- It is desired to restore normal power to 1ETA from offsite through 1ATC.
- The TCC has verified adequate switchyard voltage and grid reliability.
- The load shed of 1ETA has been completed and all lockout relays on 1ETA have been reset.

INITIATING CUES:

You have been directed to align Normal power to 1ETA by completing Enclosure 7 [Aligning Normal Power to 1ETA (1ATC)] of EP/1/A/5000/ECA-0.0, (Loss of All AC Power).

EXAMINER NOTE: After reading initiating cue, provide the applicant with a copy of EP/1/A/5000/ECA-0.0 Enclosure 7, [Aligning Normal Power to 1ETA (1ATC)].

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Catawba Nuclear Station 2013 NRC Exam JPM B

START TIME: _____

STEP 1: 1. **Verify the following 1ETA lockout relays - RESET:**

- 86N (1ETA 03 Cubicle)
- 86B (1ETA 03 Cubicle)
- 86S (1ETA 04 Cubicle)
- 86D (1ETA 19 Cubicle).

STANDARD:

Applicant determines that the lockout relays are reset based on the initiating cue or by asking.

Examiner Cue: If asked, 1ETA lockout relays are reset.

COMMENTS:

___ SAT

___ UNSAT

STEP 2 2. **IF AT ANY TIME** it becomes apparent this enclosure will not be successful, **THEN** perform the following:

- a. Notify Control Room Supervisor of status.
- b. **RETURN TO** Section C. (Operator Actions), Step 18.

STANDARD:

Applicant acknowledges the step

COMMENTS:

___ SAT

___ UNSAT

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 3</u> 3. <u>IF</u> 1ATC energized, <u>THEN GO TO</u> Step 15.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant determines that 1ATC is not energized.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 4</u> 4. <u>IF</u> 6.9 KV buss 1TA energized, <u>THEN GO TO</u> Step 14.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant determines that 1TA is not energized.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 5</u> 5. <u>IF</u> transformer 1T2A energized, <u>THEN GO TO</u> Step 13.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant determines that 1T2A is not energized.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 6</u> 6. Notify Transmission Control Center (TCC), using one of the following methods, to coordinate attempts to restore power:</p> <ul style="list-style-type: none"> • Outside line: <ul style="list-style-type: none"> • 704-382-9404 • 704-382-9411 • 704-382-4413 • 704-382-9403 • 704-399-9744 • Two-way radio. <p><u>STANDARD:</u></p> <p>Applicant notifies the TCC using any of the listed methods</p> <p><u>Examiner Cue:</u> Repeat back information provided by applicant.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u> 7. Notify TCC to verify adequate switchyard voltage and grid reliability.</p> <p><u>STANDARD:</u></p> <p>Applicant determines adequate switchyard voltage and grid reliability based on the initiating cue or by contacting the TCC.</p> <p><u>Examiner Cue:</u> If asked, The TCC has verified adequate switchyard voltage and grid reliability</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 8</u> 8. Ensure both main transformer MODs - CLOSED.</p> <p><u>STANDARD:</u></p> <p>Applicant determines that both main transformer MODs are closed</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9</u> 9. Verify both turbine generator breakers - OPEN.</p> <p><u>STANDARD:</u></p> <p>Applicant determines both generator breakers are open</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 10</u> 10. Prepare the 6.9 KV busses for power restoration as follows:</p> <p>a. Dispatch operator to ensure breakers for all de-energized motor loads on following 6.9 KV busses - OPEN:</p> <ul style="list-style-type: none"> • 1TA • 1TB • 1TC • 1TD. <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant dispatches operator to open all de-energized motor loads on all 6.9 KV busses.</p> <p style="background-color: yellow;">Examiner Cue: Operators have been dispatched.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 11</u> 10 b. Place switches for the following pumps in the "OFF" position:</p> <ul style="list-style-type: none"> • All de-energized hotwell pumps • All de-energized condensate booster pumps. <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant places the switches for the hotwell and booster pumps to OFF</p> <p>This step is critical to prevent overloading the busses when they are re-energized.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p>STEP 12 10 c. Depress the OFF pushbutton for all de-energized KR pumps.</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the OFF pushbutton for the de-energized KR pumps.</p> <p>Examiner Cue: <u>If asked, "2SLXC is energized."</u></p> <p>Examiner Note: Only the 'A' and 'C' KR pump OFF pushbuttons should be depressed. The 'B' KR pump is powered from unit 2 and should be left running to supply unit 2 loads.</p> <p>This step is critical to prevent overloading the busses when they are re-energized.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 13 11. Do not continue in this procedure until all de-energized 6.9 KV motor load breakers are open.</p> <p><u>STANDARD:</u></p> <p>Applicant determines from the initiating cue, or by asking, that the procedure may continue.</p> <p>Examiner Cue: <u>If asked, NEO reports that all de-energized 6.9 KV motor load breakers are open.</u></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station 2013 NRC Exam JPM B

<p><u>NOTE</u> Zone A or B lockout will occur if at least one main transformer cooling circuit is not restored within 15 minutes of re-energizing the main transformer.</p> <p><u>STEP 14</u> 12. Energize 6.9 KV busses as follows:</p> <p style="padding-left: 40px;">a. Announce "Energizing Unit 1 main power. All personnel stand clear."</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant makes announcement using plant page</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 15</u> 12 b. Verify the following unit tie PCBs - CLOSED:</p> <ul style="list-style-type: none"> • PCB 15 • PCB 18. <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant determines that the PCBs are open and proceeds to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station 2013 NRC Exam JPM B

<p><u>STEP 16</u> 12 b. RNO b. Perform the following:</p> <p style="text-align: center;">1) <u>IF</u> unit tie PCB(s) disconnects - OPEN, <u>THEN</u> return PCB(s) to operation. <u>REFER TO</u> OP/0/A/6350/010 (Operation of Station Breakers and Disconnects).</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant determines that the step does not apply.</div> <p>Examiner Cue: <u>If asked, "PCB disconnects are closed."</u></p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 17</u> 12 b. RNO b. 2) <u>WHEN</u> unit tie PCB(s) returned to operation, <u>THEN</u> CLOSE the following unit tie PCBs:</p> <ul style="list-style-type: none"> PCB 15 PCB 18. <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant closes PCBs 15 and 18</div> <p>This step is critical to supply power from Offsite.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 18</u> 12 b. RNO b. 3) <u>IF</u> PCB(s) will not close, <u>THEN</u> notify TCC to close affected PCB(s).</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines that the step does not apply.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19</u> 13. Verify 1TA - ENERGIZED.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines that 1TA is not energized and proceeds to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 20</u> 13 RNO Perform the following:</p> <p style="padding-left: 40px;">a. <u>IF</u> not previously performed, <u>THEN</u> dispatch operator to ensure breakers for all motor loads on 6.9 KV buss 1TA - OPEN:</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines that the step does not apply.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 21</u> 13 RNO b. Ensure switches for the following pumps in the "OFF" position:</p> <ul style="list-style-type: none"> • "HTWL PUMP 1A" • "CM BSTR PUMP 1A" <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant ensures the switches for the pumps in the OFF position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 22</u> 13 RNO c. Place "7KV BUS 1TA MODE SEL" switch in "MAN A & TIE".</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant places the "7KV BUS 1TA MODE SEL" switch to "MAN A & TIE"</p> <p>This step is critical to operate the required breakers.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 23</u> 13 RNO d. CLOSE "7KV 1TA FDR FRM 1T2A".</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant depresses the red CLOSE pushbutton for "7KV 1TA FDR FRM 1T2A"</p> <p>This step is critical to energize 1TA.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p>STEP 24 13 RNO e. <u>IF</u> "7KV 1TA FDR FRM 1T2A" fails to close, <u>THEN</u> dispatch operator to close 1TA-05 (Normal A Incoming Feeder From XFMR 1T2A). <u>REFER TO</u> Enclosure 30 (Local Operation of 6900V Bus Breakers).</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines that the step does not apply.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 25 14. Verify 1ATC - ENERGIZED.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant verifies that 1ATC is energized</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 26 15. Verify 1ETA-03 (Normal Incoming Feeder From Xfmr 1ATC) - RACKED IN.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant verifies that 1ETA-03 is racked in using status lights, the OPEN light lit on the ETA NORM FDR FRM ATC switch, or the cue.</p> <p style="background-color: yellow; padding: 5px;">Examiner Cue: If asked, 1ETA-03 is racked in.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

STEP 27 16. **Do not continue in this enclosure until:**

- 4KV XFMR 1ATC – ENERGIZED
- 1ETA-03 (Normal Incoming Feeder From Xfmr 1ATC) - RACKED IN.
- Load shed of 1ETA – COMPLETE
- The following 1ETA lockout relays - RESET:
 - 86N (1ETA 03 Cubicle)
 - 86B (1ETA 03 Cubicle)
 - 86S (1ETA 04 Cubicle)
 - 86D (1ETA 19 Cubicle).

STANDARD:

Applicant determines that all conditions are met and continues.

COMMENTS:

___ SAT

___ UNSAT

**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 28</u> 17. Energize 1ETA as follows:</p> <p style="padding-left: 40px;">a. CLOSE "ETA NORM FDR FRM ATC".</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant depresses the CLOSE pushbutton for "ETA NORM FDR FRM ATC".</p> <p>This step is critical to energize 1ETA.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
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<p><u>STEP 29</u> 17 b. Verify 1ETA - ENERGIZED.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant verifies that 1ETA is energized.</p> <p><u>COMMENTS:</u></p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM B**

<p><u>STEP 30</u> 18. Notify dispatched operator to close the following load center normal incoming breakers from 1ETA:</p> <ul style="list-style-type: none"> • 1ELXA-4B (Normal Incoming Breaker Fed From Xfmr 1ETXA) (AB-577, AA-47, Rm 496) • 1ELXC-4B (Normal Incoming Breaker Fed From Xfmr 1ETXC) (AB-577, AA-46, Rm 496) <p><u>STANDARD:</u></p> <p>Applicant notifies dispatched operator to close 1ELXA-4B and 1ELXC-4B.</p> <p>Examiner Note: Insert Trigger 2</p> <p><u>Examiner Cue:</u> Operator reports that 1ELXA-4B and 1ELXC-4B are closed.</p> <p>This step is critical to energize the ‘A’ train Essential Load Centers.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 31</u> 19. <u>GO TO</u> Section C. (Operator Actions), Step 38.</p> <p><u>STANDARD:</u></p> <p>Applicant reads the step.</p> <p><u>Examiner Cue:</u> The CRS will go to section C, step 38.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>
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STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

Catawba Nuclear Station 2013 NRC Exam JPM B

DIRECTION TO APPLICANT:

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:

- Unit One has experienced a Loss of All AC power.
- It is desired to restore normal power to 1ETA from offsite through 1ATC.
- The TCC has verified adequate switchyard voltage and grid reliability.
- The load shed of 1ETA has been completed and all lockout relays on 1ETA have been reset.

INITIATING CUES:

You have been directed to align Normal power to 1ETA by completing Enclosure 7 [Aligning Normal Power to 1ETA (1ATC)] of EP/1/A/5000/ECA-0.0, (Loss of All AC Power).

Catawba Nuclear Station
JPM C
Sep. 2013 NRC Exam

JPM C

Sep. 2013 NRC Exam

Task: Emergency Borate the Reactor Coolant System

Facility JPM #: NV-017

<u>K/A</u>	004 A2.14	Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Emergency Boration
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Preferred Evaluation Location:

Simulator **X** **In-Plant** _____ **Perform** **X** **Simulate** _____

Task Standard: One NV pump running with its suction aligned to the FWST and isolated from the VCT.

Applicant: _____ Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: _____ **Performance Time** _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

Catawba Nuclear Station

JPM C

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #171
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	MAL-IPX003A					
	MAL-IPX003B					
	VLV-NV043F	0				
	MAL-MT-007					
	Instructor will act as the OATC and be manually inserting control rods when the simulator is placed in RUN.					

Catawba Nuclear Station

JPM C

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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 valid reactor trip signal has been received.
- The reactor will NOT trip automatically or manually.
- A Red Path for Subcriticality is in effect.
- The OATC is inserting rods manually.

INITIATING CUES:

The Control Room Supervisor instructs you to initiate emergency boration, per EP/1/A/5000/FR-S.1, (Nuclear Power Generation/ATWS), step 4.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of EP/1/A/5000/FR-S.1 pages 3-5.

Catawba Nuclear Station

JPM C

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 4. Initiate emergency boration of NC System as follows:</p> <p style="margin-left: 40px;">a. Ensure at least one NV pump - ON.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; margin-left: 40px;">Applicant verifies red "ON" light lit for "NV PMP 1A" or "1B" (1MC-10).</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 4. b. OPEN 1NV-236B (Boric Acid To NV Pumps Suct).</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; margin-left: 40px;">Applicant depresses the red "OPEN" pushbutton for 1NV-236B and verifies the red "OPEN" light remains dark and the green "CLSD" light remains lit on 1MC-10. 1NV-236B remains closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 3</u> 4. c. Ensure both boric acid transfer pump switches - IN THE "ON" POSITION.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; margin-left: 40px;">Applicant rotates the switches for "B/A XFER PMP 1A" and "B/A XFER PMP 1B" to the "ON" position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM C

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 4</u> 4. d. Verify emergency boration flow - GREATER THAN OR EQUAL TO 30 GPM.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies "EMER BORATE FLOW" (1NVP5440) indicates 0 gpm (1MC-5) and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5</u> 4. d. RNO d. Align NV pump suction to FWST as follows:</p> <p>1) OPEN the following valves:</p> <ul style="list-style-type: none"> • 1NV-252A (NV Pumps Suct From FWST) • 1NV-253B (NV Pumps Suct From FWST). <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbuttons for 1NV-252A and 1NV-253B</p> <p>This step is critical to align borated water to the suction of the charging pumps as long as one of the valves is opened.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM C

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u> 4. d. RNO d. 2) CLOSE the following valves:</p> <ul style="list-style-type: none"> • 1NV-188A (VCT Otlt Isol) • 1NV-189B (VCT Otlt Isol). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant depresses the green CLSD pushbutton for 1NV-188A and 1NV-189B.</p> <p>This step is critical to prevent borated water from going to the VCT instead of the suction of the charging pumps as long as one of the valves is closed.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u> 4. e. Verify the following charging line isolation valves - OPEN:</p> <ul style="list-style-type: none"> • 1NV-312A (Chrg Line Cont Isol) follows: • 1NV-314B (Chrg Line Cont Isol). <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant verifies the red OPEN lights lit and green CLSD lights dark on 1NV-312A and 1NV-314B.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM C
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8</u> 4. f. Verify Pzr pressure - LESS THAN 2335 PSIG.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies PZR pressure instruments (1NCP5161, 1NCP5150, 1NCP5170 and 1NCP5171) indicate less than 2335 psig (1MC-10)</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

Catawba Nuclear Station 2013 NRC Exam JPM C

DIRECTION TO APPLICANT:

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 valid reactor trip signal has been received.
- The reactor will NOT trip automatically or manually.
- A Red Path for Subcriticality is in effect.
- The OATC is inserting rods manually.

INITIATING CUES:

The Control Room Supervisor instructs you to initiate emergency boration, per EP/1/A/5000/FR-S.1, (Nuclear Power Generation/ATWS), step 4.

Catawba Nuclear Station
JPM D
Sep. 2013 NRC Exam

JPM D

EVALUATION SHEET

Catawba Nuclear Station

JPM D

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #172
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	VLV-ND004F (ND25A NDPMP A MINFLOW VALVE FAIL TO POSITION)	0				
	MAL-NC013B (NC COLD LEG D LEAK)	1.55				

**Catawba Nuclear Station
JPM D
Sep. 2013 NRC Exam**

READ TO APPLICANT

DIRECTION TO APPLICANT:

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 Unit 1 safety injection has occurred due to a loss of coolant accident.
- EP/1/A/5000/E-0, (Reactor Trip or Safety Injection) has been entered.

INITIATING CUES:

The CRS has directed you to perform step 17 of E-0.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of EP/1/A/5000/E-0 pages 10-12.

Catawba Nuclear Station

JPM D

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 17. Verify proper S/I flow as follows:</p> <p style="padding-left: 40px;">a. "NV S/I FLOW" - INDICATING FLOW.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant verifies flow on 1NVP6080 (NV S/I FLOW) on 1MC-5.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 17. b. NC pressure - LESS THAN 1620 PSIG.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant verifies NC pressure is less than 1620 psig on 1NCP5120 (LOOP B HOT LEG W/R PRESS) or 1NCP5140 (LOOP C HOT LEG W/R PRESS) on 1MC-5, or the plasma displays on 1MC-1, or the OAC.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 3</u> 17. c. NI pumps - INDICATING FLOW.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant verifies flow on 1NIP5450 (1A DISCH FLOW) and 1NIP5120 (1B DISCH FLOW) on 1MC-11.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM D

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 4</u> 17. d. NC pressure - LESS THAN 285 PSIG.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies NC pressure is greater than 285 psig on 1NCP5120 (LOOP B HOT LEG W/R PRESS) or 1NCP5140 (LOOP C HOT LEG W/R PRESS) on 1MC-5, or the plasma displays on 1MC-1, or the OAC, and transitions to the RNO column.</p> <p>This step is critical to ensure the correct procedure flowpath (RNO) is recognized and implemented for task completion.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5</u> 17.d. RNO d. Perform the following:</p> <p>1) Ensure ND pump miniflow valve on operating ND pump(s) - OPEN.</p> <p><u>STANDARD:</u></p> <p>Applicant determines that 1ND-25A (ND PUMP 1A MINIFLOW) is not open and attempts to open 1ND-25A by depressing the red OPEN pushbutton.</p> <p><u>EXAMINER NOTE:</u> 1ND-25A will not open.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM D
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u> 17.d. RNO d. 2) <u>IF</u> the ND pump miniflow valve(s) cannot be opened, <u>THEN</u> perform the following for affected train(s):</p> <p style="padding-left: 40px;">a) Reset ECCS.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant depresses the yellow RESET pushbutton for ECCS TRN A on 1MC-11 and verifies the yellow RESET light is lit.</p> <p>This step is critical to allow the 1A D/G Load Sequencer to be reset.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 7</u> 17.d. RNO d. 2) b) Reset D/G load sequencer.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant depresses the yellow RESET pushbutton for D/G 1A LOAD SEQ RESET on 1MC-11 and verifies the yellow RESET light is lit.</p> <p>This step is critical to gain control of the 1A ND Pump.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM D

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8</u> 17.d. RNO d. 2) c) Stop ND pump.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant depresses the green OFF pushbutton for ND PUMP 1A on 1MC-11 and verifies ND PUMP 1A is off.</p> <p>This step is critical to stop the 1A ND Pump from deadheading and subsequent overheating.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9</u> 17.d. RNO d. 2) d) <u>IF AT ANY TIME</u> a B/O occurs, <u>THEN</u> restart S/I equipment previously on.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant acknowledges the step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10</u> 17.d. RNO d. 2) e) <u>IF AT ANY TIME</u> NC pressure decreases to less than 285 PSIG in an uncontrolled manner, <u>THEN</u> restart the ND pump.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant acknowledges the step.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station
JPM D
Sep. 2013 NRC Exam**

STEP/STANDARD	SAT/UNSAT
<p>STEP 11 17. d. RNO d. 3) Observe note prior to Step 18 and <u>GO TO</u> Step 18.</p> <p><u>STANDARD:</u></p> <p>Applicant acknowledges the step and goes to step 18.</p> <p><u>Examiner Cue:</u> The CRS will continue to read the steps of E-0.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

**(RETURN TO EXAMINER UPON COMPLETION OF TASK)
Catawba Nuclear Station 2013 NRC Exam
JPM D**

DIRECTION TO APPLICANT:

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 Unit 1 safety injection has occurred due to a loss of coolant accident.
- EP/1/A/5000/E-0, (Reactor Trip or Safety Injection) has been entered.

INITIATING CUES:

The CRS has directed you to perform step 17 of E-0.

Catawba Nuclear Station
JPM E
Sep. 2013 NRC Exam

JPM E

Catawba Nuclear Station
JPM E
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Increase Pressure in the 1A Cold Leg Accumulator

Alternate Path: No

Facility JPM #: CLA-109

Safety Function: 2 **Title:** Reactor Coolant System Inventory Control

K/A 006 A1.03 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure (level, boron concentration).

Rating(s): 3.5 / 3.7 **CFR:** 41.5 / 45.5

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator X In-Plant _____ Perform X Simulate _____

References: OP/1/A/6200/009 (Cold Leg Accumulator Operation) Enclosure 4.6 rev.075
OP/1/A/6100/010J, (Annunciator Response for 1AD-9, E/1) rev. 068

Task Standard: Cold Leg Accumulator 1A is pressurized with nitrogen to clear annunciator 1AD-9, E/1.

Validation Time: 5 minutes **Time Critical:** Yes _____ No X

=====

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

=====

COMMENTS

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #173
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 100% power.
- Cold Leg Accumulator 1A nitrogen overpressure has decreased.
- Annunciator 1AD-9, E/1 ACCUM TANK A HI/LO PRESS is lit.

INITIATING CUES:

- The Control Room Supervisor instructs you to restore CLA 1A pressure to clear annunciator 1AD-9, E/1.
- Initial conditions for OP/1/A/6200/009, Encl. 4.6 (Increasing Accumulator Pressure) have been satisfied.
- Peer Check has been waived.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of OP/1/A/6200/009 Enclosure 4.6.

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 3.1 Open 1NI-47A (C-Leg Accum N2 Sup Cont Isol).</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant depresses the red OPEN pushbutton for 1NI-47A</p> <p>This step is critical to align nitrogen to the Cold Leg Accumulators.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 3.2 Position 1CB-1 (located behind control panel 1MC6, BB-56) to "ON".</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant places the breaker for 1CB-1 in the "ON" position.</p> <p>This step is critical to align power to the switches for the Cold Leg Accumulator nitrogen supply isolations.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p>NOTE: If N₂ inlet temperature decreases to 65°F, accumulator N₂ supply isolation valves will auto close. There is no alarm associated with this condition. When N₂ inlet temperature increased above 66°F, this condition will auto clear.</p> <p>CAUTION: Pressurization shall be performed on only one accumulator at a time.</p> <p><u>STEP 3</u> 3.3 Open the corresponding valve to increase pressure in the desired accumulator:</p> <ul style="list-style-type: none"> • 1NI-50 (C-Leg Accum A N₂ Supply Isol) • 1NI-61 (C-Leg Accum B N₂ Supply Isol) • 1NI-72 (C-Leg Accum C N₂ Supply Isol) • 1NI-84 (C-Leg Accum D N₂ Supply Isol) <p><u>STANDARD:</u></p> <div style="background-color: #e0e0e0; padding: 5px; border: 1px solid #ccc;"> Applicant depresses the red OPEN pushbutton for 1NI-50 and verifies that 1A Cold Leg Accumulator pressure is increasing (1NIP5040 or 1NIP5050 on 1MC-11, or the using the OAC). </div> <p>This step is critical to align nitrogen to the 1A Cold Leg Accumulator.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 4</u> 3.4 <u>IF</u> the accumulator N₂ supply isolation valve frequently auto closes, ensure the following:</p> <ul style="list-style-type: none"> • SMXB-F05E (Safety Injection Accumulator Nitrogen Heater) (AB-560, HH-52) is energized. • The thermostat is set at 75°F. <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0;">If 1NI-50 cycles closed and reopens, applicant dispatches an NEO to check the power supply and thermostat setting.</p> <p><u>EXAMINER NOTE:</u> If applicant dispatches an operator to check the power supply and thermostat setting, repeat back only what is said.</p> <p><u>EXAMINER NOTE:</u> Cold Leg Accumulator pressure cannot be increased unless steps 1, 2, and 3 are successfully completed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5</u> 3.5 <u>WHEN</u> the accumulator is at the desired pressure, close the appropriate valve as follows:</p> <p>3.5.1 Depress the "CLS" pushbutton for the appropriate valve:</p> <ul style="list-style-type: none"> • 1NI-50 (C-Leg Accum A N₂ Supply Isol) • 1NI-61 (C-Leg Accum B N₂ Supply Isol) • 1NI-72 (C-Leg Accum C N₂ Supply Isol) • 1NI-84 (C-Leg Accum D N₂ Supply Isol) <p><u>STANDARD:</u></p> <div style="background-color: #e0e0e0; padding: 5px; margin: 10px 0;"> Applicant determines that Cold Leg Accumulator 1A pressure has been restored to within limits by verifying 1AD-9, E/1 clears and depresses the green CLOSE pushbutton for 1NI-50. </div> <p>This step is critical to terminate the pressure increase and prevent overpressurizing the 1A Cold Leg Accumulator.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>

Catawba Nuclear Station
JPM E
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u> 3.5.2 Verify the appropriate valve is closed:</p> <ul style="list-style-type: none"> • 1NI-50 (C-Leg Accum A N₂ Supply Isol) • 1NI-61 (C-Leg Accum B N₂ Supply Isol) • 1NI-72 (C-Leg Accum C N₂ Supply Isol) • 1NI-84 (C-Leg Accum D N₂ Supply Isol) <p><u>STANDARD:</u></p> <p>Applicant verifies that the green CSLD light is lit and the red OPEN light is dark for 1NI-50.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u> 3.6 IF necessary, repeat Steps 3.3 through 3.5 to increase pressure in additional accumulators.</p> <p><u>STANDARD:</u></p> <p>Applicant determines that the step does not apply.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM E

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8</u> 3.7 Position 1CB-1 (located behind control panel 1MC6, BB-56) to "OFF".</p> <p><u>STANDARD:</u></p> <p>Applicant places the breaker for 1CB-1 in the "OFF" position.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9</u> 3.8 Close 1NI-47A (C-Leg Accum N₂ Sup Cont Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the green CLOSE pushbutton for 1NI-47A.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

Catawba Nuclear Station 2013 NRC Exam JPM E

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 100% power.
- Cold Leg Accumulator 1A nitrogen overpressure has decreased
- Annunciator 1AD-9, E/1 ACCUM TANK A HI/LO PRESS is lit.

INITIATING CUES:

- The Control Room Supervisor instructs you to restore CLA 1A pressure to clear annunciator 1AD-9, E/1.
- Initial conditions for OP/1/A/6200/009, Encl. 4.6 (Increasing Accumulator Pressure) have been satisfied.
- Peer Check has been waived.

Catawba Nuclear Station
JPM F
Sep. 2013 NRC Exam

JPM F

Catawba Nuclear Station
JPM F
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Shift Operating RC Pumps

Alternate Path: Yes

Facility JPM #: RC-001

Safety Function: 8 **Title:** Plant Service Systems

K/A 075 A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the circulating water system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of circulating water pumps

Rating(s): 2.5 /2.7 **CFR:** 41.5 / 43.5 / 45.3 / 45.13

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator X In-Plant _____ Perform X Simulate _____

References: OP/1/B/6400/001A (Condenser Circulating Water) Enclosure 4.7 rev.071

Task Standard: 1A and 1D RC pumps are in service and 1RC-22 is closed.

Validation Time: 20 minutes **Time Critical:** Yes _____ No X

=====

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

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COMMENTS

Catawba Nuclear Station

JPM F

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #174
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	x13i159n (1C RC Pump ON pushbutton)					
	XMT-RC063	235		600 SEC		
	LOA-RC066 (x13i159n)	RACK OUT	360 SEC			
	VLV-RC011F (x13i159n)	0	15 SEC			
	Do not go to RUN until the student is ready to proceed.					

Catawba Nuclear Station

JPM F

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 50% power following repair of a condenser tube leak.
- The turbine building rounds NLO reports severe vibration and noise coming from 1B RC pump and states that the motor is extremely hot to the touch.
- 1C RC Pump is NOT rotating in the reverse direction.
- The NLO is standing by to check 1C RC pump after it starts.

INITIATING CUES:

- Start 1C RC Pump and secure 1B RC Pump per Enclosure 4.7 of OP/1/B/6400/001A (Condenser Circulating Water).
- Initial Conditions are complete.

EXAMINER NOTE: After reading Initiating Cue, provide applicant with a copy of OP/1/B/6400/001A Enclosure 4.7 with the initial conditions signed off.

**Catawba Nuclear Station 2013 NRC Exam
JPM F**

START TIME: _____

STEP 1: 3.1 Start the desired RC Pump as follows:

3.1.1 Verify the RC pump to be started is **NOT** rotating in the reverse direction.

STANDARD:

Applicant verifies that the pump is not rotating in the reverse direction per the initiating cue.

COMMENTS:

___ SAT

___ UNSAT

STEP 2 3.1.2 Ensure "RCP DISCH VALVE MODE SEL" in the "NORM" position.

STANDARD:

Applicant ensures the "RCP DISCH VALVE MODE SEL" switch is in the 'NORM' position

COMMENTS:

___ SAT

___ UNSAT

**Catawba Nuclear Station 2013 NRC Exam
JPM F**

<p><u>STEP 3</u> 3.1.3 <u>IF</u> starting a third RC pump, perform the following:</p> <p>3.1.3.1 Indicate below which cooling tower inlet isolation is closed:</p> <ul style="list-style-type: none"><input type="checkbox"/> 1RC-25 (Cool Twr 1A Inlet Isol)<input type="checkbox"/> 1RC-27 (Cool Twr 1C Inlet Isol) <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant determines that 1RC-25 is closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 4</u> 3.1.3.2 Ensure all three cooling tower inlet isolation valves are open:</p> <ul style="list-style-type: none"><input type="checkbox"/> 1RC-25 (Cool Twr 1A Inlet Isol)<input type="checkbox"/> 1RC-26 (Cool Twr 1B Inlet Isol)<input type="checkbox"/> 1RC-27 (Cool Twr 1C Inlet Isol) <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant opens 1RC-25 by depressing the red “OPEN” pushbutton and verifies the red “OPEN” light illuminates.</p> <p>Examiner Note: This is a large valve and takes ~ 3.5 minutes to stroke.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM F**

<p><u>STEP 5</u> 3.1.4 Start the desired RC pump</p> <p><u>STANDARD:</u></p> <p>Applicant starts the 1C RC pump, per the initiating cue, by depressing the red "ON" pushbutton.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 6</u> 3.1.5 Ensure that its discharge valve fully opens. (Valve begins to open six seconds after pump start.)</p> <p><u>STANDARD:</u></p> <p>Applicant determines that valve 1RC-23 (RC Pump 1C Disch Isol) begins to open and then recloses and the 1C RC pump trips.</p> <p>Examiner Cue: When notified that the 1C RC pump discharge valve did <u>NOT</u> open, provide the following cue: "Start the 1D RC pump and secure the 1B RC pump per OP/1/B/6400/001A, Enclosure 4.7."</p> <p>Examiner Note: If asked by the applicant to verify that the 1D RC pump is not rotating in the reverse direction, or to checkout the 1D RC pump prior to start, provide the following cue: "1D RC pump is not rotating in the reverse direction and all local parameters are normal."</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM F**

<p><u>STEP 7</u> 3.1.4 Start the desired RC pump</p> <p><u>STANDARD:</u></p> <p>Applicant starts the 1D RC pump by depressing the red "ON" pushbutton.</p> <p>This step is critical in order to start a pump to be able to secure the 1B RC pump.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8</u> 3.1.5 Ensure that its discharge valve fully opens. (Valve begins to open six seconds after pump start.)</p> <p><u>STANDARD:</u></p> <p>Applicant determines that 1RC-24 (RC Pump 1D Disch Isol) fully opens.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station 2013 NRC Exam
JPM F**

<p><u>STEP 9</u> 3.2 Stop the desired RC pump as follows:</p> <p>3.2.1 Dispatch an operator to the cooling tower area to monitor for cooling tower overflow periodically for the next hour.</p> <p><u>STANDARD:</u></p> <p>Applicant dispatches an operator to monitor for cooling tower overflow.</p> <p>This step is critical to ensure EPA guidelines are not being violated.</p> <p>Examiner Cue: "This is Rob, I will monitor Unit 1 Cooling Tower levels"</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 10</u> 3.2.2 Close the discharge valve of the pump to be stopped:</p> <ul style="list-style-type: none"><input type="checkbox"/> 1RC-21 (RC Pump 1A Disch Isol)<input type="checkbox"/> 1RC-22 (RC Pump 1B Disch Isol)<input type="checkbox"/> 1RC-23 (RC Pump 1C Disch Isol)<input type="checkbox"/> 1RC-24 (RC Pump 1D Disch Isol) <p><u>STANDARD:</u></p> <p>Applicant depresses the green "CLOSE" pushbutton for 1RC-22 (RC Pump 1B Disch Isol) and verifies the green "CLSD" light illuminates.</p> <p>This step is critical to shut down the 1B RC pump.</p> <p>Examiner Note: This valve may take 1 minute to close.</p> <p>Examiner Note: The 1B RC pump may trip before it can be manually secured.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM F**

<p><u>STEP 11</u> 3.2.3 Ensure that the pump stops when the valve closes.</p> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant verifies that the 1B RC pump green “OFF” light is illuminated.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 12</u> 3.3 IF Step 3.1.3.1 indicates a cooling tower inlet isolation was initially closed, close that cooling tower inlet isolation.</p> <div style="margin-left: 40px;"> <input type="checkbox"/> 1RC-25 (Cool Twr 1A Inlet Isol) <input type="checkbox"/> 1RC-27 (Cool Twr 1C Inlet Isol) </div> <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines that 1RC-25 was originally closed and depresses the green “CLOSE” pushbutton and verifies the green “CLSD” light illuminates.</p> <p>This step is critical to comply with required cooling tower configurations.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station 2013 NRC Exam
JPM F**

STEP 13 3.4 Ensure the cooling towers are aligned properly for the number of pumps remaining in operation per the following cooling tower configuration limits:

Riser Bypasses Open	Riser Bypasses Open Passing Flow	Tower Inlets Isolated	RC Pumps Running
3	2	1	1 (Throttled)
3	2	1	2 (Throttled)
2	0	2	1 (Throttled)
1	0	1	2
0	0	0	3

STANDARD:

Applicant determines the cooling towers are aligned properly. (See highlighted line.)

COMMENTS:

END OF TASK

___ **SAT**

___ **UNSAT**

STOP TIME _____

**Catawba Nuclear Station 2013 NRC Exam
JPM F**

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 50% power following repair of a condenser tube leak.
- The turbine building rounds NLO reports severe vibration and noise coming from 1B RC pump and states that the motor is extremely hot to the touch.
- 1C RC Pump is NOT rotating in the reverse direction.
- The NLO is standing by to check 1C RC pump after it starts.

INITIATING CUES:

- Start 1C RC Pump and secure 1B RC Pump per Enclosure 4.7 of OP/1/B/6400/001A (Condenser Circulating Water).
- Initial Conditions are complete.

**Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam**

JPM G

EVALUATION SHEET

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #175
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event
	x01o063g (Reactor Trip breaker A OPEN Light)					
	MAL-SM007A (x01o063g)	4.24e+5				
	MAL-NC013D	27.5				
	OVR-VV013C (x01o063g)	ON				
	OVR-VV019D (x01o063g)	ON				
	OVR-VV022D (x01o063g)	ON				

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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.
- EP/1/A/5000/ES-1.3, (Transfer to Cold Leg Recirculation) has been implemented.

INITIATING CUES:

The CRS instructs you to align NS to Cold Leg Recirculation per Enclosure 2 of EP/ES-1.3.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of EP/1/A/5000/ES-1.3 Enclosure 2.

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 1. Verify both NS pumps - OFF.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant verifies both NS pumps are off .</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 2. CLOSE the following valves:</p> <ul style="list-style-type: none"> 1NS-20A (NS Pump 1A Suct From FWST) 1NS-3B (NS Pump 1B Suct From FWST). <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant depresses the green CLOSE pushbuttons for 1NS-20A and 1NS-3B.</div> <p>This step is critical to satisfy the interlocks to open 1NS-18A and 1NS-1B respectively.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 3</u> 3. Verify containment pressure - GREATER THAN 3 PSIG</p> <p><u>STANDARD:</u></p> <p>Applicant verifies containment pressure is greater than 3 psig on 1NSP5040, 1NSP5050, 1NSP5060 or 1NSP5070 on 1MC-11 or on the OAC or on any chart recorder containing containment pressure.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4</u> 4. Verify at least one of the following annunciators - LIT:</p> <ul style="list-style-type: none"> • 1AD-20, B/3 "CONT. SUMP LEVEL >3.3 ft" <p>OR</p> <ul style="list-style-type: none"> • 1AD-21, B/3 "CONT. SUMP LEVEL >3.3 ft". <p><u>STANDARD:</u></p> <p>Applicant verifies that at least 1AD-20, B/3 or 1AD-21, B/3 is lit on 1MC-7</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5</u> 5. Align NS Train 1A to containment sump as follows:</p> <p style="padding-left: 40px;">a. Verify NS Pump 1A - AVAILABLE TO RUN.</p> <p><u>STANDARD:</u></p> <p style="padding-left: 40px;">Applicant verifies that NS Pump 1A is available to run.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 6</u> 5. b. Verify 1NI-185A (ND Pump 1A Cont Sump Suct) - OPEN.</p> <p><u>STANDARD:</u></p> <p style="padding-left: 40px;">Applicant verifies that 1NI-185A is open.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 7</u> 5. c. Verify NS Pump 1B – OFF</p> <p><u>STANDARD:</u></p> <p style="padding-left: 40px;">Applicant verifies that NS Pump 1B is off.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8</u> 5. d. OPEN 1NS-29A (NS Spray Hdr 1A Cont Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbutton for 1NS-29A on 1MC-11.</p> <p>This step is critical to align Containment Spray to the associated spray nozzles.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9</u> 5. e. OPEN 1NS-32A (NS Spray Hdr 1A Cont Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbutton for 1NS-32A on 1MC-11.</p> <p>This step is critical to align Containment Spray to the associated spray nozzles.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 10</u> 5. f. Verify 1NS-20A (NS Pump 1A Suct From FWST) - CLOSED.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies that 1NS-20A is closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 11</u> 5. g. OPEN 1NS-18A (NS Pmp A Suct From Cont Sump).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbutton for 1NS-18A on 1MC-11.</p> <p>This step is critical to align a suction source for NS Pump 1A.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 12</u> 5. h. Verify the following valves - OPEN:</p> <ul style="list-style-type: none"> • 1NS-29A (NS Spray Hdr 1A Cont Isol) • 1NS-32A (NS Spray Hdr 1A Cont Isol) • 1NS-18A (NS Pmp A Suct From Cont Sump). <p><u>STANDARD:</u></p> <p>Applicant verifies that 1NS-29A, 1NS-32A and 1NS-18A are open.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 13</u> 5. i. Verify containment pressure - GREATER THAN 1 PSIG.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;"> Applicant verifies containment pressure is greater than 1 psig on 1NSP5040, 1NSP5050, 1NSP5060 or 1NSP5070 on 1MC-11 or on the OAC or on any chart recorder containing containment pressure. </div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14</u> 5. j. Start NS Pump 1A.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;"> Applicant depresses the red ON pushbutton for NS PMP 1A </div> <p>This step is critical to provide containment spray to the spray nozzles.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>CAUTION</u> Exceeding 4650 GPM RN flow through an NS Hx will cause damage to the Hx tubes.</p> <p><u>STEP 15</u> 5. k. Align RN to NS Hx 1A as follows:</p> <p>1) Verify at least one of the following:</p> <ul style="list-style-type: none"> All Unit 1 and Unit 2 RN pumps - ON. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> RN System - ALIGNED FOR SINGLE SUPPLY HEADER OPERATION <p><u>STANDARD:</u></p> <p>Applicant verifies that all Unit 1 and Unit 2 RN pumps are on</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 16</u> 5. k. 2) OPEN 1RN-144A (NS Hx 1A Inlet Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbutton for 1RN-144A on 1MC-11.</p> <p>This step is critical to supply cooling water to the 1A NS heat exchanger.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 17</u> 5. k. 3) <u>WHEN</u> 1RN-144A begins to open, <u>THEN</u> OPEN 1RN-148A (NS Hx 1A Otlt Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant depresses the red OPEN pushbutton for 1RN-148A on 1MC-11 when they verify that 1RN-144A is opening.</p> <p>This step is critical to cool the containment spray water supplied to the spray nozzles.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 18</u> 6. Align NS Train 1B to containment sump as follows:</p> <p>a. Verify 1NI-184B (ND Pump 1B Cont Sump Suct) - OPEN.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies that 1NI-184B is open.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 19</u> 6. b. Verify NS Pump 1A – OFF</p> <p><u>STANDARD:</u></p> <p>Applicant verifies that NS Pump 1A is on and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 20</u> 6. b. RNO b. <u>IF</u> NS Pump 1A is running <u>AND</u> RN established to NS Hx 1A, <u>THEN</u> perform the following:</p> <p style="padding-left: 40px;">1) Ensure 1NS-3B (NS Pump 1B Suct From FWST) - CLOSED.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding-left: 20px;">Applicant verifies that 1NS-3B is closed.</p> <p><u>Examiner Note:</u> 1NS-3B was closed in a previous step.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 21</u> 6. b. RNO b. 2) Ensure 1NS-1B (NS Pmp B Suct From Cont Sump) - OPEN.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding-left: 20px;">Applicant depresses the red OPEN pushbutton for 1NS-1B on 1MC-11.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 22</u> 6. b. RNO b. 3) <u>GO TO</u> Step 7.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding-left: 20px;">Applicant proceeds to step 7.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 23</u> 7. Verify proper NS alignment as follows:</p> <p style="padding-left: 40px;">a. Verify 1NS-18A (NS Pmp A Suct From Cont Sump) - OPEN:</p> <p><u>STANDARD:</u></p> <p style="padding-left: 20px;">Applicant verifies that 1NS-18A is open.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT ___ UNSAT</p>
<p><u>STEP 24</u> 7. b. Verify 1NS-1B (NS Pmp B Suct From Cont Sump) - OPEN:</p> <p><u>STANDARD:</u></p> <p style="padding-left: 20px;">Applicant verifies that 1NS-1B is open.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT ___ UNSAT</p>
<p><u>STEP 25</u> 7. c. Verify NS Pump 1A - ON.</p> <p><u>STANDARD:</u></p> <p style="padding-left: 20px;">Applicant verifies that NS Pump 1A is on.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT ___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 26</u> 7. d. Verify NS Pump 1B - ON.</p> <p><u>STANDARD:</u></p> <p>Applicant verifies that NS Pump 1B is off and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 27</u> 7. d. RNO d. Ensure the following valves - CLOSED:</p> <ul style="list-style-type: none"> • 1NS-15B (NS Spray Hdr 1B Cont Isol) • 1NS-12B (NS Spray Hdr 1B Cont Isol). <p><u>STANDARD:</u></p> <p>Applicant verifies that 1NS-12B and 1NS-15B are closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 28</u> 8. <u>IF AT ANY TIME</u> NS flow is lost OR RN flow is lost to operating NS Hx, <u>THEN</u> start other NS pump as follows:</p> <p><u>STANDARD:</u></p> <p>Applicant acknowledges step and continues.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM G

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 29</u> 9. Verify adequate RN heat sink as follows:</p> <ul style="list-style-type: none"> • RN System - SUCTION ALIGNED TO LAKE WYLIE • RN essential header temperatures at one of the following locations - LESS THAN OR EQUAL TO 93°F. <ul style="list-style-type: none"> • 1MC-9 <p style="padding-left: 40px;">OR</p> <ul style="list-style-type: none"> • RO Logbook. <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant verifies that RN is aligned to Lake Wylie and that RN essential header temperature is $\leq 93^{\circ}\text{F}$.</p> <p style="background-color: yellow; padding: 5px;">Examiner Cue: If asked, “RN essential header temperature is 69°F.”</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 30</u> 10. Verify any NS pump - ON.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant verifies that the 1A NS pump is on.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station
JPM G
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 31</u> 11. Notify Control Room Supervisor this Enclosure shall remain in effect until current or subsequent procedures provide alternate guidance.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant states that they would notify the CRS.</div> <p>Examiner Cue: The Control Room Supervisor has been notified</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 32</u> 12. <u>IF AT ANY TIME</u> containment pressure is less than 1 PSIG, <u>THEN</u> perform the following:</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant acknowledges the step.</div> <p>Examiner Cue: Another operator will monitor containment pressure.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center; margin-top: 20px;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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.
- EP/1/A/5000/ES-1.3, (Transfer to Cold Leg Recirculation) has been implemented.

INITIATING CUES:

The CRS instructs you to align NS to Cold Leg Recirculation per Enclosure 2 of EP/ES-1.3.

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

JPM H

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Perform the Main Turbine Weekly Turbine Trip Test

Alternate Path: Yes

Facility JPM #: New

Safety Function: 7 **Title:** Instrumentation

K/A 012 A2.06 Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of RPS signal to trip the reactor

Rating(s): 4.4 / 4.7 **CFR:** 41.5 / 43.5 / 45.3 / 45.5

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator X In-Plant _____ Perform X Simulate _____

References: PT/1/B/4250/002 A (Main Turbine Weekly Trip Test) Enclosure 13.1 rev. 090
AP/1/A/5500/002 (Turbine Generator Trip) rev.032
EP/1/A/5000/E-0 (Reactor Trip or Safety Injection) rev. 041
EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS) rev. 021

Task Standard: Recognizes reactor trip failure, attempts to trip the reactor and manually inserts control rods.

Validation Time: 5 minutes **Time Critical:** Yes _____ No X

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

COMMENTS

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC #176
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ra mp	Delete In	Event
	xt1o051I (ELECT TRIP TEST)					
	MAL-IPX003A					
	MAL-IPX003B					
	MAL-IRX009	AUTO				
	MAL-MT007 (xt1o051I)		7 SEC			

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 100% power.

INITIATING CUES:

The CRS has directed you to perform PT/1/B/4250/002 A (Main Turbine Weekly Trip Test) Enclosure 13.1 beginning at step 1.2.

EXAMINER NOTE: After reading cue, provide the applicant with a copy of PT/1/B/4250/002 A (Main Turbine Weekly Trip Test) Enclosure 13.1

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 1.2 <u>IF AT ANY TIME</u> a test must be aborted during either the Mechanical Trip Test or the Electrical Trip Test, depress the respective test pushbutton to abort the test and return the EHC System to normal.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant acknowledges the step.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p>NOTE: Annunciator 1AD-1, D/6 "EHC SYSTEM FAULT" will actuate during the performance of this test.</p> <p><u>STEP 2</u> 1.3 Perform the Mechanical Trip Test (Control Room) as follows:</p> <ul style="list-style-type: none"> 1.3.1 Select Turbine Graphic "MECHANICAL & ELECTRICAL TRIP TEST" for display. <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 5px 0;">Applicant selects the MECHANICAL & ELECTRICAL TRIP TEST display on the Turbine Graphic monitor.</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 3</u></p> <ul style="list-style-type: none"> 1.3.2 Depress the "TEST ENABLE" pushbutton and verify the light illuminates. <p><u>STANDARD:</u></p> <p>Applicant depresses TEST ENABLE pushbutton on the Turbine Control Panel and verifies the light illuminates.</p> <p>This step is critical to allow the mechanical trip test to be performed.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4</u></p> <ul style="list-style-type: none"> 1.3.3 Depress the "MECH TRIP TEST" pushbutton and verify the following sequence: <ul style="list-style-type: none"> 1.3.3.1 The "MECH TRIP TEST" light illuminates. <p><u>STANDARD:</u></p> <p>Applicant depresses the MECH TRIP TEST pushbutton on the Turbine Control Panel and verifies the light illuminates.</p> <p>This step is critical to initiate the Mechanical Trip Test.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 5</u></p> <ul style="list-style-type: none"> • 1.3.3.2 The following sequence occurs in the "MECHANICAL TRIP TEST" box in the upper left of Turbine Graphic "MECHANICAL & ELECTRICAL TRIP TEST". • L/O status goes to "COMPLT". • LT050 status goes to "COMPLT". • M-TRIP status goes to "COMPLT". • LT048 status goes to "COMPLT". • RESET status goes to "COMPLT". • LT049 status goes to "COMPLT". • O-TRIP status goes to "COMPLT". • LT048 status goes to "COMPLT". • RESET status goes to "COMPLT" <p><u>STANDARD:</u></p> <p>Applicant verifies that all the listed items go to COMPLT on the MECHANICAL & ELECTRICAL TRIP TEST GRAPHIC on the Turbine Graphic monitor.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u></p> <ul style="list-style-type: none"> 1.3.3.3 The "MECH TRIP TEST" light is dark. <p><u>STANDARD:</u></p> <p>Applicant verifies the MECH TRIP TEST light is dark.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u></p> <ul style="list-style-type: none"> 1.3.4 Depress the "TEST ENABLE" pushbutton and verify the light is dark. <p><u>STANDARD:</u></p> <p>Applicant depresses the TEST ENABLE pushbutton on the Turbine Control Panel and verifies the light is dark.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8</u></p> <ul style="list-style-type: none"> 1.3.5 Acknowledge alarms on Turbine Monitor Control Panel Alarm summary. <p><u>STANDARD:</u></p> <p>Applicant acknowledges the alarms on the Turbine Graphic monitor</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 9</u></p> <ul style="list-style-type: none"> 1.3.6 Verify annunciator 1AD-1, D/6 "EHC SYSTEM FAULT" is dark. <p><u>STANDARD:</u></p> <p>Applicant verifies annunciator 1AD-1, D/6 is dark.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>NOTE: Annunciator 1AD-1, D/6 "EHC SYSTEM FAULT" will actuate during the performance of this test.</p> <p><u>STEP 10</u> 1.4 Perform the Electrical Trip Test (Control Room) as follows:</p> <ul style="list-style-type: none"> 1.4.1 Select Turbine Graphic "MECHANICAL AND ELECTRICAL TRIP TEST" for display. <p><u>STANDARD:</u></p> <p>Applicant ensures that the MECHANICAL AND ELECTRICAL TRIP TEST is displayed on the Turbine Graphic monitor.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 11</u></p> <ul style="list-style-type: none"> 1.4.2 Depress the "TEST ENABLE" pushbutton and verify the light illuminates. <p><u>STANDARD:</u></p> <p>Applicant depresses the TEST ENABLE pushbutton on the Turbine Control Panel and verifies the light illuminates.</p> <p>This step is critical to allow the electrical trip test to be performed.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p>NOTE: Based on the LH fluid temperature and viscosity in the piping to the front standard of the Main Turbine, it is possible to get a Sequence Halt alarm on the turbine panel while performing the Electrical Trip Test.</p> <p><u>STEP 12</u></p> <ul style="list-style-type: none"> 1.4.3 Depress the "ELECT TRIP TEST" pushbutton and verify the following sequence: 1.4.3.1 The "ELECT TRIP TEST" light illuminates. <p><u>STANDARD:</u></p> <p style="background-color: #f0f0f0;">Applicant depresses the ELECT TRIP TEST pushbutton and verifies the light illuminates.</p> <p>This step is critical to initiate the Electrical Trip Test.</p> <p><u>EXAMINER NOTE:</u> Seven seconds after the ELECT TRIP TEST pushbutton is depressed, the Main Turbine will trip requiring entry into AP/1/A/5500/002 (Turbine Generator Trip). The applicant will perform the immediate actions of AP/1A/5500/002, EP/1/A5000/E-0 (Reactor Trip or Safety Injection) and EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS) from memory to successfully complete the JPM. The following procedure steps are listed for reference.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p style="text-align: center;">AP/1/A/5500/002 (Turbine Generator Trip)</p> <p><u>STEP 13</u> 1. Verify reactor power - LESS THAN 69%.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant determines that reactor power is greater than 69 % and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

<p><u>STEP 14</u> 1. RNO Perform the following:</p> <p style="margin-left: 40px;">a. Ensure reactor - TRIPPED.</p> <p style="margin-left: 40px;">b. <u>GO TO</u> EP/1/A/5000/E-0 (Reactor Trip Or Safety Injection).</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant attempts to manually trip the reactor and transitions to E-0.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p style="text-align: center;">EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)</p> <p><u>STEP 15</u> 2. Verify Reactor Trip:</p> <ul style="list-style-type: none"> • All rod bottom lights - LIT • All reactor trip and bypass breakers - OPEN • I/R power - DECREASING. <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant determines that the reactor trip breakers are closed and transitions to the RNO.</p> <p><u>EXAMINER NOTE:</u> Step 1 is to Monitor Enclosure 1 and is not an immediate action.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 16</u> 2. RNO Perform the following:</p> <p style="padding-left: 40px;">a. Trip reactor.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0;">Applicant attempts to trip the reactor.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

Catawba Nuclear Station

JPM H

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 17</u> 2. RNO b. <u>IF</u> reactor will not trip, <u>THEN</u> OPEN concurrently:</p> <ul style="list-style-type: none"> Implement EP/1/A/5000/F-0 (Critical Safety Function Status Trees). <u>GO TO</u> EP/1/A/5000/FR-S.1 (Response To Nuclear Power Generation/ATWS). <p><u>STANDARD:</u></p> <p>Applicant transitions to FR-S.1.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS)	
<p><u>STEP 18</u> 1. Verify Reactor Trip:</p> <ul style="list-style-type: none"> All rod bottom lights - LIT All reactor trip and bypass breakers - OPEN I/R power - DECREASING. <p><u>STANDARD:</u></p> <p>Applicant determines that the reactor trip breakers are closed and transitions to the RNO.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 19</u> 1. RNO Perform the following:</p> <p style="padding-left: 40px;">a. Trip reactor.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant attempts to trip the reactor.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p><u>STEP 20</u> 1. RNO b. <u>IF</u> reactor will not trip, <u>THEN</u> insert rods.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant places the CRD BANK SELECT switch in the MAN position and inserts control rods.</p> <p>This step is critical to take manual control of the control rods and insert negative reactivity.</p> <p>This step is also Time Critical and manual rod insertion must be initiated within 30 seconds of receipt of the first out indication.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">CRITICAL STEP</p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

**Catawba Nuclear Station
JPM H
Sep. 2013 NRC Exam**

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 20</u> 2. Verify Turbine Trip:</p> <ul style="list-style-type: none"> • All turbine stop valves – CLOSED <p><u>STANDARD:</u></p> <p>Applicant verifies the turbine stop valves are closed.</p> <p><u>EXAMINER CUE:</u> The CRS will continue to read the actions of FR-S.1.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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:

- Unit 1 is at 100% power.

INITIATING CUES:

The CRS has directed you to perform PT/1/B/4250/002 A (Main Turbine Weekly Trip Test) Enclosure 13.1 beginning at step 1.2.

Catawba Nuclear Station
JPM I
Sep. 2013 NRC Exam

JPM I

Catawba Nuclear Station
JPM I
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Makeup to the Unit 2 Spent Fuel Pool from RN

Alternate Path: No

Facility JPM #: KF-058 (Modified)

Safety Function: 8 **Title:** Plant Service Systems

K/A 033 A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Abnormal spent fuel pool water level or loss of water level.

Rating(s): 3.1 / 3.5 **CFR:** 41.5 / 43.5 / 45.3 / 45.13

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator _____ In-Plant **X** Perform _____ Simulate **X**

References: OP/2/A/6200/005 Spent Fuel Pool Cooling System rev.078

Task Standard: Lineup completed to supply RN to the Spent Fuel Pool via 2RN-78 and 2KF-104.

Validation Time: 12 minutes **Time Critical:** Yes _____ No **X**

=====

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

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COMMENTS

Catawba Nuclear Station

JPM I

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event

Catawba Nuclear Station

JPM I

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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 minor seismic event has cracked the Unit 2 Spent Fuel Pool causing an unisolable leak of Spent Fuel Pool water.
- Spent Fuel Pool level is 39 feet and slowly decreasing.

INITIATING CUES:

- The Control Room Supervisor directs you to initiate makeup to the Spent Fuel Pool from RN Train 2A per OP/2/A/6200/005 (Spent Fuel Cooling System) Enclosure 4.10.
- All initial conditions have been satisfied for this enclosure.
- Double verification and peer check of procedure steps have been waived during this JPM.

EXAMINER NOTE: After reading the initiating cue, provide the applicant with a copy of OP/2/A/6200/005 Enclosure 4.10.

Catawba Nuclear Station

JPM I

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

<p><u>STEP 1:</u> 3.1 Document Current Spent Fuel Pool Level _____ ft</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;">Applicant documents Spent Fuel Pool level as 39 feet per the initiating cue.</div> <p><u>EXAMINER NOTE:</u> The applicant is not required to locate the level indication in the control room.</p> <p><u>EXAMINER CUE:</u> Fuel Pool Level is 39 feet.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<p><u>STEP 2</u> 3.2 <u>IF</u> desired to makeup from RN System Supply Header 2A, perform the following steps:</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;">Applicant determines to makeup from RN Train 2A per the initial conditions</div> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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Catawba Nuclear Station

JPM I

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 3</u></p> <p>3.2.1 Close 2KF-172 (FWST Overflow To Spent Fuel Pool Isol) (AB-584, MM-62, Rm 400).</p> <p><u>STANDARD:</u></p> <p>Applicant describes closing 2KF-172.</p> <p>EXAMINER CUE: 2KF-172 is closed.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4</u></p> <p>3.2.2 Open 2RN-78 (2A RN Supply To Assured KF Makeup) (AB-589, LL-60, Rm 400).</p> <p><u>STANDARD:</u></p> <p>Applicant describes opening 2RN-78.</p> <p>EXAMINER CUE: 2RN-78 is open.</p> <p>This step is critical to align RN to the Unit 2 Spent Fuel Pool.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM I
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p>CAUTION: Maximum Spent Fuel Pool level shall be 40 feet + 6 inches on 2KFP5120 (Fuel Pool Level) or OAC Point C2A0061 (U2 Spent Fuel Pool Level). Centerline of the Spent Fuel Pool light receptacles is 41 feet.</p> <p><u>STEP 5</u></p> <p>3.2.3 Open 2KF-104 (2A KF Assured Fuel Pool M/U Isol) (AB-584, MM-62, Rm 400).</p> <p><u>STANDARD:</u></p> <p>Applicant describes opening 2KF-104.</p> <p>EXAMINER CUE: 2KF-104 is open.</p> <p>This step is critical to align RN to the Unit 2 Spent Fuel Pool.</p> <p>EXAMINER CUE: If monitoring of spent fuel pool level is mentioned by the applicant, provide the following cue: “Another operator will be monitoring spent fuel pool level.”</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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 minor seismic event has cracked the Unit 2 Spent Fuel Pool causing an unisolable leak of Spent Fuel Pool water.
- Spent Fuel Pool level is 39 feet and slowly decreasing.

INITIATING CUES:

- The Control Room Supervisor directs you to initiate makeup to the Spent Fuel Pool from RN Train 2A per OP/2/A/6200/005 (Spent Fuel Cooling System) Enclosure 4.10.
- All initial conditions have been satisfied for this enclosure.
- Double verification and peer check of procedure steps have been waived during this JPM.

**Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam**

JPM J

Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Establishing NC Pump Seal Injection from the SSF

Alternate Path: No

Facility JPM #: AD-002 (Modified)

Safety Function: 4P **Title:** Reactor Coolant System

K/A 015/017 AA1.07 Ability to operate and /or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): RCP seal water injection subsystem.

Rating(s): 3.5 / 3.4 **CFR:** 41.7 / 45.5 / 45.6

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator _____ In-Plant X Perform _____ Simulate X

References: EP/2/A/5000/G-1 (Generic Enclosures) Enclosure 19 (Establishing NC Makeup/Seal Injection From The SSF) rev. 7

Task Standard: Seal Injection flow from Standby Makeup Pump #2 is established to the Unit 2 NC pumps within 10 minutes.

Validation Time: 5 minutes **Time Critical:** Yes X No _____

=====

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

=====

COMMENTS

Catawba Nuclear Station

JPM J

Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event

Catawba Nuclear Station

JPM J

Sep. 2013 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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 total loss of all AC power has occurred on Unit 2.
- EP/2/A/5000/ECA-0.0 (Loss of All AC Power) has been entered.

INITIATING CUES:

- You have been directed to establish seal injection to the Unit 2 NC pumps from the SSF per EP/2/A/5000/G-1 (Unit 2 Generic Control Room Enclosures), Enclosure 19 (Establishing NC Makeup/Seal Injection from the SSF), steps 1 through 8.
- Another operator has aligned alternate power to 2EMXS per EP/2/A/5000/G-1 Enclosure 20.
- This JPM is time critical.

EXAMINER NOTE:

After the applicant locates the local copy of EP/2/A/5000/G-1, hand the applicant a copy of EP/2/A/5000/G-1, Enclosure 19.

Catawba Nuclear Station

JPM J

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

NOTE: Indications of 1SLXG being de-energized are as follows:

- Normal lighting in SSF off with emergency lights on
- "LINE VOLTS" on 0CNSL0001 indicating zero volts
- Annunciator 0AD-11, B/6 "LOAD CENTER 1SLXG TROUBLE" - LIT
- "LOAD CENTER 1SLXG BUS VOLTAGE" on 1SLXG indicating zero volts.

___ SAT

___ UNSAT

STEP 1 1. **IF 1SLXG is de-energized, THEN place SSF diesel in operation as follows:**

STANDARD:

Applicant uses local indications and determines that 1SLXG is not de-energized, and the SSF diesel will not need to be started.

Examiner Cue: As indications are located:

- **Normal SSF lighting is ON**
- **Voltmeter reads 600v.**
- **Annunciator B-6, "Load Center 1SLXG Trouble" is DARK.**
- **"1SLXG bus volts" reads 600 volts.**

COMMENTS:

Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 2</u> 2. Ensure 2NV-876 (Stdby M/U To Cont Equip Sump 2A) - CLOSED.</p> <p><u>STANDARD:</u></p> <p>Applicant locates the indication for 2NV-876 and verifies the green CLSD light is lit.</p> <p>Examiner Cue: GREEN CLOSED light is LIT.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3</u> 3. IF annunciator 0AD-11, D/1 (ESS MCC 2EMXS LOSS OF VOLTAGE) LIT, <u>THEN</u> perform the following:</p> <p><u>STANDARD:</u></p> <p>Applicant checks that 0AD-11, D/1 is DARK and verifies that 2EMXS is energized and that this step does not apply.</p> <p>Examiner Cue: Annunciator D/1 is DARK.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p>STEP 4 4. <u>IF</u> "UNIT 2 SSF CONTROLS ENGAGED" DARK, <u>THEN</u> perform the following:</p> <p><u>STANDARD:</u></p> <p>Applicant locates "Unit 2 SSF ENGAGED" and verifies that the light is LIT and that this step does not apply.</p> <p><u>Examiner Cue:</u> UNIT 2 SSF CONTROLS ENGAGED light is lit.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p>STEP 5 5. <u>IF</u> "UNIT 2 SSF CONTROLS ENGAGED" LIT, <u>THEN</u> perform the following:</p> <p>a. Ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 2NV-865A (Stdby M/U Pump Suct Frm Xfer Tube) <p><u>STANDARD:</u></p> <p>Applicant locates the switch for 2NV-865A and determines that 2NV-865A is closed and describes opening 2NV-865A by depressing the red OPEN pushbutton.</p> <p><u>Examiner Cue:</u> Green CLSD light is LIT.</p> <p><u>Examiner Cue:</u> AFTER Applicant describes depressing the red OPEN pushbutton for 2NV-865A: "Red OPEN light is LIT".</p> <p>This step is critical to align a suction source for Standby Makeup Pump #2</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u> 5.</p> <p>a. Ensure the following valves - OPEN:</p> <ul style="list-style-type: none"> • 2NV-872A (Stdbby M/U Pmp Filt Otlt). <p><u>STANDARD:</u></p> <p>Applicant locates the switch for 2NV-872A and determines that 2NV-872A is closed and describes opening 2NV-872A by depressing the red OPEN pushbutton.</p> <p>Examiner Cue: Green CLSD light is LIT.</p> <p>Examiner Cue: AFTER Applicant describes depressing the red OPEN pushbutton for 2NV-872A: Red OPEN light is LIT.</p> <p>This step is critical to align a flow path for the Standby Makeup #2.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u> 5. b. CLOSE 2NV-89A (NC Pmps Seal Ret Cont Isol).</p> <p><u>STANDARD:</u></p> <p>Applicant locates the switch for 2NV-89A and determines that 2NV-89A is open and describes closing 2NV-89A by depressing the green CLSD pushbutton.</p> <p>Examiner Cue: Red OPEN light is LIT.</p> <p>Examiner Cue: AFTER Applicant describes depressing the green CLOSE pushbutton for 2NV-89A: Green CLSD light is LIT.</p> <p>This step is critical to ensure voids are collapsed in the seal-leakoff line before flow from the Stand By Makeup Pump arrives.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 8</u> 6. Ensure 2NV-877 (Stdby M/U To NC Pump Seal Inj) - OPEN.</p> <p><u>STANDARD:</u></p> <p>Applicant locates the switch for 2NV-877 and determines that 2NV-877 is OPEN.</p> <p>Examiner Cue: Red OPEN light is LIT.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 9</u> 7. Start "STDBY M/U PUMP #2" by depressing "ON" pushbutton on SSF console.</p> <p><u>STANDARD:</u></p> <p>Applicant locates the switch for STDBY M/U PUMP #2 and describes depressing the red ON pushbutton.</p> <p>Examiner Cue: After the push button has been depressed, state that the Red ON light is LIT.</p> <p>Examiner Note: If the applicant states that they would verify seal flow on 2NVP6150 (UNIT 2 STDBY M/U FLOW) for the NC pumps, give the second part of the CUE below.</p> <p>Examiner Cue: Standby Makeup Pump discharge flow is 26 gpm.</p> <p>This step is critical to provide seal water flow to the NC pumps.</p> <p style="text-align: center;">CRITICAL END TIME _____</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

**Catawba Nuclear Station
JPM J
Sep. 2013 NRC Exam**

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 10</u> 8. Notify Control Room Supervisor of status of "STDBY M/U PUMP #2".</p> <p><u>STANDARD:</u></p> <p>Applicant locates a phone and describes calling the control room.</p> <p>Examiner Cue: Repeat back information given by the applicant.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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 total loss of all AC power has occurred on Unit 2.
- EP/2/A/5000/ECA-0.0 (Loss of All AC Power) has been entered.

INITIATING CUES:

- You have been directed to establish seal injection to the Unit 2 NC pumps from the SSF per EP/2/A/5000/G-1 (Unit 2 Generic Control Room Enclosures), Enclosure 19 (Establishing NC Makeup/Seal Injection from the SSF), steps 1 through 8.
- Another operator has aligned alternate power to 2EMXS per EP/2/A/5000/G-1 Enclosure 20.
- This JPM is time critical.

Catawba Nuclear Station
JPM K
Sep. 2013 NRC Exam

JPM K

Catawba Nuclear Station
JPM K
Sep. 2013 NRC Exam
EVALUATION SHEET

Task: Shifting Main Transformer Auxiliaries

Alternate Path: No

Facility JPM #: EP-016 (Modified)

Safety Function: 6 **Title:** Electrical

K/A 062 A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Types of loads that, if de-energized, would degrade or hinder plant operation.

Rating(s): 3.4 / 3.9 **CFR:** 41.5 / 43.5 / 45.3 / 45.13

Preferred Evaluation Location:

Preferred Evaluation Method:

Simulator _____ In-Plant **X** Perform _____ Simulate **X**

References: OP/2/A/6350/005 (Alternate AC Power Sources) rev. 056, Enclosure 4.20

Task Standard: The 2A Main Transformer Auxiliaries are transferred to an energized source.

Validation Time: 15 minutes **Time Critical:** Yes _____ No **X**

=====

Applicant: Time Start: _____
NAME _____ Docket # _____ Time Finish: _____

Performance Rating: Performance Time _____

SAT _____ UNSAT _____

Examiner: _____ / _____
NAME SIGNATURE DATE

=====

COMMENTS

Catawba Nuclear Station
JPM K
Sep. 2013 NRC Exam

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Reset to IC
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. Ensure simulator setup per table below.
6. Place simulator in RUN and acknowledge any alarms.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

✓	Instructor Action	Final	Delay	Ramp	Delete In	Event

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READ TO APPLICANT

DIRECTION TO APPLICANT:

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INITIAL CONDITIONS:

- Unit 2 is at 100% power.
- The incoming feeder breaker to 2LXC tripped due to a load center fault.
- As a result, one-half of the 2A Main Transformer Auxiliaries have been de-energized.

INITIATING CUES:

The Unit Supervisor directs you to shift the 2A Main Transformer Auxiliaries to the 2LXD Feeder per Enclosures 4.20 (Shifting Main Transformer 2A Auxiliaries) of OP/2/A/6350/005 (Alternate AC Power Sources).

EXAMINER NOTE: After reading cue, provide the applicant with a copy of OP/2/A/6350/005, Enclosure 4.20.

Catawba Nuclear Station

JPM K

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
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START TIME: _____

- NOTE:**
1. Shifting of power supplies shall be performed without delay.
 2. All breakers and alarm lights are located inside the cabinet at the Main Transformer.
 3. During normal operation, loss of a power supply (from LXC or LXD) will be indicated by the associated "NO VOLTAGE BANK A (B)" alarm light at the transformer.
 4. Electrical PPE (high voltage gloves, FR clothing, face shield) is required for shifting power supplies.

Examiner Note: Applicant should state that they would acquire the required PPE.

STEP 1: 3.1 **IF** shifting Bank A power supplies, perform the following:

3.1.1 Verify voltage indicated on 2LXD per one of the following:

- Transformer 2TXD Supply Voltage meter with 2LXD-4B closed

OR

- Transformer 2TXS Supply Voltage meter with 2LXD-8B closed

STANDARD:

Applicant verifies voltage indicated on transformer 2TXD with 2LXD-4B closed or 2TXS with 2LXD-8B closed.

Examiner Cue: 600 volts is indicated.

COMMENTS:

___ SAT

___ UNSAT

Catawba Nuclear Station

JPM K

Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 2</u> 3.1.2 IF this is an unexpected loss of power, verify the following at Transformer 2A:</p> <ul style="list-style-type: none"> • "NO VOLTAGE BANK A" alarm light illuminated. • "NO VOLTAGE BANK B" alarm light dark. <p><u>STANDARD:</u></p> <p>Applicant verifies "NO VOLTAGE BANK A" alarm light is illuminated and the "NO VOLTAGE BANK B" alarm light is dark.</p> <p>Examiner Cue: NO VOLTAGE BANK A is LIT and NO VOLTAGE BANK B is DARK.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3</u> 3.1.3 Open "NORMAL FEEDER 2LXC" breaker.</p> <p><u>STANDARD:</u></p> <p>Applicant describes opening the NORMAL FEEDER 2LXC breaker by placing it in the OFF (down) position.</p> <p>Examiner Cue: NORMAL FEEDER 2LXC is in the OFF position.</p> <p>This step is critical to allow the lockout bar to be slid in the following step.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM K
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 4</u> 3.1.4 Slide lockout bar to the left.</p> <p><u>STANDARD:</u></p> <p>Applicant describes sliding the lockout bar to the left.</p> <p>Examiner Cue: Lockout bar is to the left.</p> <p>This step is critical to allow closing of the EMERG FEEDER 2LXD breaker in the following step.</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 5</u> 3.1.5 Close "EMERG FEEDER 2LXD" breaker.</p> <p><u>STANDARD:</u></p> <p>Applicant describes closing the EMERG FEEDER 2LXD breaker by placing the breaker to the ON (up) position.</p> <p>Examiner Cue: EMERG FEEDER 2LXD breaker is in the ON position.</p> <p>This step is critical to energize the transformer auxiliaries for the 2A Main Transformer</p> <p><u>COMMENTS:</u></p>	<p>CRITICAL STEP</p> <p>___ SAT</p> <p>___ UNSAT</p>

Catawba Nuclear Station
JPM K
Sep. 2013 NRC Exam

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 6</u> 3.1.6 Acknowledge any alarms present.</p> <p><u>STANDARD:</u></p> <p>Applicant describes acknowledging any alarms.</p> <p>Examiner Cue: Alarms have been acknowledged.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 7</u> 3.1.7 Complete and file Enclosure 4.23 (Unit 2 Main Transformers Cooler Groups Status) to record status.</p> <p><u>STANDARD:</u></p> <p>Applicant reads the step.</p> <p>Examiner Cue: Another operator will complete and file enclosure 4.23</p> <p>NOTE: At this point, Bank A is supplied from 2LXD. Subsequent steps are to return Bank A to 2LXC.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;">END OF TASK</p>	<p>___ SAT</p> <p>___ UNSAT</p>

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

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