

**Catawba Nuclear Station  
Admin JPM A.1-1 RO  
May 2014 NRC Initial License Exam**

**Admin JPM A.1-1  
RO**

**Catawba Nuclear Station**  
**Admin JPM A.1-1 RO**  
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**EVALUATION SHEET**

**Task:** Determine License Status Active / Inactive

**Alternate Path:** None.

**Facility JPM #:** None.

**Safety Function:** **Title:**

**K/A** 2.1.1 Knowledge of conduct of operations requirements

**Rating(s):** 3.8 / 4.2 **CFR:** 41.10 / 45.13

**Preferred Evaluation Location:**

**Preferred Evaluation Method:**

Simulator \_\_\_\_\_ Room   X   Perform   X   Simulate \_\_\_\_\_

**References:** NSD 512 "Maintenance of RO/SRO Licenses"

**Task Standard:** Applicant determines the correct status of each of the three Reactor Operator licenses. Operator A is active, Operator B and C are inactive.

**Validation Time:** 10 minutes **Time Critical:** Yes \_\_\_\_\_ No   X  

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**Applicant:** NAME \_\_\_\_\_ Docket # \_\_\_\_\_ Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ Performance Time \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

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**COMMENTS**

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# Catawba Nuclear Station

## Admin JPM A.1-1 RO

### May 2014 NRC Initial License 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:

1. Three Reactor Operators have the following history:
2. All three have off-shift assignments at the plant, are current in License Operator Requalification Training, and have had a medical examination in the past 2 years.
3. None of the 3 has worked any shift since 12/01/14.
4. Active/Inactive status and time on shift since October 1, 2014 is as follows for each of the Reactor Operators:

<b>Operator A</b>	<b>License was active on October 1, 2014.</b>	
	10/02/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/03/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/04/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 BOP.
	10/06/14	Worked 0700-1900 shift as Unit 1 BOP.
	11/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/17/14	Worked 1900-0700 shift as Containment Closure Coordinator.
<b>Operator B</b>	<b>License was active on October 1, 2014.</b>	
	10/01/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/02/14	Worked 0700-1900 shift in the Tagging Office.
	10/03/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/02/14	Worked 0700-1900 shift as Unit 1 BOP.
<b>Operator C</b>	<b>License was inactive on October 1, 2014.</b>	
	10/5/14 thru 10/09/14 worked 40 hours under the direction of the Unit 1 OATC and completed all requirements for license reactivation.	
	11/12/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/13/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/15/14	Worked 0700-1900 shift as Unit 1 BOP. During the shift, reported to Medical for evaluation for a total of 2 hours.
	11/16/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/21/14	Worked 1900-0700 shift as Unit 1 OATC.

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**INITIATING CUES:**

1. You are to determine if each of the Reactor Operators is eligible to work the Unit 1 OATC position on the 0700 - 1900 shift on January 31, 2015. Record your answer in the blanks below (yes or no).

Operator A \_\_\_\_\_.

Operator B \_\_\_\_\_.

Operator C \_\_\_\_\_.

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**START TIME:** \_\_\_\_\_

<p><u>STEP 1:</u> Determine the Active / Inactive status of Operator A license.</p> <p><u>STANDARD:</u></p> <p>Applicant determines the license is <u>Active</u> because the operator worked the required 5 complete twelve hour shifts in a qualifying license position during the previous quarter.</p> <p><b>This step is critical to ensure that the individual is qualified to stand license duties in the control room.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Determine the Active / Inactive status of Operator B license.</p> <p><u>STANDARD:</u></p> <p>Applicant determines the license is <u>Inactive</u> because the operator did not work the required 5 complete twelve hour shifts in a qualifying license position during the previous quarter.</p> <p><b>This step is critical to preclude a non qualified individual from fulfilling license duties in the control room.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP 3: Determine the Active / Inactive status of Operator C license.

STANDARD:

Applicant determines the license is Inactive because the operator did not work the required 5 complete twelve hour shifts in a qualifying license position during the previous quarter.

**This step is critical to ensure that the individual is qualified to stand license duties in the control room.**

COMMENTS:

**END OF TASK**

**CRITICAL  
STEP**

\_\_\_ SAT

\_\_\_ UNSAT

**STOP TIME** \_\_\_\_\_

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

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## 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:

1. Three Reactor Operators have the following history:
2. All three have off-shift assignments at the plant, are current in License Operator Requalification Training, and have had a medical examination in the past 2 years.
3. None of the 3 has worked any shift since 12/01/14.
4. Active/Inactive status and time on shift since October 1, 2014 is as follows:

<b>Operator A</b>	<b>License was active on October 1, 2014.</b>	
	10/02/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/03/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/04/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 BOP.
	10/06/14	Worked 0700-1900 shift as Unit 1 BOP.
	11/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/17/14	Worked 1900-0700 shift as Containment Closure Coordinator.
<b>Operator B</b>	<b>License was active on October 1, 2014.</b>	
	10/01/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/02/14	Worked 0700-1900 shift in the Tagging Office.
	10/03/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/02/14	Worked 0700-1900 shift as Unit 1 BOP.
<b>Operator C</b>	<b>License was inactive on October 1, 2014.</b>	
	10/5/14 thru 10/09/14 worked 40 hours under the direction of the Unit 1 OATC and completed all requirements for license reactivation.	
	11/12/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/13/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/15/14	Worked 0700-1900 shift as Unit 1 BOP. During the shift, reported to Medical for evaluation for a total of 2 hours.
	11/16/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/21/14	Worked 1900-0700 shift as Unit 1 OATC.

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)  
2014 NRC Initial License Exam RO Admin JPM A.1-1

## INITIATING CUES:

1. You are to determine if each of the Reactor Operators is eligible to work the Unit 1 OATC position on the 0700 - 1900 shift on January 31, 2015. Record your answer in the blanks below (yes or no).

Operator A \_\_\_\_\_.

Operator B \_\_\_\_\_.

Operator C \_\_\_\_\_.



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**JOB PERFORMANCE MEASURE**

**Task:** Develop Removal from Service for A KR (Recirculated Cooling Water Pump)

**Alternate Path:** No

**Facility JPM #:** New

**K/A Rating(s):** Generic 2.2.13 (4.1/4.3) Knowledge of tagging and clearance procedures.

**CFR:** 41.10 / 45.13

**Task Standard:** Component removal from service positions and sequence are listed on Attachment 13.3, in accordance with the general guidelines of SOMP 02-01, (Safety Tagging and Configuration Control), and the Examiner Answer Key for SOMP 02-01, Attachment 13.3, (Blank R&R Enclosures - Removal or Removal Addendum).

**Preferred Evaluation Location:**

**Preferred Evaluation Method:**

Classroom   X   In-Plant       

Perform   X   Simulate       

**Procedure References:**

SOMP 02-01 (Safety Tagging And Configuration Control), Revision 017

**Validation Time:** 21 Minutes

**Time Critical:** No

**Applicant:** Name                                  Docket#                                  Time Start:                                 

Time Finish:                                 

**Performance Ratings:**

SAT        UNSAT        Question Grade        Performance Time:                                 

**Examiner:**                                  /                                   
NAME SIGNATURE DATE

**COMMENTS**

# **Catawba Nuclear Station**

## **Admin JPM A.2**

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#### **Tools/Equipment/Procedures Needed:**

Blank copy of SOMP 02-01, Attachment 13.3 (Blank R&R Enclosures), pages 1-3  
CN-1600-01.00 (Flow Diagram of the KR System)  
CN-1703-03.02 (1SLXC One Line Diagram)  
SOMP 02-01, (Safety Tagging and Configuration Control)  
Ensure applicant is provided with two Page 2s of the SOMP 02-01 Attachment 13.3.

#### **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:**

The A KR Pump has been secured in accordance with OP/0/B/6400/004 (Recirculated Cooling Water) and is to be tagged out for removal and inspection of 1KR-4 (A KR Pump Discharge Check Valve). ST2 is not available.

#### **INITIATING CUE:**

The Unit Supervisor has directed you to use the attached drawings CN-1600-01.00 (Flow Diagram of the KR System) and CN-1703-03.02 (1SLXC One Line Diagram) in order to develop the removal from service enclosure for 1KR-4 inspection, in accordance with SOMP 02-01. You are to complete SOMP 02-01, Attachment 13.3 by listing the component, removal position, and sequence number in the appropriate blanks on the form.

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**Component Information Sheet**

**EXAMINER NOTE:** The following list is for Examiner information ONLY. Do NOT provide this list to applicant.

1SLXC-5B (A KR Pump Motor)

1KR-5 (A KR Pump Disch)

1KR-1 (A KR Pump Suction)

1KR-3 (A KR Discharge Drain)

1KR-263 (A KR Pump Suction Drain)

1KR-282 (A KR Pump Suction Line Vent )

1KR-2 (A KR Pump Vent)

1KR-4 (A KR Pump Disch Check)

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## Admin JPM A.2

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START TIME: \_\_\_\_\_

<p><b>EXAMINER NOTE: Provide the following to the applicant:</b></p> <ul style="list-style-type: none"> <li>Initiating Cue.</li> <li>A copy of drawing CN-1600-01.00 (Flow Diagram of the KR System) and CN-1703-03.02 (1SLXC One Line Diagram).</li> <li><u>When applicant demonstrates ability to locate SOMP 02-01</u>, provide a copy of SOMP 02-01, pages 1 through 29.</li> <li>A blank copy of SOMP 02-01, Attachment 13.3, (Blank R&amp;R Enclosures), all 3 pages.</li> </ul>	
<p><b>EXAMINER NOTE:</b>    <u>Answer Key</u> is the attached SOMP 02-01, Attachment 13.3 (completed in RED ink). Also, see the KEY for explanation of Critical Steps aspect.</p> <p><u>STANDARD:</u> Applicant lists correct removal positions in a sequence in accordance with SOMP 02-01 general guidelines:</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEPS</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p>This JPM is complete.</p>	

STOP TIME: \_\_\_\_\_

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**APPLICANT CUE SHEET**

**(To Be Returned To Examiner Upon Completion Of Task)**

**INITIAL CONDITIONS:**

The A KR Pump has been secured in accordance with OP/0/B/6400/004 (Recirculated Cooling Water) and is to be tagged out for removal and inspection of 1KR-4 (A KR Pump Discharge Check Valve). ST2 is not available.

**INITIATING CUE:**

The Unit Supervisor has directed you to use the attached drawings CN-1600-01.00 (Flow Diagram of the KR System) and CN-1703-03.02 (1SLXC One Line Diagram), develop the removal from service enclosure for 1KR-4 inspection, in accordance with SOMP 02-01. You are to complete SOMP 02-01, Attachment 13.3 by listing the component, removal position, and sequence number in the appropriate blanks on the form.

KEY

KEY

KEY

KEY

KEY

KEY

KEY

## Attachment 13.3

SOMP 02-01

## Blank R &amp; R Enclosures

Page 1 of 3

## Removal or Removal Addendum

Station: <b>Catawba</b>		Dept: <b>OPS</b>		Page ____ of ____		Tagout ID:	
Enclosure Type:							
Enclosure Name:				Unit #			
System:		<b>KR (Recirculated Cooling Water)</b>					
Reason:		<b>Inspect 1KR-4 (A KR Pump Disch Check)</b>					
Remarks:							
EC Number:							
Prepared by:		at:		Reviewed By:		at:	
Cross Disciplinary:		at:		Approved By:		at:	
Rev By:							
Technical Specifications / SLC Determination by:							
Risk Evaluation By:				SSF Degrade Reported By:			
Containment Closure/Integrity Evaluation By:				Fire Impairment By:			
				Pre-Job Briefing Given By:			
Control Room Supervisor Acknowledge:				In Progress Procedure and Tagout Review:			
_____ Date/Time ____ / ____							
1.47 Panel Reviewed By: (CNS ONLY)		<u>Unit 1</u>		<u>Unit 2</u>		<u>N/A</u>	
OAC Points Removed From Service By:		<u>Unit 1</u>		<u>Unit 2</u>		<u>Unit 3</u>	
Control Room Logs Updated By:		<u>Unit 1</u>		<u>Unit 2</u>		<u>Unit 3</u>	
Safety Tag Program Updated By:							

KEY

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Attachment 13.3

KEY

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KEY  
SOMP 02-01

## Blank R &amp; R Enclosures

Page 2 of 3

## Enclosure Execution Section

Enclosure Execution Start Date / Time: \_\_\_\_\_ / \_\_\_\_\_

Seq# <b>1</b>	Equip Tag: <b>1SLXC-5B</b>	Position: <b>RACKED OUT</b>	Placed By:
Red Tag ID <b>XXXXX</b>	Equipment Description: <b>A KR Pump Motor</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>2</b>	Equip Tag: <b>1KR-5</b>	Position: <b>CLOSED</b>	Placed By:
Red Tag ID <b>XXXXX</b>	Equipment Description: <b>A KR Pump Disch</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>2</b>	Equip Tag: <b>1KR-1</b>	Position: <b>CLOSED</b>	Placed By:
Red Tag ID <b>XXXXX</b>	Equipment Description: <b>A KR Pump Suction</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>3</b>	Equip Tag: <b>1KR-3</b>	Position: <b>OPEN</b>	Placed By:
Red Tag ID <b>Note 1</b>	Equipment Description: <b>A KR Pump Disch Drain</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>3</b>	Equip Tag: <b>1KR-263</b>	Position: <b>OPEN</b>	Placed By:
Red Tag ID <b>Note 1</b>	Equipment Description: <b>A KR Pump Suction Drain</b>	As Found:	CV By:
Location:		LBL:	IV By:

Enclosure Execution Completion Date / Time: \_\_\_\_\_ / \_\_\_\_\_



## Blank R &amp; R Enclosures

## Enclosure Execution Section

Enclosure Execution Start Date / Time: _____ / _____
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Seq# <b>4</b>	Equip Tag: <b>1KR-282</b>	Position: <b>OPEN</b>	Placed By:
Red Tag ID <b>Note 1</b>	Equipment Description: <b>A KR Pump Suction Line Vent</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>4</b>	Equip Tag: <b>1KR-2</b>	Position: <b>OPEN</b>	Placed By:
Red Tag ID <b>Note 1</b>	Equipment Description: <b>A KR Pump Vent</b>	As Found:	CV By:
Location:		LBL:	IV By:

Seq#: <b>5</b>	Equip Tag: <b>1KR-4</b>	Position: <b>VAR</b>	Placed By:
Red Tag ID <b>No Tag</b>	Equipment Description: <b>A KR Pump Disch Check</b>	As Found:	CV By:
Location:		LBL:	IV By:

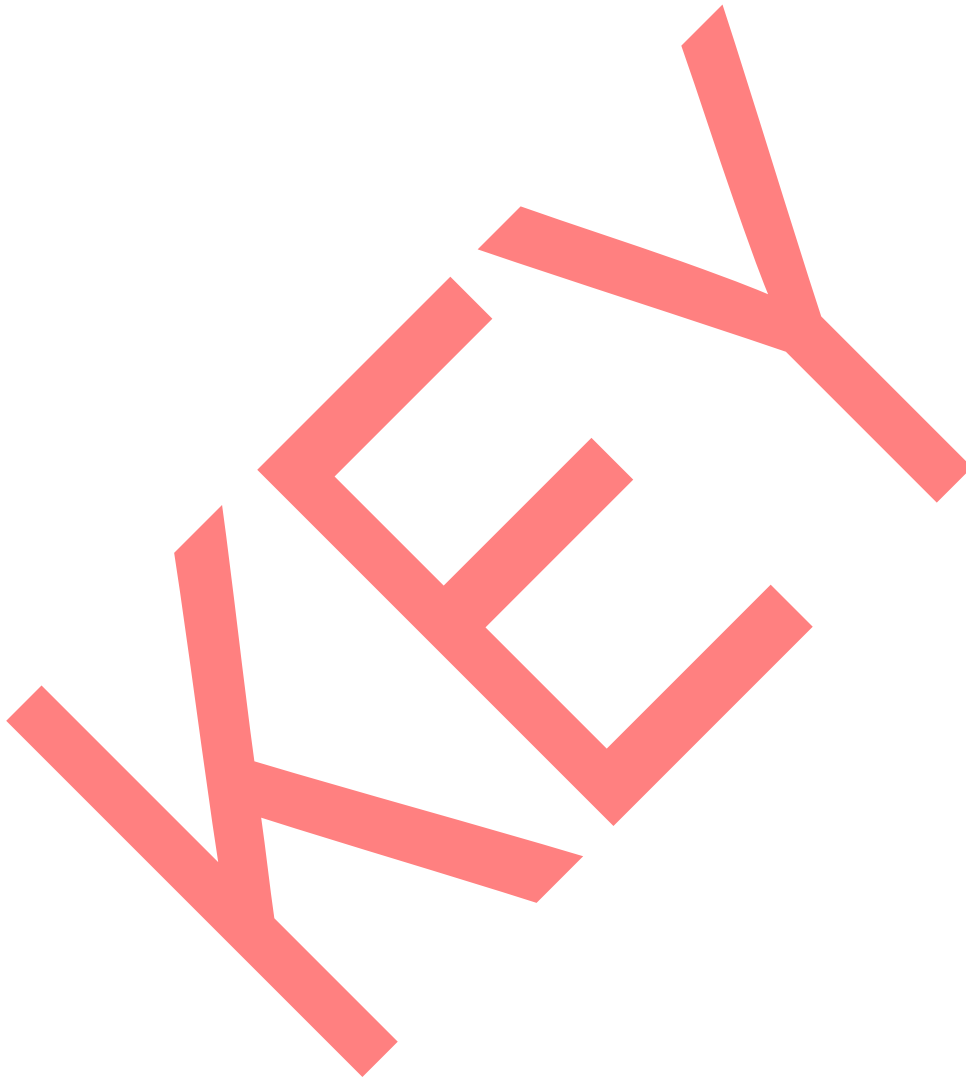
Enclosure Execution Completion Date / Time: _____ / _____
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**Note 1** One vent or drain valve should be assigned a red tag per the requirements of SOMP 02-01.

**CRITICAL STEPS:** Seq. # steps 1 through 4 only are critical in order to complete required steps for tagout of component. See Note 1 which explains that only one vent or drain is adequate for assignment of a red tag.

**EXAMINER NOTE:**

**Page 3 of 3 of Attachment 13.3 is titled, "Partial Restoration or Restoration Enclosure," and is NOT required for this JPM KEY.**



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**READ TO APPLICANT**

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**INITIAL CONDITIONS:**

- Unit 1 is in Mode 1.
- BAT = 7500 ppmB
- RMWST = 4 ppmB
- FWST level is currently at 95.2% at 2790 ppmB.

**INITIATING CUES:**

The CRS directs you to determine the amount of Boric Acid and Water to add to bring the level up to 96.5% and 2800 ppmB per OP/1/A/6200/014 (Refueling Water System) Enclosure 4.4 (FWST Makeup from Blender) steps 3.3 and 3.4.

The OAC is available on your computer.

IV is waived for this JPM.

**Examiner Notes:**

1. Provide the applicant with a copy of OP/1/A/6200/014 Enclosure 4.4 completed up through step 3.2.
2. Do NOT provide applicant with the graph printout of FWST level, unless applicant specifically requests it.

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START TIME: \_\_\_\_\_

<p><b><u>STEP 3.3.1:</u></b> Initial volume of FWST _____ = <math>V_i</math>.</p> <p><b><u>STANDARD:</u></b></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines initial volume = 376,040 gallons (395,000 X .952).</p> <p><b>This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.</b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><b><u>STEP 3.3.2:</u></b> Final volume of FWST after makeup _____ = <math>V_{FW}</math>.</p> <p><b><u>STANDARD:</u></b></p> <p style="background-color: #f0f0f0; padding: 5px;">Applicant determines final volume = 381,175 gallons (395,000 X .965).</p> <p><b>This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.</b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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<p><b><u>STEP 3.3.3:</u></b> Compute the total gallons of makeup water to be added to the FWST _____ = <math>V_f</math>.</p> <p style="text-align: center;"><math>V_f = V_{FW} - V_i</math></p> <p><b><u>STANDARD:</u></b></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant determines total makeup needed = 5,135 gallons.</p> <p><b>This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.</b></p> <p><b><u>Examiner Note:</u></b> 5,135 determined by subtracting 376,040 from 381,175.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 3.3.4:</u></b> Initial boron concentration of water in the FWST _____ = <math>C_i</math>.</p> <p><b><u>STANDARD:</u></b></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant determines initial concentration of 2790 ppmB from Initial Conditions.</p> <p><b><u>COMMENTS:</u></b></p>	

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<p><u>STEP 3.3.5:</u> Solve for the desired makeup water boron concentration, <math>C_f</math>.</p> $C_f = \frac{C_{FW} V_{FW} - C_i V_i}{V_f} \quad C_f = \underline{\hspace{2cm}}$ <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant determines desired concentration of makeup water is 3532 ppmB (<math>\pm 5</math>).</p> <p><b>This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>
<p><u>STEP 3.4.1:</u> Boron concentration of water in BAT <math>\underline{\hspace{2cm}}</math> = <math>C_1</math>.</p> <p><u>STANDARD:</u></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant determines BAT concentration = 7500 ppmB from Initial Conditions.</p> <p><u>COMMENTS:</u></p>	<p><input type="checkbox"/> SAT</p> <p><input type="checkbox"/> UNSAT</p>



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<p><u>STEP 3.4.2:</u>    Boron concentration of water in RMWST _____ = <math>C_2</math>.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;"> Applicant determines RMWST concentration = 4 ppmB from Initial Conditions. </div> <p><u>COMMENTS:</u></p>	  ____ SAT  ____ UNSAT
<p><u>STEP 3.4.3:</u>    Total gallons of makeup water to be added to FWST  _____ = <math>V_f</math> from Step 3.3.3.</p> <p><u>STANDARD:</u></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;"> Applicant determines total makeup = 5,135 gallons. </div> <p><u>COMMENTS:</u></p>	  ____ SAT  ____ UNSAT

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<p><b><u>STEP 3.4.4:</u></b> Solve for the amount of boric acid to be added (<math>V_1</math>) using <math>C_f</math> obtained in Step 3.3.5.</p> $V_1 = \frac{V_f (C_f - C_2)}{C_1 - C_2} \quad V_1 = \underline{\hspace{2cm}}$ <p><b><u>STANDARD:</u></b></p> <p style="background-color: #e0e0e0;">Applicant determines acid required = 2,416 gallons (<math>\pm 10</math>).</p> <p><b>This step is critical to ensure accurate addition of required acid.</b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 3.4.5:</u></b> If <math>V_1</math> is negative, contact the OWPM Staff for instruction on adjusting the boron concentration in the FWST.</p> <p><b><u>STANDARD:</u></b></p> <p style="background-color: #e0e0e0;">Applicant determines that this step does not apply.</p> <p><b><u>COMMENTS:</u></b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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STEP 3.4.6: Solve for the amount of RMWST water to be added ( $V_2$ ).

$$V_2 = V_f - V_1 \quad V_2 = \text{_____ gal.}$$

STANDARD:

Applicant determines water added = 2,719 gallons ( $\pm 10$ ).

**This step is critical to ensure adequate addition of water to FWST such that adequate boron concentration is maintained.**

COMMENTS:

**END OF TASK**

**CRITICAL  
STEP**

\_\_\_ SAT

\_\_\_ UNSAT

**STOP TIME** \_\_\_\_\_

# **APPLICANT CUE SHEET**

**(RETURN TO EXAMINER UPON COMPLETION OF TASK)**

**2014 NRC Initial License Exam**

**RO/SRO Admin JPM A.1-2**

## **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 in Mode 1.
- BAT = 7500 ppmB
- RMWST = 4 ppmB
- FWST level is currently at 95.2% at 2790 ppmB.

## **INITIATING CUES:**

The CRS directs you to determine the amount of Boric Acid and Water to add to bring the level up to 96.5% and 2800 ppmB per OP/1/A/6200/014 (Refueling Water System) Enclosure 4.4 (FWST Makeup from Blender) steps 3.3 and 3.4.

IV is waived for this JPM.

The OAC is available on your computer.

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**Admin JPM A.3**

**RO / SRO**

**Catawba Nuclear Station**  
**Admin JPM A.3**  
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**DATA SHEET**

**Task:** Calculate Low Pressure Service Water Discharge flow for a liquid radioactive release.

**Alternate Path:** N/A

**Facility JPM #:** 2010 NRC Initial License Exam SRO-D Admin.

**Safety Function:** N/A

**K/A** 2.3.11 Ability to control radiation releases

**Importance:** 3.8 / 4.3 **CFR:** 41.11 / 43.4 / 45.10

**Preferred Evaluation Location:**

**Preferred Evaluation Method:**

Simulator \_\_\_\_\_ Classroom   X   Perform   X   Simulate \_\_\_\_\_

**References:** PT/0/A/4250/011 (RL Temperature And Discharge Flow Determination) rev 050

**Task Standard:** Applicant obtains needed data, correctly calculates total discharge flow, and determines that the liquid waste release can NOT continue.

**Validation Time:** 15 minutes **Time Critical:** Yes \_\_\_\_\_ No   X  

**Applicant:**  
NAME \_\_\_\_\_ Docket # \_\_\_\_\_ Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** Performance Time \_\_\_\_\_

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

**COMMENTS**

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**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:**

1. Unit 1 is currently performing a liquid waste release from the Monitor Tank Building.
2. Low Pressure Service Water (RL) Flow transmitter 0RLP5080 (RL Disch Flow) and OAC points C1P0903 and C2P0903 (RL Line A Disch Flow-Hourly Average) are INOPERABLE and have been removed from service.
3. The RN system is aligned to the RL discharge header.
4. Units 1 and 2 are both at 100% power.

**INITIATING CUES:**

You are directed to calculate the total RL discharge flow using Enclosure 13.2 (Total Discharge Flow Calculation Sheet) of PT/0/A/4250/011 and determine if adequate flow exists to continue the release per the LWR currently in progress. Record your answer in the spaces below.

Total RL Discharge Flow \_\_\_\_\_ GPM.

Adequate Flow Exists \_\_\_\_\_.  
Yes/No

**EXAMINER NOTE:**

After reading initiating cue, provide applicant with a copy of PT/0/A/4250/011 marked up as follows:

- ✓ Step 12.1 signed off.
- ✓ Enclosure 13.1 signed off up to Step 1.1.4.3 for performing Enclosure 13.2

Also provide a copy of the LWR permit report.

# Catawba Nuclear Station

## Admin JPM A.3

### May 2014 NRC Initial License Exam

STEP / STANDARD	SAT / UNSAT
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START TIME: \_\_\_\_\_

<p><b>STEP 1:</b> 1.1.2 Perform the following calculations to obtain Total Discharge Head:</p> <p>RL Disch Pressure = 0RLP5030 + 3.9 psi</p> <p>RL Disch Pressure = <u>66</u> + 3.9 psi = <u>69.9</u> psig</p> <p>Lake Elevation = <u>569</u> 0RNP7380 (Lake Wylie Level) or obtained from hydro central per Step 1.1.4.2 of Enclosure 13.1</p> <p>( <u>69.9</u> psig x 2.311ft/psig) + (571.75 - <u>569</u> ft) = <u>164.3</u> ft RL Disch Pressure Lake Elev Total Disch Head</p> <p><b>STANDARD:</b></p> <p>Applicant calculates RL Discharge pressure as 164.3 ft. (Acceptable range: 163 - 165 ft. based on accounting for rounding and truncation.)</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><b>EXAMINER NOTE:</b> Step 1.1.1 is N/A because 0RLP5030 indicator IS available.</p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
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**Catawba Nuclear Station**  
**Admin JPM A.3**  
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STEP / STANDARD	SAT / UNSAT
<p><b><u>STEP 2:</u></b> 1.1.3 Using Total Discharge Head from Step 1.1.2 obtain the RL Pump Flow value using <u>one</u> of the following:</p> <p style="padding-left: 40px;"><input type="checkbox"/> Enclosure 13.7 (RL Pumps Head / Capacity Table)</p> <p style="padding-left: 40px;">OR</p> <p style="padding-left: 40px;"><input type="checkbox"/> OAC Databook in "Secondary Systems Databook Calcs" using "RL Total Discharge Head vs. RL Pump Flow Rate"</p> <p><b><u>STANDARD:</u></b></p> <div style="background-color: #f0f0f0; padding: 5px; margin: 10px 0;">Applicant determines that RL Pump Flow per Enclosure 13.7 is 38,354 GPM.</div> <p><b><u>EXAMINER NOTE:</u></b> Range of 37,405 – 39,219 GPM is acceptable.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<p><b>STEP 3:</b> 1.1.4 Once RL Pump Flow value is obtained, calculate Total RL Supply based on number of RL pumps in operation:</p> $\frac{38354}{\text{RL Pump Flow}} \times \frac{1}{\text{\# of pumps in op.}} = \frac{38354}{\text{Total RL Supply (A)}}$ <p><b>STANDARD:</b></p> <p>Applicant calculates Total RL Supply to be 38,354 GPM.</p> <p><b>EXAMINER NOTE:</b> Range carried forward is 37,405 to 39,219 GPM.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 4:</b> 1.1.5 Enter Total RL supply (A) value in Step 1.4.</p> <p><b>STANDARD:</b></p> <p>Applicant enters value calculated for Total RL Supply in blank (A) on page 3 of 3 of Enclosure 13.2.</p> <p><b>EXAMINER NOTE:</b> Steps 1.2.1 and 1.2.2 are not applicable per initiating cue.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<p><b>STEP 5:</b> 1.2.3 <u>IF</u> either C1P5854 (RN Train A Calculated Total Flow) <u>OR</u> C1P5855 (RN Train B Calculated Total Flow) is <u>NOT</u> available, perform the following to obtain total RN flow:</p> <p>1.2.3.1 Calculate RN Pump Train A flow:  <math display="block">\frac{0}{1RNP7520} + \frac{0}{2RNP7520} = \frac{0}{\text{RN Pump Train A flow}} \text{ gpm}</math></p> <p>1.2.3.2 Calculate RN Pump Train B flow:  <math display="block">\frac{17,000}{1RNP7510} + \frac{0}{2RNP7510} = \frac{17,000}{\text{RN Pump Train B flow}} \text{ gpm}</math></p> <p><u>STANDARD:</u></p> <p>Applicant calculates total RN flow to be 17,000 GPM.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>STEP 6:</b> 1.2.4 Perform the following calculations to obtain Total RN Flow:</p> $\frac{0}{\text{RN Pump Train A Flow}} + \frac{17,000}{\text{RN Pump Train B Flow}} = \frac{17,000}{\text{Total RN Flow}} \text{ gpm (B)}$ <p><u>STANDARD:</u></p> <p>Applicant calculates total RN flow to be 17,000 GPM.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<p><u>STEP 7:</u> 1.2.5 Enter Total RN Flow (B) in Step 1.4.</p> <p><u>STANDARD:</u></p> <p>Applicant enters Total RN Flow calculated in previous step in blank (B) on page 3 of 3.</p> <p><b><u>EXAMINER NOTE:</u></b> Steps 1.3.1 and 1.3.2 are not applicable per data sheet.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 8:</u> 1.3.3 Calculate Cooling Tower Total Evaporation as follows:</p> $\frac{13,500}{(C1P5853)} + \frac{14,000}{(C2P5853)} = \frac{27,500}{\text{Total Evaporation}} \text{ gpm (C)}$ <p><u>STANDARD:</u></p> <p>Applicant calculates Total Cooling Tower Evaporation to be 27,500 GPM and enters this value in blank (C) of step 1.4.</p> <p><b>This step is critical because improper entry affects the calculation for Total RL Discharge Flow.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<p><u>STEP 9:</u> 1.4 Perform the following calculation to obtain Total RL Disch Flow:</p> $\frac{38354}{(A)} + \frac{17,000}{(B)} - \frac{27,500}{(C)} = \underline{27,854} \text{ gpm}$ <p><u>STANDARD:</u></p> <p>Applicant calculates Total RL discharge flow to be 27,854 gpm.</p> <p><b><u>EXAMINER NOTE:</u></b> Calculation range carried forward would be 26,905 to 28,719 GPM.</p> <p><b>This step is critical to ensure that enough RL flow exists to dilute the liquid waste release that is in progress.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<div data-bbox="152 367 1198 541" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>NOTE:</b> Due to problems with current RL instrumentation (PIP C-10-4540) and discrepancies between calculated and OAC RL flow (PIP C-12-1399), a safety factor is applied to the Calculated Total RL Disch Flow of Step 1.4 to ensure conservative Total RL Disch Flow rates are used for dilution purposes. This is a temporary conservative action for use till RL discharge flow instrumentation problems are resolved.</p> </div> <p><b>STEP 10:</b> 1.5 Apply dilution safety factor to obtain Total RL Discharge flow from the Calculated Total RL Discharge Flow from Step 1.4 as follows:</p> <p style="text-align: center;"><math>(27,854 \text{ gpm}) \times 0.65 = 18,105 \text{ gpm}</math></p> <p><b>STANDARD:</b></p> <p style="background-color: #e0e0e0; padding: 5px;">Applicant calculates Total RL Discharge flow to be 18,105 GPM.</p> <p><b>EXAMINER NOTE:</b> Calculation range carried forward would be 17,488 to 18,667 GPM.</p> <p><b>This step is critical to ensure that enough RL flow exists to dilute the liquid waste release that is in progress.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP / STANDARD	SAT / UNSAT
<p><u>STEP 11</u> Determination of adequate RL flow.</p> <p><u>STANDARD:</u></p> <p>Applicant determines that Total RL Discharge Flow is LESS than the "Minimum RL Flow interlock setpoint for radionuclides (gpm)" required by and listed on the Liquid Waste Release Permit Report, and that the release may NOT continue.</p> <p><b>This step is critical for ensuring termination of a release with inadequate dilution flow.</b></p> <p><u>EXAMINER NOTE:</u></p> <p>The Liquid Waste release Permit Report requires at least 27,600 gpm RL flow in order for the release to continue. If the applicant does NOT apply the dilution safety factor (listed in STEP 10 of this JPM), it will appear that adequate RL flow DOES exist (27,854 gpm). But with the required dilution safety factor, RL flow can only be calculated as 18,105 gpm: <u>inadequate for the release to continue.</u></p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>END OF TASK</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

**STOP TIME** \_\_\_\_\_

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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:

1. Unit 1 is currently performing a liquid waste release from the Monitor Tank Building.
2. Low Pressure Service Water (RL) Flow transmitter 0RLP5080 (RL Disch Flow) and OAC points C1P0903 and C2P0903 (RL Line A Disch Flow-Hourly Average) are INOPERABLE and have been removed from service.
3. The RN system is aligned to the RL discharge header.
4. Units 1 and 2 are both at 100% power.

### INITIATING CUES:

You are directed to calculate the total RL discharge flow using Enclosure 13.2 (Total Discharge Flow Calculation Sheet) of PT/0/A/4250/011 and determine if adequate flow exists to continue the release per the LWR currently in progress. Record your answer in the spaces below.

Total RL Discharge Flow \_\_\_\_\_ GPM.

Adequate Flow Exists \_\_\_\_\_.  
Yes/No



# **APPLICANT CUE SHEET**

**(RETURN TO EXAMINER UPON COMPLETION OF TASK)**

## **Unit 1 and Unit 2 Data Sheet for 1030**

**Unit 1 Cooling Tower Evaporation (PID C1P5853) – 13,500 GPM**

**Unit 2 Cooling Tower Evaporation (PID C2P5853) – 14,000 GPM**

## **Low Pressure Service Water (RL) Status**

**RL pump A only is in service.**

**RL Header Pressure (0RLP5030) – 66 PSIG**

**Lake Wylie Level (0RNP7380) – 569 Feet**

## **Nuclear Service Water (RN) Status**

**1B RN pump is in service**

**OAC points C1P5854, C1P5855, and C1P5856 are removed from service**

**RN Pump Train A flow (1RNP7520) – 0 GPM**

**RN Pump Train A flow (2RNP7520) – 0 GPM**

**RN Pump Train B flow (1RNP7510) – 17,000 GPM**

**RN Pump Train B Flow (2RNP7510) – 0 GPM**

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**Admin JPM A.1-1  
SRO**

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**May 2014 NRC Initial License Exam**

**EVALUATION SHEET**

**Task:** Determine License Status Active / Inactive

**Alternate Path:** None.

**Facility JPM #:** None.

**Safety Function:** **Title:**

**K/A** 2.1.1 Knowledge of conduct of operations requirements

**Rating(s):** 3.8 / 4.2 **CFR:** 41.10 / 45.13

**Preferred Evaluation Location:**

**Preferred Evaluation Method:**

Simulator \_\_\_\_\_ Room   X   Perform   X   Simulate \_\_\_\_\_

**References:** NSD 512 "Maintenance of RO/SRO Licenses", Definitions, Rev. 6

**Task Standard:** Applicant determines the correct status of each of the three Licensed Operator licenses. Operator A and C are active, Operator B is inactive.

**Validation Time:** 10 minutes **Time Critical:** Yes \_\_\_\_\_ No   X  

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**Applicant:** NAME \_\_\_\_\_ Docket # \_\_\_\_\_ Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ Performance Time \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

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**COMMENTS**

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# Catawba Nuclear Station

## Admin JPM A.1-1 SRO

### May 2014 NRC Initial License 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:

1. Three Licensed Operators have the following history:
2. All three have off-shift assignments at the plant, are current in License Operator Requalification Training, and have had a medical examination in the past 2 years.
3. None of the 3 has worked any shift since 12/01/14.
4. Active/Inactive status and time on shift since October 1, 2014 is as follows:

<b>Operator A - RO</b>	<b>License was active on October 1, 2014.</b>	
	10/02/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/03/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/04/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 BOP.
	10/06/14	Worked 0700-1900 shift as Unit 1 BOP.
	11/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/17/14	Worked 1900-0700 shift as Containment Closure Coordinator.
<b>Operator B - SRO</b>	<b>License was active on October 1, 2014.</b>	
	10/01/14	Worked 0700-1900 shift as Unit 1 CRS.
	10/02/14	Worked 0700-1900 shift as Unit 1 Unit Supervisor.
	10/03/14	Worked 0700-1900 shift as Unit 1 CRS.
	10/05/14	Worked 0700-1900 shift as Unit 1 WCC Supervisor.
	10/14/14	Worked 1900-0700 shift as Unit 1 CRS.
	11/02/14	Worked 0700-1900 shift as Shift Manager.
<b>Operator C - RO</b>	<b>License was inactive on October 1, 2014.</b>	
	10/5/14 thru 10/09/14 worked 40 hours under the direction of the Unit 1 OATC and completed all requirements for license reactivation.	
	11/12/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/13/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/15/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/16/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/21/14	Worked 1900-0700 shift as Unit 1 OATC.

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**INITIATING CUES:**

You are to determine:

1. If each of the Reactor Operators (Operator A and C) is eligible to work the Unit 1 OATC position on the 0700 - 1900 shift on January 31, 2015.
2. If the SRO (Operator B) is eligible to work the Unit 1 CRS position on the 0700-1900 shift on January 31, 2015.

Record your answer in the blanks below (yes or no).

Operator A (RO) \_\_\_\_\_.

Operator B (SRO) \_\_\_\_\_.

Operator C (RO) \_\_\_\_\_.

# Catawba Nuclear Station

## Admin JPM A.1-1 SRO

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START TIME: \_\_\_\_\_

<p><u>STEP 1:</u> Determine the Active / Inactive status of Operator A (RO) license.</p> <p><u>STANDARD:</u></p> <p>Candidate determines the license is <u>Active</u> because the operator worked the required 5 complete twelve hour shifts in a qualifying license position during the previous quarter.</p> <p><b>This step is critical to ensure that the individual is qualified to stand license duties in the control room.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Determine the Active / Inactive status of Operator B (SRO) license.</p> <p><u>STANDARD:</u></p> <p>Candidate determines the license is <u>Inactive</u> because the operator did not work the required 5 complete twelve hour shifts in a qualifying license position during the previous quarter.</p> <p><b>This step is critical to preclude a non qualified individual from fulfilling license duties in the control room.</b></p> <p><b>Note: Unit Supervisor does NOT meet the requirement for licensed duties of a Senior Reactor Operator.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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STEP 3: Determine the Active / Inactive status of Operator C license.

STANDARD:

Candidate determines the license is Active because the license was reactivated in the previous quarter and that the required 5 complete twelve hour shifts in a qualifying license position during the quarter have also been completed.

**This step is critical to ensure that the individual is qualified to stand license duties in the control room.**

COMMENTS:

**END OF TASK**

**CRITICAL  
STEP**

\_\_\_ SAT

\_\_\_ UNSAT

**STOP TIME** \_\_\_\_\_

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

2014 NRC Initial License Exam SRO Admin JPM A.1-1

## 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:

1. Three Licensed Operators have the following history:
2. All three have off-shift assignments at the plant, are current in License Operator Requalification Training, and have had a medical examination in the past 2 years.
3. None of the 3 has worked any shift since 12/01/14.
4. Active/Inactive status and time on shift since October 1, 2014 is as follows:

<b>Operator A - RO</b>	<b>License was active on October 1, 2014.</b>	
	10/02/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/03/14	Worked 0700-1900 shift as Unit 1 OATC.
	10/04/14	Worked 0700-1900 shift as Containment Closure Coordinator.
	10/05/14	Worked 0700-1900 shift as Unit 1 BOP.
	10/06/14	Worked 0700-1900 shift as Unit 1 BOP.
	11/14/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/17/14	Worked 1900-0700 shift as Containment Closure Coordinator.
<b>Operator B - SRO</b>	<b>License was active on October 1, 2014.</b>	
	10/01/14	Worked 0700-1900 shift as Unit 1 CRS.
	10/02/14	Worked 0700-1900 shift as Unit 1 Unit Supervisor.
	10/03/14	Worked 0700-1900 shift as Unit 1 CRS.
	10/05/14	Worked 0700-1900 shift as Unit 1 WCC Supervisor.
	10/14/14	Worked 1900-0700 shift as Unit 1 CRS.
	11/02/14	Worked 0700-1900 shift as Shift Manager.
<b>Operator C - RO</b>	<b>License was inactive on October 1, 2014.</b>	
	10/5/14 thru 10/09/14 worked 40 hours under the direction of the Unit 1 OATC and completed all requirements for license reactivation.	
	11/12/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/13/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/15/14	Worked 0700-1900 shift as Unit 1 OATC.
	11/16/14	Worked 1900-0700 shift as Unit 1 OATC.
	11/21/14	Worked 1900-0700 shift as Unit 1 OATC.



# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)  
2014 NRC Initial License Exam SRO Admin JPM A.1-1

## INITIATING CUES:

You are to determine:

1. If each of the Reactor Operators (Operator A and C) is eligible to work the Unit 1 OATC position on the 0700 - 1900 shift on January 31, 2015.
2. If the SRO (Operator B) is eligible to work the Unit 1 CRS position on the 0700-1900 shift on January 31, 2015.

Record your answer in the blanks below (yes or no).

Operator A (RO) \_\_\_\_\_.

Operator B (SRO) \_\_\_\_\_.

Operator C (RO) \_\_\_\_\_.

**Catawba Nuclear Station  
Admin JPM A.2  
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**Admin JPM A.2  
SRO**



# **Catawba Nuclear Station**

## **Admin JPM A.2**

### **May 2014 NRC Initial License Exam**

#### **Tools/Equipment/Procedures Needed:**

Blank copy of SOMP 02-01, Attachment 13.3 (Blank R&R Enclosures), pages 1-3  
CN-1705-01.01 (125 VDC Vital Instrumentation and Control)  
SOMP 02-01, (Safety Tagging and Configuration Control)

#### **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:**

- Vital Battery 1EBC has been removed from service per OP/1/A/6350/008 and needs to be tagged for cell replacement.
- Unit 1 is in Mode 1.
- ST2 is not available.

#### **INITIATING CUE:**

The Unit Supervisor has directed you to use the attached drawing CN-1705-01.01 (125 VDC Vital Instrumentation and Control) in order to develop the removal from service enclosure for 1EBC in accordance with SOMP 02-01. You are to complete SOMP 02-01, Attachment 13.3 by listing the component, removal position, and sequence number in the appropriate blanks on the form.

**Catawba Nuclear Station  
Admin JPM A.2  
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**Component Information Sheet**

**EXAMINER NOTE:** The following list is for Examiner information ONLY. Do NOT provide this list to applicant.

1EDC-F02A (Battery 1EBC)

# Catawba Nuclear Station

## Admin JPM A.2

### May 2014 NRC Initial License Exam

START TIME: \_\_\_\_\_

<p><b>EXAMINER NOTE: Provide the following:</b></p> <ul style="list-style-type: none"> <li>Initiating Cue.</li> <li>A copy of drawing CN-1705-01.01 (125 VDC Vital Instrumentation and Control).</li> <li><u>When applicant demonstrates ability to locate SOMP 02-01</u>, provide a copy of SOMP 02-01, pages 1 through 29.</li> <li>A blank copy of SOMP 02-01, Attachment 13.3, (Blank R&amp;R Enclosures), all 3 pages.</li> </ul>	
<p><b>EXAMINER NOTE:</b>    <u>Answer Key</u> is the attached SOMP 02-01, Attachment 13.3 (completed in RED ink).</p> <p><u>STANDARD:</u> Applicant lists correct removal positions in a sequence in accordance with SOMP 02-01 general guidelines.</p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p>This JPM is complete.</p>	

STOP TIME: \_\_\_\_\_

**Catawba Nuclear Station**  
**Admin JPM A.2**  
**May 2014 NRC Initial License Exam**

**APPLICANT CUE SHEET**

**(To Be Returned To Examiner Upon Completion Of Task)**

**INITIAL CONDITIONS:**

- Vital Battery 1EBC has been removed from service per OP/1/A/6350/008 and needs to be tagged for cell replacement.
- Unit 1 is in Mode 1.
- ST2 is not available.

**INITIATING CUE:**

The Unit Supervisor has directed you to use the attached drawing CN-1705-01.01 (125 VDC Vital Instrumentation and Control) in order to develop the removal from service enclosure for 1EBC in accordance with SOMP 02-01. You are to complete SOMP 02-01, Attachment 13.3 by listing the component, removal position, and sequence number in the appropriate blanks on the form.

**Catawba Nuclear Station**  
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**Subsequently:**

After 1EBC is tagged, 1EDA-F03B (1EDA Tie Breaker to 1EDC) trips open due to breaker failure. You are to determine how this affects Technical Specifications. List LCO(s) and Condition(s).



KEY

KEY

KEY

KEY

KEY

KEY

KEY

## Attachment 13.3

SOMP 02-01

Blank R &amp; R Enclosures

Page 1 of 3

## Removal or Removal Addendum

Station: <b>Catawba</b>		Dept: <b>OPS</b>		Page ____ of ____		Tagout ID:	
Enclosure Type:							
Enclosure Name:				Unit # <b>1</b>			
System:		<b>EPL (125 VDC Vital I&amp;C Power)</b>					
Reason:		<b>1EBC Cell Replacement</b>					
Remarks:							
EC Number:							
Prepared by:		at:		Reviewed By:		at:	
Cross Disciplinary:		at:		Approved By:		at:	
Rev By:							
Technical Specifications / SLC Determination by:							
Risk Evaluation By:				SSF Degrade Reported By:			
Containment Closure/Integrity Evaluation By:				Fire Impairment By:			
				Pre-Job Briefing Given By:			
Control Room Supervisor Acknowledge:				InProgress Procedure and Tagout Review:			
_____ Date/Time ____ / ____							
1.47 Panel Reviewed By: (CNS ONLY)			<u>Unit 1</u>		<u>Unit 2</u>		<u>N/A</u>
OAC Points Removed From Service By:			<u>Unit 1</u>		<u>Unit 2</u>		<u>Unit 3</u>
Control Room Logs Updated By:			<u>Unit 1</u>		<u>Unit 2</u>		<u>Unit 3</u>
Safety Tag Program Updated By:							

KEY

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KEY

## Attachment 13.3

SOMP 02-01

## Blank R &amp; R Enclosures

Page 2 of 3

## Enclosure Execution Section

Enclosure Execution Start Date / Time: _____ / _____			
Seq# <b>1</b>	Equip Tag: <b>Remove 1EBC from service per OP/1/A/6350/008</b>	Position: <b>N/A</b>	Placed By:
Red Tag ID <b>N/A</b>	Equipment Description: <b>Procedure</b>	As Found:	CV By:
Location:		LBL:	IV By:
Seq# <b>2</b>	Equip Tag: <b>1EDC-F02B</b>	Position: <b>OFF</b>	Placed By:
Red Tag ID <b>XXXXX</b>	Equipment Description: <b>1EDC Main Breaker</b>	As Found:	CV By:
Location: <b>U1 Vital (560' EL)</b>		LBL:	IV By:
Seq# <b>3</b>	Equip Tag: <b>1EDC-F02A</b>	Position: <b>OFF</b>	Placed By:
Red Tag ID <b>XXXXX</b>	Equipment Description: <b>Battery 1EBC</b>	As Found:	CV By:
Location: <b>U1 Vital (560' EL)</b>		LBL:	IV By:
Enclosure Execution Completion Date / Time: _____ / _____			

**EXAMINER NOTE:**

Page 3 of 3 of Attachment 13.3 is titled, "Partial Restoration or Restoration Enclosure," and is NOT required for this JPM KEY.

Seq.# 1 and 3 only are CRITICAL STEPS. Seq. #2 is NOT critical.

**Subsequent:** Initial T.S. entry will be LCO 3.8.4 (DC Sources-Operating) Condition A due to one channel being inoperable. This condition requires bus tie breakers to be closed. Failure of the Tie Breaker will require entry into 3.8.7 (Inverters - Operating) Condition A for 1E1C Inverter.

**Catawba Nuclear Station  
SRO Admin JPM A.4  
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**Admin JPM A.4**

**SRO**

**Catawba Nuclear Station**  
**SRO Admin JPM A.4**  
**May 2014 NRC Initial License Exam**

**DATA SHEET**

**Task:** Make Emergency Classification and Determine Protective Action Recommendations

**Alternate Path:** N/A

**Facility JPM #:** Modified from SEP-003 and SEP-098

**Safety Function:** N/A

**K/A** 2.4.40 Knowledge of SRO responsibilities in emergency plan implementation.

**Importance:** 2.7 / 4.5 **CFR:** 41.10 / 43.5 / 45.11

**Preferred Evaluation Location:**

**Preferred Evaluation Method:**

Simulator \_\_\_\_\_ Classroom   X   Perform   X   Simulate \_\_\_\_\_

**References:** RP/0/A/5000/001 (Classification of Emergency), Rev. 031  
RP/0/A/5000/005 (General Emergency), Rev. 050

**Task Standard:** Event classified as a "General Emergency" based on the criteria in 4.1.C.6, 4.1.N2 and 4.1.F.1 for a total of 11 points, within 15 minutes of JPM start.  
Determines Protective Action Recommendations as

**Validation Time:** 22 minutes **Time Critical:** Yes   X   No \_\_\_\_\_

**Applicant:** NAME \_\_\_\_\_ Docket # \_\_\_\_\_ Time Start: \_\_\_\_\_  
Time Finish: \_\_\_\_\_

**Performance Rating:** Performance Time \_\_\_\_\_

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

**COMMENTS**

# **Catawba Nuclear Station**

## **SRO Admin JPM A.4**

### **May 2014 NRC Initial License 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 in an Alert, following a LOCA that occurred 45 minutes ago.

#### **Subsequently:**

- During the transition to Cold Leg Recirculation, the crew was unable to establish recirculation from either train, and entered EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation).
- The STA validated a RED PATH on Core Cooling.
- The crew has been in FR-C.1 (Response to Inadequate Core Cooling) for 30 minutes, attempting to restore a cooling path.
- Containment pressure is 2.8 psig and slowly decreasing.
- Containment hydrogen concentration is 0.6% and stable.
- Field monitoring teams are conducting surveys.
- Wind direction is from 200°.
- Wind speed is 8 mph, as indicated on OAC Pt. C1P0253.
- Conditions are clear.

#### **INITIATING CUES:**

Update the Event Classification and list the update classification on the line below:

Updated Event Classification: \_\_\_\_\_

#### **EXAMINER NOTE:**

Once applicant determines the event is now a General Emergency, provide them with an Emergency Notification Form, and provide cue: "Fill out Line 5 of the Emergency Notification Form".

# Catawba Nuclear Station

## SRO Admin JPM A.4

### May 2014 NRC Initial License Exam

STEP / STANDARD	SAT / UNSAT
-----------------	----------------

START TIME: \_\_\_\_\_

<p><b><u>STEP 1:</u></b> Classify the event using RP/0/A/5000/001, Classification of Emergency.</p> <p><b><u>STANDARD:</u></b></p> <p><b>Applicant classifies the event as a “General Emergency” based on: 4.1.C.1, 4.1.N.2, and 4.1.F.1.</b></p> <p><b>1 point      4.1.C.1 Core Cooling - RED Path &gt; 15 minutes.</b></p> <p><b>AND</b></p> <p><b>5 points      4.1.N.2 Greater than available makeup capacity as indicated by a loss of NCS Subcooling.</b></p> <p><b>AND</b></p> <p><b>5 points      4.1.F.1 Status of Core Cooling CSF - RED</b></p> <p><b>The above is a total of 11 points, requiring classification as a <u>General Emergency</u> (4.1.G.2 - Loss of Any Two Fission Barriers with the Potential Loss of the Third).</b></p> <p><b><u>EXAMINER NOTE:</u></b> It is critical that the classification be made and the emergency be declared within 15 minutes of the recorded start time.</p> <p><b>TIME EMERGENCY DECLARED _____.</b></p> <p><b>This step is critical to ensure the proper classification will be communicated.</b></p> <p><b><u>COMMENTS:</u></b></p> <p><b><u>Examiner NOTE:</u></b> Once applicant determines the event is now a General Emergency, provide them with a partially completed updated Emergency Notification Form, and provide cue: "Fill out Line 5 of the Emergency Notification Form".</p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
---	---

# Catawba Nuclear Station

## SRO Admin JPM A.4

### May 2014 NRC Initial License Exam

STEP / STANDARD	SAT / UNSAT
<p><u>STEP 2:</u> Determine Initial Protective Action Recommendations, using RP/005 (General Emergency), starting at Step 2.3.</p> <p><u>STANDARD:</u></p> <p>Applicant obtains RP/0/A/5000/005 (General Emergency) and refers to Step 2.3.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 3:</u> 2.3 Make immediate Protective Action Recommendations (PAR) on Line 5 of the Emergency Notification Form as follows:</p> <p>2.3.1 Determine PAR for evacuating and sheltering the public based on current lower tower wind speed, OACT Pt. C1P0253 (use upper tower wind speed, OAC Pt. C1P0251, if lower tower wind speed is not available) as below:</p> <p><u>STANDARD:</u></p> <p>Applicant obtains RP/0/A/5000/005 (General Emergency) and refers to Step 2.3. Applicant determines the following PARs:</p> <p><b>Evacuate two mile radius AND all affected zones 5 miles downwind and shelter in place remaining 10 mile EPZ.</b>  <b>Evacuate zones A0, A1, B1, E1, F1</b>  <b>Shelter in place A2, A3, B2, C1, C2, D1, D2, E2, F2, F3</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

**STOP TIME** \_\_\_\_\_

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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:

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### Subsequently:

- During the transition to Cold Leg Recirculation, the crew was unable to establish recirculation from either train, and entered EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation).
- The STA validated a RED PATH on Core Cooling.
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- Containment hydrogen concentration is 0.6% and stable.
- Field monitoring teams are conducting surveys.
- Wind direction is from 200°.
- Wind speed is 8 mph, as indicated on OAC Pt. C1P0253.
- Conditions are clear.

### INITIATING CUES:

Update the Event Classification and list the update classification on the line below:

Updated Event Classification: \_\_\_\_\_