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

Admin JPM A.2
RO

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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: 15 Minutes **Time Critical:** No

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Applicant: Name_____ Docket#_____ Time Start: _____

Time Finish: _____

Performance Ratings:

SAT _____ UNSAT _____ Question Grade _____ Performance Time: _____

Examiner: _____ _____/_____

NAME SIGNATURE DATE

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COMMENTS

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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)

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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START TIME: _____

EXAMINER NOTE: Provide the following to the applicant:

- Initiating Cue.
- A copy of drawing CN-1600-01.00 (Flow Diagram of the KR System) and CN-1703-03.02 (1SLXC One Line Diagram).
- When applicant demonstrates ability to locate SOMP 02-01, provide a copy of SOMP 02-01, pages 1 through 29.
- A blank copy of SOMP 02-01, Attachment 13.3, (Blank R&R Enclosures), all 3 pages.

EXAMINER NOTE: **Answer Key** is the attached SOMP 02-01, Attachment 13.3 (completed in RED ink). Also, see the KEY for explanation of Critical Steps aspect. STANDARD: Applicant lists correct removal positions in a sequence in accordance with SOMP 02-01 general guidelines: COMMENTS:	**CRITICAL STEPS** ___ SAT ___ UNSAT
This JPM is complete.	

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

Removal or Removal Addendum

Station: Catawba **Dept:** OPS **Page** ____ **of** _____			**Tagout ID:**
Enclosure Type: **Enclosure Name:**		**Unit #**	
System:	KR (Recirculated Cooling Water)		
Reason:	Inspect 1KR-4 (A KR Pump Disch Check)		
Remarks:			
EC Number:			
Prepared by:	**at:**	**Reviewed By:**	**at:**
Cross Disciplinary: **Rev By:**	**at:**	**Approved By:**	**at:**
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: _____ **Date/Time** _____/____	**In Progress Procedure and Tagout Review:**

1.47 Panel Reviewed By: (CNS ONLY)	**Unit 1**	**Unit 2**	**N/A**
OAC Points Removed From Service By:	**Unit 1**	**Unit 2**	**Unit 3**
Control Room Logs Updated By:	**Unit 1**	**Unit 2**	**Unit 3**
Safety Tag Program Updated By:			

Enclosure Execution Section

Enclosure Execution Start Date / Time: _____ / _____

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

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

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

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

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

Enclosure Execution Completion Date / Time: _____ / _____

Enclosure Execution Section

Enclosure Execution Start Date / Time: _____ / _____

Seq# 4	Equip Tag: 1KR-282	Position: OPEN	Placed By:
Red Tag ID Note 1	Equipment Description: A KR Pump Suction Line Vent	As Found:	CV By:
Location:		LBL:	IV By:

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

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

Enclosure Execution Completion Date / Time: _____ / _____

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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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 _____ **R**oom **X** **P**erform **X** **S**imulate _____

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 and C are active, Operator B is inactive.

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

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Applicant: Time Start: _____

NAME Docket # Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____

NAME SIGNATURE DATE

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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. 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:

Operator A	**License was active on October 1, 2014.**	
	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.
Operator B	**License was active on October 1, 2014.**	
	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 in the Tagging Office.
Operator C	**License was inactive on October 1, 2014.**	
	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:

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: _____

STEP 1: Determine the Active / Inactive status of Operator A license. STANDARD: Candidate determines the license is Active because the operator worked 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:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: Determine the Active / Inactive status of Operator B license. STANDARD: Candidate 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 preclude a non qualified individual from fulfilling license duties in the control room.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

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)
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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 for each of the Reactor Operators:

Operator A	**License was active on October 1, 2014.**	
	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.
Operator B	**License was active on October 1, 2014.**	
	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 in the Tagging Office.
Operator C	**License was inactive on October 1, 2014.**	
	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)
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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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EVALUATION SHEET

Task: Calculate Boric Acid and Water for Addition to FWST

Alternate Path: None.

Facility JPM #: FW-001

Safety Function: N/A **Title:**

K/A G2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc.

Rating(s): 3.9 / 4.2 **CFR:** 41.10 / 43.5 / 45.12

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator _____ **R**oom **X** **P**erform **X** **S**imulate _____

References: OP/1/A/6200/014 (Refueling Water System), Enclosure 4.4 (FWST Makeup from Blender), Rev. 087

Task Standard: Determines acid required is 2416 gallons (± 10), and that water required is 2719 gallons (± 10).

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

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Applicant: Time Start: _____

NAME Docket # Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____

NAME SIGNATURE DATE

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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:

- Unit 1 is in Mode 1.
- FWST 100% level = 395,000 gals
- 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.

Examiner Note: Provide the applicant with a copy of OP/1/A/6200/014 Enclosure 4.4 completed up through step 3.2.

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START TIME: _____

STEP 3.3.1: Initial volume of FWST _____ = V_i. STANDARD: Applicant determines initial volume = 376,040 gallons (395,000 X .952). **This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 3.3.2: Final volume of FWST after makeup _____ = V_{FW}. STANDARD: Applicant determines final volume = 381,175 gallons (395,000 X .965). **This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 3.3.3: Compute the total gallons of makeup water to be added to the FWST _____ = V_f. $V_f = V_{FW} - V_i$ STANDARD: Applicant determines total makeup needed = 5,135 gallons. **This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.** **Examiner Note:** 5,135 determined by subtracting 376,040 from 381,175. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 3.3.4: Initial boron concentration of water in the FWST _____ = C_i. STANDARD: Applicant determines initial concentration of 2790 ppmB from Initial Conditions. COMMENTS:	

STEP 3.3.5: Solve for the desired makeup water boron concentration, C_f. $C_f = \frac{C_{FW} V_{FW} - C_i V_i}{V_f}$ C_f = _____ STANDARD: Applicant determines desired concentration of makeup water is 3532 ppmB (±5). **This step is critical to ensure accurate result for final calculation and determination of volume of water and acid needed.** COMMENTS: 2800 X (381,175) – 2790 x (376,040) = 3,532 (Added by PGC) 5,135	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 3.4.1: Boron concentration of water in BAT _____ = C_1. STANDARD: Applicant determines BAT concentration = 7500 ppmB from Initial Conditions. COMMENTS:	___ SAT ___ UNSAT

STEP 3.4.2: Boron concentration of water in RMWST _____ = C_2. STANDARD: Applicant determines RMWST concentration = 4 ppmB from Initial Conditions. COMMENTS:	___ SAT ___ UNSAT
STEP 3.4.3: Total gallons of makeup water to be added to FWST _____ = V_f from Step 3.3.3. STANDARD: Applicant determines total makeup = 5,135 gallons. COMMENTS:	___ SAT ___ UNSAT

STEP 3.4.4: Solve for the amount of boric acid to be added (V_1) using C_f obtained in Step 3.3.5. $V_1 = \frac{V_f (C_f - C_2)}{C_1 - C_2}$ V_1 = _____ STANDARD: Applicant determines acid required = 2,416 gallons (± 10). **This step is critical to ensure accurate addition of required acid.** COMMENTS: $\frac{5{,}135\ (3{,}532 - 4)}{7{,}500 - 4}$ = 2,416.79 (Added by PGC)	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 3.4.5: If V_1 is negative, contact the OWPM Staff for instruction on adjusting the boron concentration in the FWST. STANDARD: Applicant determines that this step does not apply. COMMENTS:	___ SAT ___ UNSAT

STEP 3.4.6: Solve for the amount of RMWST water to be added (V_2). $V_2 = V_f - V_1$ V_2 = _____ gal. STANDARD: Applicant determines water added = 2,719 gallons (± 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)
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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:

- Unit 1 is in Mode 1.
- FWST 100% level = 395,000 gals
- 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.

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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

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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.

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STEP / STANDARD	SAT / UNSAT

START TIME: _____

STEP 1: 1.1.2 Perform the following calculations to obtain Total Discharge Head: RL Disch Pressure = 0RLP5030 + 3.9 psi RL Disch Pressure = __66__ + 3.9 psi = _69.9_ psig Lake Elevation = __569__ 0RNP7380 (Lake Wylie Level) or obtained from hydro central per Step 1.1.4.2 of Enclosure 13.1 (_69.9_ psig x 2.311ft/psig) + (571.75 - _569_ ft) = _164.3_ ft RL Disch Pressure Lake Elev Total Disch Head STANDARD: Applicant calculates RL Discharge pressure as 164.3 ft. (Acceptable range: 163 - 165 ft. based on accounting for rounding and truncation.) **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** **EXAMINER NOTE: Step 1.1.1 is N/A because ORLP5030 indicator IS available.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

STEP / STANDARD	SAT / UNSAT
STEP 2: 1.1.3 Using Total Discharge Head from Step 1.1.2 obtain the RL Pump Flow value using one of the following: □ Enclosure 13.7 (RL Pumps Head / Capacity Table) OR □ OAC Databook in "Secondary Systems Databook Calcs" using "RL Total Discharge Head vs. RL Pump Flow Rate" STANDARD: Applicant determines that RL Pump Flow per Enclosure 13.7 is 38,354 GPM. **EXAMINER NOTE:** Range of 37,405 – 39,219 GPM is acceptable. **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___**UNSAT**

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

STEP / STANDARD	SAT / UNSAT
STEP 5: 1.2.3 **IF** either C1P5854 (RN Train A Calculated Total Flow) **OR** C1P5855 (RN Train B Calculated Total Flow) is **NOT** available, perform the following to obtain total RN flow: 1.2.3.1 Calculate RN Pump Train A flow: ____0_____ + ____0_____ = _____0____gpm 1RNP7520 + 2RNP7520 = RN Pump Train A flow 1.2.3.2 Calculate RN Pump Train B flow: __17,000__ + ___0____ = __17,000__gpm 1RNP7510 + 2RNP7510 = RN Pump Train B flow STANDARD: Applicant calculates total RN flow to be 17,000 GPM. **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

STEP 6: 1.2.4 Perform the following calculations to obtain Total RN Flow: ____0_____ + _____17,000_____ = _17,000_gpm (B) RN Pump Train A Flow + RN Pump Train B Flow = Total RN Flow STANDARD: Applicant calculates total RN flow to be 17,000 GPM. **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

STEP / STANDARD	SAT / UNSAT
STEP 7: 1.2.5 Enter Total RN Flow (B) in Step 1.4. STANDARD: Applicant enters Total RN Flow calculated in previous step in blank (B) on page 3 of 3. **EXAMINER NOTE:** Steps 1.3.1 and 1.3.2 are not applicable per data sheet. **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

STEP / STANDARD	SAT / UNSAT
STEP 8: 1.3.3 Calculate Cooling Tower Total Evaporation as follows: 13,500 (C1P5853) + 14,000 (C2P5853) = 27,500 gpm (C) Total Evaporation STANDARD: Applicant calculates Total Cooling Tower Evaporation to be 27,500 GPM and enters this value in blank (C) of step 1.4. **This step is critical because improper entry affects the calculation for Total RL Discharge Flow.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

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

STEP / STANDARD	SAT / UNSAT
NOTE: 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. STEP 10: 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: (27,854 gpm) X 0.65 = 18,105 gpm STANDARD: Applicant calculates Total RL Discharge flow to be 18,105 GPM. **EXAMINER NOTE:** Calculation range carried forward would be 17,488 to 18,667 GPM. **This step is critical to ensure that enough RL flow exists to dilute the liquid waste release that is in progress.** COMMENTS:	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

STEP / STANDARD	SAT / UNSAT
STEP 11 Determination of adequate RL flow. STANDARD: 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. **This step is critical for ensuring termination of a release with inadequate dilution flow.** **EXAMINER NOTE:** **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: inadequate for the release to continue.** COMMENTS: **END OF TASK**	**CRITICAL STEP** ___ **SAT** ___ **UNSAT**

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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SRO

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JOB PERFORMANCE MEASURE

Task: Develop Removal from Service 1EBC (Vital Battery)

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: 15 Minutes **Time Critical:** No

==========

Applicant: Name_____ Docket#_____ Time Start: _____

Time Finish: _____

Performance Ratings:

SAT _____ UNSAT _____ Question Grade _____ Performance Time: _____

Examiner: _____ _____/_____

NAME SIGNATURE DATE

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COMMENTS

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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-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. 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. Appropriate Tech. Spec entries have been made by the WCC SRO.

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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)

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START TIME: _____

EXAMINER NOTE: Provide the following:

- Initiating Cue.
- A copy of drawing CN-1705-01.01 (125 VDC Vital Instrumentation and Control).
- When applicant demonstrates ability to locate SOMP 02-01, provide a copy of SOMP 02-01, pages 1 through 29.
- A blank copy of SOMP 02-01, Attachment 13.3, (Blank R&R Enclosures), all 3 pages.

	CRITICAL STEP
EXAMINER NOTE: **Answer Key** is the attached SOMP 02-01, Attachment 13.3 (completed in RED ink). STANDARD: Applicant lists correct removal positions in a sequence in accordance with SOMP 02-01 general guidelines. COMMENTS:	___ SAT ___ UNSAT
This JPM is complete.	

STOP TIME: _____

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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. 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. Appropriate Tech. Spec entries have been made by the WCC SRO.

Subsequently:

After 1EBC is tagged, 1EDA-F03B (1EDA Tie Breaker to 1EDC) trips open due to breaker failure. You are to determine how this changes the initial Tech Spec entry assuming the breaker cannot be re-closed and the battery cannot be returned to service. List LCO and Condition.

KEY KEY KEY KEY KEY KEY KEY

Removal or Removal Addendum

Station: Catawba **Dept:** OPS **Page** ____ **of** _____			**Tagout ID:**
Enclosure Type: **Enclosure Name:**		**Unit #** 1	
System:	EPL (125 VDC Vital I&C Power)		
Reason:	1EBC Cell Replacement		
Remarks:			
EC Number:			
Prepared by:	**at:**	**Reviewed By:**	**at:**
Cross Disciplinary: **Rev By:**	**at:**	**Approved By:**	**at:**
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: _____ **Date/Time** _____/____		**InProgress Procedure and Tagout Review:**	

1.47 Panel Reviewed By: (CNS ONLY)	**Unit 1**	**Unit 2**	**N/A**
OAC Points Removed From Service By:	**Unit 1**	**Unit 2**	**Unit 3**
Control Room Logs Updated By:	**Unit 1**	**Unit 2**	**Unit 3**
Safety Tag Program Updated By:			

Enclosure Execution Section

Enclosure Execution Start Date / Time: _____ / _____

Seq# **1**	Equip Tag: **1EDC-F02A**	Postion: **OFF**	Placed By:
Red Tag ID **XXXXX**	Equipment Description: **Battery 1EBC**	As Found:	CV By:
Location:		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.**

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 Condition B.

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SRO

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EVALUATION SHEET

Task: Determine guidance for Protective Action Recommendations per RP-05 (General Emergency)

Alternate Path: None.

Facility JPM #: SEP-098

Safety Function: **Title:**

K/A 2.4.44 Knowledge of emergency plan protective action recommendations.

Rating(s): 2.4 / 4.4 **CFR:** 41.10 / 41.12 / 43.5 / 45.11

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator _____ **R**oom **X** **P**erform **X** **S**imulate _____

References: RP/0/A/5000/005 (General Emergency), Rev. 050

Task Standard: Applicant recommends that Zones C2, D2, E2, and F2 be evacuated.

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

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Applicant: Time Start: _____

NAME Docket # Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____

NAME SIGNATURE DATE

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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. **A General Emergency has been declared.**

2. **Immediate Protective Action Recommendations have been made with the wind direction 58 degrees, and wind speed being 4 MPH, to evacuate zones A0, A1, B1, C1, D1, E1, F1 and to shelter in place zones A2, A3, B2, C2, D2, E2, F2, and F3.**

3. **It has been 3 hours since the Unit shutdown.**

4. **New data has shown the wind speed to be 4 MPH (OAC Pt C1P0250), Wind direction 58 degrees (from National Weather Service), EMF 53A reading 623 R/Hr and EMF 53B reading 632 R/Hr.**

5. **Offsite dose projections are .85 rem TEDE and 1 rem CDE thyroid.**

INITIATING CUES:

1. **You are to perform step 3.3 of RP/0/A/5000/005 (General Emergency) and determine if any Protective Actions need to be updated.**

2. **If needed, the EOF will evaluate evacuation times per Encl. 4.4.**

Additional recommendations (if any) _____.

EXAMINER NOTE: After reading initiating cue, provide applicant with a copy of RP/0/A/5000/005 completed through step 3.2.

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START TIME: _____

STEP 1: 3.3 Evaluate specific plant conditions, off-site dose projections, field monitoring team data, and assess need to update Protective Action Recommendations made to states and counties in previous notification. Refer to: • Enclosure 4.3, page 1 of 3, Guidance for Protective Actions, Protective Action Recommendation Flowchart • Enclosure 4.4, Evacuation Time Estimates for Catawba Plume Exposure EPZ STANDARD: Applicant refers to Enclosure 4.3 to determine actions. COMMENTS:	___ SAT ___ UNSAT
STEP 2: (Encl. 4.3) 1. Use flowchart to determine if large fission product inventory is greater than gap activity. STANDARD: Applicant determines from flowchart that large fission product inventory is greater than gap activity. **This step is critical to ensure that an upgrade in PARs is realized and that needed zones get evacuated.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 3: (Encl 4.3) 2. Make recommendation. STANDARD: Applicant determines that zones C2, D2, E2, and F2 should be evacuated. **This step is critical to ensure the health and safety of the public is maintained and that proper zones are evacuated.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 4: (Encl 4.3) Applicant continues through the remainder of the flowchart. STANDARD: Applicant determines that no further recommendations will be made for the rest of the flowchart. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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INITIAL CONDITIONS:

1. **A General Emergency has been declared.**

2. **Immediate Protective Action Recommendations have been made with the wind direction 58 degrees, and wind speed being 4 MPH, to evacuate zones A0, A1, B1, C1, D1, E1, F1 and to shelter in place zones A2, A3, B2, C2, D2, E2, F2, and F3.**

3. **It has been 3 hours since the Unit shutdown.**

4. **New data has shown the wind speed to be 4 MPH (OAC Pt C1P0250), Wind direction 58 degrees (from National Weather Service), EMF 53A reading 623 R/Hr and EMF 53B reading 632 R/Hr.**

5. **Offsite dose projections are .85 rem TEDE and 1 rem CDE thyroid.**

INITIATING CUES:

1. **You are to perform step 3.3 of RP/0/A/5000/005 (General Emergency) and determine if any Protective Actions need to be updated.**

2. **If needed, the EOF will evaluate evacuation times per Encl. 4.4.**

Additional recommendations (if any) _____.