

# PSEG Nuclear LLC

## Job Performance Measure

**Perform 22 CFCU surveillance test IAW S2.OP-ST.CBV-0003**

JPM Number: 21-01 NRC Sim-f

Revision Number: 01

Date: 07/26/2022

**Developed By:** K. Hantho **Date:** 7/26/22  
Instructor

**Validated By:** Westlake/Militti **Date:** 8/19/22  
SME or Instructor

**Reviewed By:** M. Winkelspecht **Date:** 11/29/22  
Operations Representative

**Approved By:** M. Wadusky **Date:** 11/29/22  
Training Department (Print/Sign)

## REVISION RECORD (Summary)

<b>Revision Number</b>	<b>Date</b>	<b>Reason</b>
01	07/26/22	Reformat JPM, update procedure rev and task standard after NUREG revision and validation performed comments incorporated.



## SIMULATOR SETUP INSTUCTIONS

- **RESET simulator to IC-255 and VERIFY the below events on the Instructor Station.**
  - Salem Unit 2 is at 100% power.
  - No major equipment are out of service and no Tech Specs are active.
  - The following malfunctions, overrides, and remotes were required to develop this IC.
1. Verify Malfunctions:

<b>MALF ID #</b>	<b>Description</b>	<b>Delay Time</b>	<b>Initial Value</b>	<b>Ramp Time</b>	<b>Trigger</b>	<b>Severity</b>
01	VL0570, 22SW223 fails to position	00:00:15	N/A	N/A	ET-1	89

2. Verify Overrides / Remotes:

<b>ID #</b>	<b>Description</b>	<b>Delay Time</b>	<b>Initial Value</b>	<b>Ramp Time</b>	<b>Trigger</b>	<b>Condition / Severity</b>

3. Verify Event Triggers:

<b>ET#</b>	<b>Description</b>	<b>Command</b>
1	KAD06PBR, 22 CFCU low speed pushbutton	

## SPECIAL INSTRUCTIONS

1. Provide operator marked up copy of S2.OP-ST.CBV-0003 for 22 CFCU.

### INITIAL CONDITIONS

- Unit 2 is at 100% power.
- No major equipment out of service and no active Tech Specs are in effect.

### INITIATING CUE

- You are the Reactor Operator.
- The CRS has directed you to **PERFORM** a scheduled surveillance test on 22 CFCU IAW S2.OP-ST.CBV-0003, Containment Systems – Cooling Systems.
- All Prerequisites are completed SAT and all required M&TE are installed in the field.
- A field NEO is standing by to provide SW header differential pressure when directed.
- Notify CRS of test results.

**TASK STANDARD:**

This task is satisfactorily met when the applicant has placed the CFCU in the required test condition IAW step 4.1.2 of S2.OP-SO.CBV-0001, obtained the required test data, and determines 22 CFCU Test Result is UNSAT due to flow obtained being below the minimum flow for current delta P IAW S2.OP-ST.CBV-0003.

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**Information for Evaluators Use:**

UNSAT requires written comments on the respective step.

**(\*) Denotes critical steps**

If Time Critical, estimated time is the Time Critical time.

The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The time clock starts when the candidate acknowledges the initiating cue.

*ANSWER KEY*  
ATTACHMENT 2

S2.OP-ST.CBV-0003(Q)

22 CFCU DATA SHEET

1.0 Reason For Test

Date: <i>Today</i>	Post-Maintenance Operability Retest?	Yes	No <input checked="" type="checkbox"/>
	SAP Order Number(s): <i>72650412</i>		

2.0 Calibration Data

Instrument/Test Equipment Description	Calibration Due Date	ID Number	Initials
2FA5495 22 CFCU Outlet Water Flow Indicator	<i>6-22-23</i>	<i>27843</i>	<i>JP</i>
Model HQS-2 Sensor Module 0- <u>200</u> psi	<i>8-14-23</i>	<i>61579</i>	<i>JP</i>
Model HQS-2 Sensor Module 0- <u>200</u> psi	<i>8-14-23</i>	<i>61764</i>	<i>JP</i>
Model PTE-1 Hand Held Heise Pressure Calibrator Gauge	<i>9-22-23</i>	<i>62134</i>	<i>JP</i>

3.0 22 CFCU Performance Data

Component	Test Data		Acceptance Criteria	Test Results	
				SAT	UNSAT
22 CFCU	Start Time		22 CFCU operated for at least 15 minutes in LOW SPEED at $\geq$ 1465 gpm.	<i>X</i>	
	Stop Time				
	22SW58 22SW72 22SW223	Cooling Water Flow Rate <i>1785</i>			
21 SW HDR $\Delta$ P (78' IPA - 21 SW Piping Room)	<i>106</i>	Cooling Water Flow Rate is $\geq$ the Minimum Flow Rate obtained in Exhibit 1 for $\Delta$ P specified.		<i>X</i>	
Minimum Flow Rate (Exhibit 1)	<i>1811</i>				

RECORD JPM Start Time: \_\_\_\_\_

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
3.0		<p><b>PRECAUTIONS AND LIMITATIONS</b></p> <p>3.4 After recording Differential Pressure (DP) reading, select corresponding minimum flow value specified in Exhibit 1.</p> <ul style="list-style-type: none"> <li>• IF measured DP value is between DP values specified in Exhibit 1, THEN select minimum flow value for next higher DP value listed (e.g., if measured DP is 101 psid, use minimum flow required at 105 psid).</li> </ul>	<p>Operator reads and initials all P&amp;Ls.</p> <p><b>Evaluator's Note:</b> Understanding P&amp;L 3.4 is important to properly determining which DP value to choose from Exhibit 1.</p>	

**Cue:** Provide candidate MARKED UP surveillance procedure S2.OP-ST.CBV-0003.

Examiners Note:

Comments:

4.0		<b>EQUIPMENT/MATERIAL REQUIRED</b>		
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**Cue:** Completed SAT by I&C Technicians.

Examiners Note:

Comments:

5.1		CFCU Operability and Service Water Flow Verification		
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**Cue:**

Examiners Note:

Comments:

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
5.1.1		PERFORM test on each Containment Fan Coil Unit required to be tested IAW the following instructions:		
<p><b>Cue:</b></p> <p>Examiners Note:</p> <p><u>Comments:</u></p>				
5.1.1.A		<b>ENSURE</b> CFCU being tested is in LOW SPEED IAW S2.OP-SO.CBV-0001(Q), Containment Ventilation Operation.	Operator places CFCU in LOW SPEED IAW S2.OP-SO.CBV-0001.  Operator GOES TO S2.OP-SO.CBV-0001	
<p><b>Cue:</b></p> <p><b>Examiners Note: These next steps are from S2.OP-SO.CBV-0001, Containment Ventilation Operation.</b></p> <p><u>Comments:</u></p>				
5.1.2.A	<b>*</b>	IF shifting CFCU(s) from High Speed to Low Speed, THEN for each CFCU to be shifted: <b>PRESS FAN HIGH SPEED STOP</b> bezel.	Operator depresses HIGH SPEED STOP bezel for 22 CFCU and verifies STOP bezel illuminates.	
<p><b>Cue:</b></p> <p>Examiners Note: Steps 5.1.2B and 5.1.2C should be coordinated for 25 second delay prior to energizing slow speed windings.</p> <p><u>Comments:</u></p>				
5.1.2.B	<b>*</b>	<b>ENSURE FAN STOP</b> bezel is illuminated.	Operator verifies HIGH SPEED STOP bezel is illuminated.	

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
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Cue:

Examiners Note:

Comments:

5.1.2.C	*	When 25 seconds have elapsed from pressing HIGH SPEED STOP bezel, <b>PRESS</b> FAN LOW SPEED START bezel.	Operator waits 25 seconds from when HIGH SPEED STOP bezel was depressed.  Operator depresses LOW SPEED START bezel for 22 CFCU and verifies START bezel illuminates.	
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**Cue:**

**Examiners Note:**  
**Simulator Operator:** ENSURE **ET-1** is TRUE when low speed start pushbutton is depressed. This will insert MALF: VL0570, 22SW223 fails to position set at 89.

Comments:

5.1.2.D		<b>ENSURE</b> following dampers are in indicated positions: <ul style="list-style-type: none"> <li>▪ ROUGH FLTR DAMPER CLOSED</li> <li>▪ HEPA INLET DAMPER OPEN</li> <li>▪ HEPA OUTLET DAMPER OPEN</li> </ul>	Operator verifies the following for 22 CFCU: <ul style="list-style-type: none"> <li>▪ ROUGH FLT DAMPER CLOSED bezel extinguished.</li> <li>▪ HEPA INLET DAMPER OPEN bezel illuminated.</li> <li>▪ HEPA OUTLET DAMPER OPEN bezel illuminated.</li> </ul>	
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Cue:

Examiners Note:

Comments:

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
5.1.2.E		<p><u>IF</u> Service Water flow is less than 1465 gm, <u>THEN</u>:</p> <ol style="list-style-type: none"> <li>1. STOP the CFCU</li> <li>2. REFER to S2.OP-SO.SW-0005, SW System Operability Guidelines</li> </ol>	Operator determines that SW flow is > 1465 gpm and marks step <b>N/A</b> and continues on.	

Cue:

Examiners Note:

Comments:

5.1.2.F		<b>ENSURE</b> Service Water flow greater than or equal to 1465 gpm.	Operator verifies that SW flow is > 1465 gpm.	
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Cue:

Examiners Note: **Operator returns to S2.OP-ST.CBV-0003**

Comments:

5.1.1.B		<b>RECORD</b> Start Time in applicable Attachment(s), Section 3.0, for CFCU being tested.	Operator records START time.	
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Cue:

Examiners Note:

Comments:

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
<b>ALTERNATE PATH STARTS HERE</b>				
4.1.11.3	<b>*</b>	<p>WHEN at least 15 minutes has elapsed, THEN <b>RECORD</b> the following in applicable Attachment, Section 3.0, for CFCU being tested:</p> <ul style="list-style-type: none"> <li>• Stop Time</li> <li>• Cooling Water Flow Rate (gpm)</li> <li>• IF testing 21 OR 22 CFCU, THEN <b>RECORD</b> 21 SW HDR DP.</li> <li>• IF testing 23 CFCU, THEN <b>RECORD</b> both 21 SW HDR DP <u>AND</u> 22 SW HDR DP (Refer to Step 3.5).</li> <li>• IF testing 24 <u>OR</u> 25 CFCU, THEN <b>RECORD</b> 22 SW HDR DP.</li> </ul> <p><b>RECORD</b> Test Results by initialing the SAT OR UNSAT column IAW Acceptance Criteria stated in the attachment.</p>	<p>Operator records STOP time.</p> <p><b>Operator records SW flow on 22 CFCU (1785 +/- 5 gpm)</b></p> <p><b>Operator contacts field NEO and Records SW header DP of 106 psi</b></p> <p>Operator determines that 23, 24, and 25 CFCUs are not being tested.</p> <p><b>Operator records Test Results as <u>UNSAT</u>.</b> 22 CFCU is Inoperable based on Cooling Water Flow Rate is less than the Minimum Flow Rate (1811 gpm) required in Exhibit 1 selecting a SW DP of 110 psi (refer to P&amp;L 3.4).</p> <p>P&amp;L 3.3 requires CFCU SW flow rate <math>\geq</math> 1465 gpm AND <math>\geq</math> Min Flow Rate specified in Exhibit 1 to be Operable.</p> <p><b>See Answer Key for completed Attachment 2, Section 3.0</b></p>	
<p><b>Cue #1:</b> Inform operator that 15 minutes have elapsed.</p> <p><b>Cue #2:</b> When field operator is contacted; <u>report 21 SW Header DP is reading 106 psi.</u></p> <p><b>Examiners Note:</b></p> <p><b>Terminate the JPM when the operator Records Test Results as SAT or UNSAT.</b></p> <p><u>Comments:</u></p>				
Terminating Cue	JPM COMPLETE			

**RECORD JPM Stop Time:** \_\_\_\_\_

**Operator's Name:** \_\_\_\_\_ **Job Title:** RO \_\_\_\_\_ SRO \_\_\_\_\_

**Facility:** Salem **JPM No.:** 21-01 NRC Sim-f **Revision No.:** 01

**Task Title:** Perform 22 CFCU Surveillance Test IAW S2.OP-ST.CBV-0003

**Task No.:** N0220130201 **Source:**  
Bank  New \_\_\_\_\_ Mod \_\_\_\_\_

**System:** 022 Containment Cooling System (SF5)

**K/A Number / Description:** A1.04 Ability to predict and/or monitor changes in parameters associated with operation of the Containment Cooling System, including: Cooling water flow

**K/A Rating** RO 3.3 SRO N/A

**Task Applicability:** SRO Only \_\_\_\_\_ RO/SRO  AO/RO/SRO \_\_\_\_\_ Other \_\_\_\_\_

**Time-Critical:** Yes \_\_\_\_\_ No  **Alternate Path:** Yes \_\_\_\_\_ No

**Estimated Time to Complete:** 10 Minutes

**Actual Time Used:** \_\_\_\_\_ Minutes

**Method of Testing:** Simulated Performance \_\_\_\_\_ Actual Performance

**Location:** Classroom \_\_\_\_\_ Simulator  In-Plant \_\_\_\_\_ RCA \_\_\_\_\_

**Required Materials:** S2.OP-ST.CBV-0003

**Reference(s):** S2.OP-ST.CBV-0003 S2.OP-SO.CBV-0001

**EVALUATION SUMMARY:**

Were all the Critical Elements (steps) performed satisfactorily? Yes \_\_\_\_\_ No \_\_\_\_\_

The operator's performance was evaluated against the standards contained in this JPM, and has been determined to be: Satisfactory \_\_\_\_\_ Unsatisfactory \_\_\_\_\_

**Comments:**

**Evaluator's Name:** \_\_\_\_\_

**Evaluator's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## STUDENT HANDOUT

### INITIAL CONDITIONS

- Unit 2 is at 100% power.
- No major equipment out of service and no active Tech Specs are in effect.

### INITIATING CUE

- You are the Reactor Operator.
- The CRS has directed you to **PERFORM** a scheduled surveillance test on 22 CFCU IAW S2.OP-ST.CBV-0003, Containment Systems – Cooling Systems.
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