PSEG Nuclear LLC

Job Performance Measure

PERFORM SEVEN DAY AFD SURVEILLANCE

JPM Number: 21-01 NRC RO-A2

Revision Number: 01

Date: 08/16/2022

Developed By:	**R. Chan** **Instructor**	**Date:**	8/16/22
Validated By:	**J. Militti / J. DeLisle** **SME or Instructor**	**Date:**	8/16/22
Reviewed By:	**M. Winkelspecht** **Operations Representative**	**Date:**	11/29/22
Approved By:	**M. Wadusky** **Training Department (Print/Sign)**	**Date:**	11/29/22

REVISION RECORD (Summary)

Revision Number	Date	Reason
00	8/1/22	Converted to new template. Revised JPM based on Salem 2 Cycle 26 REM data measured 4/25/22.
01	8/16/22	Changed task to perform seven day AFD surveillance based on validator feedback that using Attachment 1 would be better and more operationally valid.

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE

All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

RC 1. Task description and number, JPM description and number are identified.

RC 2. Knowledge and Abilities (K/A) references are included.

RC 3. Performance location specified. (in-plant, control room, or simulator)

RC 4. Initial setup conditions are identified.

RC 5. Initiating and terminating cues are properly identified.

RC 6. Task standards identified and verified by SME review.

RC 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*)

RC 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure:

Procedure(s) S2.OP-ST.NIS-0001 Rev. 14 Date Checked: 8/16/22
Salem 2 Cycle 26 REM Rev. 17
Salem 2 Cycle 26 COLR Rev. 10

RC 9. Pilot test the JPM:

a. Verify cues both verbal and visual are free of conflict, and

b. Ensure performance time is accurate.

N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.

N/A 11. When JPM is revalidated, SME or instructor sign and date JPM cover page

R. Chan 8/16/22
SME/Instructor Date

SME/Instructor Date

SME/Instructor Date

SIMULATOR SETUP INSTUCTIONS

1. None, this is an Admin JPM.

SPECIAL INSTRUCTIONS

1. MARKED UP copy of S2.OP-ST.NIS-0001, Salem 2 Cycle 26 REM (data measured 4/25/22), Salem 2 Cycle 26 COLR, and a calculator for each applicant.

INITIAL CONDITIONS

- At Time 0830 today, Salem Unit 2 is at 73% power to comply with TS LCO 3.1.3.1 Action c.2 due to a single control rod being declared INOPERABLE

INITIATING CUE

- You are the RO on-shift
- The CRS directs you to perform the Seven Day AFD surveillance test per Section 4.1 of S2.OP-ST.NIS-0001, Power Distribution – Axial Flux Difference
- Current AFD Channel Console Readings are:

  Channel I: -9.5

  Channel II: -10.1

  Channel III: -10.6

  Channel IV: -10.2

- All prerequisites are completed SAT.
- Submit Attachment 1 when complete <u>and</u> print your name.

TASK STANDARD:

The task is satisfactorily met when the applicant has determined that the Seven Day AFD Surveillance is UNSAT because AFD Channel 3 reading is outside the AFD Lower Limit.

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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 (optional):

Attachment 1, AFD SEVEN DAY SURVEILLANCE SHEET

DATE:	TIME:

CALCULATION	VALUE
RECORD AFD Target from Reactor Engineering Manual Data Tables, Table 3:	(A) -2.0
RECORD present Reactor Power:	(B) 73 %
CALCULATE AFD Target Value: [(A) X (B)] ÷ 100% =	(C) -1.5
NOTE The Target Band Upper and Lower Limits shall be the more restrictive of the limits defined in the Core Operating Limits Report (COLR) OR Reactor Engineering Manual Data Tables.	
DETERMINE AFD Upper Limit: (+) 6 + (C) =	+4.5
DETERMINE AFD Lower Limit: (−) 9 + (C) =	-10.5

RECORD AFD Channel Readings for each in-service and OPERABLE channel:			
Channel I (N41)	**Channel II (N42)**	**Channel III (N43)**	**Channel IV (N44)**
-9.5	-10.1	-10.6	-10.2

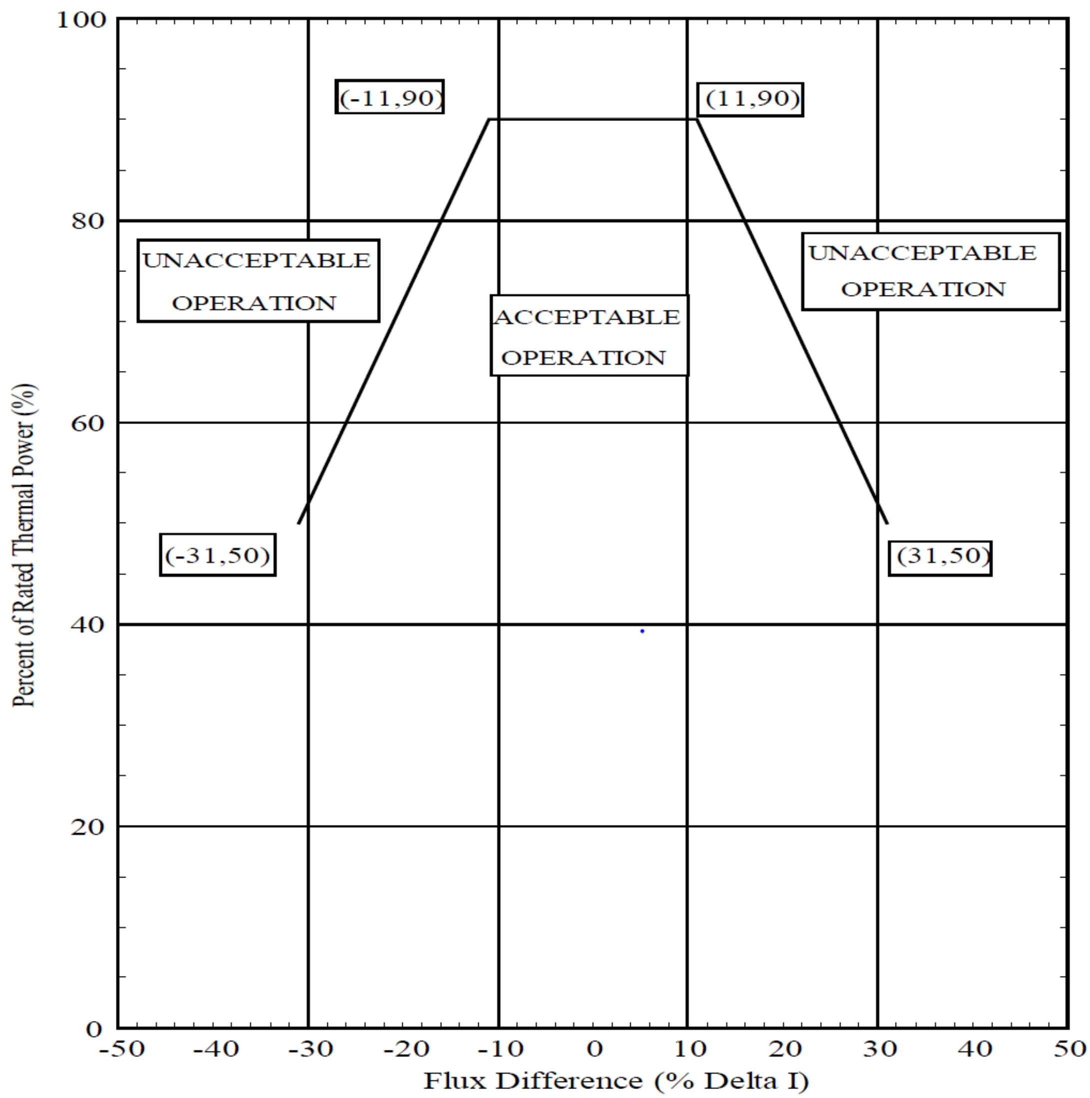
ACCEPTANCE CRITERIA	SAT	UNSAT
At least 3 of 4 NI Channels in-service and OPERABLE. ($)	X	
Each OPERABLE NI Channel reading is between the Upper and Lower Limits, inclusive. ($)		X
NOTE Core Operating Limits Report, Figure 2 is applicable between 50% and 90% Rated Thermal Power. If power is not within this band then mark N/A.		
Each OPERABLE NI Channel is within the Acceptable Operation region of the Core Operating Limits Report, Figure 2. ($)	X	

Performed by:	**Date:**
Verified by:	**Date:**

ANSWER KEY (optional):

FIGURE 2

AXIAL FLUX DIFFERENCE LIMITS AS A FUNCTION OF RATED THERMAL POWER



ANSWER KEY (optional):

Reactor Engineering Manual Data   Salem 2 Cycle 26   Rev 17

TABLE 3
AXIAL FLUX DIFFERENCE TARGET VALUES

Date Measured	Axial Flux Difference Target				Target Band	
	N41	143.7	N43	N44	Upper Limit (+6)	Lower Limit (-9)
BOC	-1.0	-1.0	-1.0	-1.0	5.0	-10.0
11/18/21	-1.5	-1.5	-1.5	-1.5	4.5	-10.5
12/20/21	-1.0	-1.0	-1.0	-1.0	5.0	-10.0
02/22/22	-1.5	-1.5	-1.5	-1.5	4.5	-10.5
04/25/22	-2.0	-2.0	-2.0	-2.0	4.0	-11.0

RECORD JPM Start Time:____________

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
N/A		**RECORD** the JPM Start Time when the operator acknowledges READY TO START JPM.		N/A
Cue: Provide MARKED UP copy of S2.OP-ST.NIS-0001, Salem 2 Cycle 26 REM, Salem 2 Cycle 26 COLR, and Calculator. Examiners Note: None. <u>Comments</u>: N/A				
1	*	RECORD AFD Target from Reactor Engineering Manual Data Tables, Table 3 (A)	Applicant uses Table 3 from the REM and records AFD Target of **-2.0 = (A)**	
Cue: None **Examiners Note**: AFD Target (100% Value) is obtained from Salem 2 Cycle 26 REM Table 3 (data measured 4/25/22) <u>Comments:</u>				
2	*	RECORD present Reactor Power (B)	Applicant records present Reactor Power of **73 = (B)**	
Cue: None Examiners Note: None <u>Comments:</u>				
3	*	CALCULATE the AFD Target Value: [(A) X (B)] ÷ 100% = (C)	Calculates AFD Target Value of **-1.5 = (C)** (C) = -2.0 X 73% ÷ 100% = -1.5	
Cue: None **Examiners Note**: Per P&L 2.1.2, When performing calculations, round value to the first decimal place AND ensure the calculator is cleared between calculations. <u>Comments:</u>				

<table>
<tr><th>STEP</th><th>CRITICAL</th><th>ELEMENT</th><th>STANDARD</th><th>GRADE (S/U)</th></tr>
<tr><td></td><td></td><td><u>NOTE</u>
The Target Band Upper and Lower Limit shall be the more restrictive of the limits defined in the Core Operating Limits Report (COLR) OR Re3actor Engineering Manual Data Tables.</td><td></td><td>N/A</td></tr>
<tr><td>4</td><td>*</td><td>DETERMINE AFD Upper Limit:

(+) _____ + (C) = Upper Limit</td><td>Applicant determines the AFD Target Upper and Lower Limits as:

+6.0 + (-1.5) = +4.5 Upper Limit</td><td></td></tr>
<tr><td>5</td><td>*</td><td>DETERMINE AFD Lower Limit:

(-) _____ + (C) = Lower Limit</td><td>Applicant determines the AFD Target Upper and Lower Limits as:

-9.0 + (-1.5) = -10.5 Lower Limit</td><td></td></tr>
<tr><td>6</td><td></td><td>RECORD AFD Channel Readings for each in service and OPERABLE channel:

Channel I (N41) =
Channel II (N42) =
Channel III (N43) =
Channel IV (N44) =</td><td>Applicant records AFD Channel Readings from the Initiating Cue

Channel I (N41) = -9.5
Channel II (N42) = -10.1
Channel III (N43) = -10.6
Channel IV (N44) = -10.2</td><td></td></tr>
<tr><td colspan="5">Cue: None

Examiners Note: None

<u>Comments:</u></td></tr>
<tr><td>7</td><td>*</td><td>At least 3 of 4 NI Channels in service and OPERABLE.</td><td>Applicant determines all four NI channels are OPERABLE and RECORDs SAT</td><td></td></tr>
<tr><td colspan="5">Cue: None

Examiners Note: Cue Sheet does not indicate any NI channels INOPERABLE.

<u>Comments:</u></td></tr>
</table>

STEP	CRITICAL	ELEMENT	STANDARD	GRADE (S/U)
8	*	Each OPERABLE NI Channel reading is between the Upper and lower Limits inclusive.	Applicant determines that NI Channel 3 is outside the AFD lower limit and RECORDs **UNSAT.**	
Cue: None Examiners Note: None <u>Comments:</u>				
		<u>**NOTE**</u> Core Operating Limit Report, Figure 2 is applicable between 50% and 90% Rated Thermal Power. If power is not within this band then mark N/A.		N/A
9	*	Each OPERABLE NI Channel is within the Acceptable Operation region of the Core Operating Limits Report, Figure 2.	Applicant determines that each NI Channel is within the Acceptable Operation region of the COLR and RECORDs SAT.	
Cue: None Examiners Note: None <u>Comments:</u>				
Terminating Cue		**JPM COMPLETE when the applicant notifies Lead Examiner of surveillance results.**		N/A

RECORD JPM Stop Time: _____________

Operator's Name:	______________________	**Job Title:**	RO **X**	SRO ____	
Facility:	Salem	**JPM No.:**	21-01 NRC RO-A2	**Revision No.:**	01
Task Title:	Perform Seven Day AFD Surveillance				
Task No.:	N0150010201		**Source:** Bank X New ____ Mod ____		
System:	Equipment Control (Generic)				
K/A Number / Description:	G2.2.12 Knowledge of surveillance procedures				
K/A Rating	RO 3.7	SRO 4.1			
Task Applicability:	SRO Only ____	RO/SRO X	AO/RO/SRO ____	Other ____	
Time-Critical:	Yes ____	No X	**Alternate Path:**	Yes ____	No X

Estimated Time to Complete: 10 Minutes

Actual Time Used: Minutes

Method of Testing:	Simulated Performance ____	Actual Performance X		
Location:	Classroom X	Simulator ____	In-Plant ____	RCA ____
Required Materials:	S2.OP-ST.NIS-0001, Unit 2 COLR, Unit 2 REM Data Cycle 26, and Calculator			
Reference(s):	S2.OP-ST.NIS-0001	Salem Unit 2 COLR	Unit 2 REM Data Cycle 26	

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/WORKSHEET

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INITIATING CUE

- You are the RO on-shift
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