NMC Committed to Nuclear Excellence	JOB PERFORMANCE MEASURE (JPM)

SITE: MONTICELLO NUCLEAR GENERATING PLANT

JPM TITLE: COLD STARTUP OF NO. 11 RECIRC PUMP

JPM NUMBER: JPM-B.01.04-004 **REV.** 3

RELATED PRA INFORMATION: None

TASK NUMBERS / TASK TITLE(S): CR202.106
Cold Startup of 11 Recirc Pump

K/A NUMBERS: 202001 A4.01
Recirc Pumps **Rating: RO/SRO:** 3.7/3.7

APPLICABLE METHOD OF TESTING:

Discussion: [ ] Simulate/walkthrough: [ ] Perform: [X]

EVALUATION LOCATION: In-Plant: [ ] Control Room: [ ]

Simulator: [X] Other: [ ]

Lab: [ ]

Time for Completion: 15 Minutes Time Critical: No

Alternate Path: Yes

TASK APPLICABILITY: SRO: [X] RO: [X] NLO [ ]

Additional site-specific signatures may be added as desired.

Developed by:	Developer	Date
Validated by:	Validator (See JPM Validation Checklist, Attachment 1)	Date
Approved by:	Training Supervisor	Date

Retention: Life of Plant
Retain in: Training Record
Form retained in accordance with record retention schedule identified in FP-G-RM-01.

JPM Number: JPM-B.01.04-004

JPM Title: Cold Startup Of No. 11 Recirc Pump

Examinee: _____ **Evaluator:** _____

Job Title: _____ **Date:** _____

Start Time _____ **Finish Time** _____

PERFORMANCE RESULTS: **SAT:** ☐ **UNSAT:** ☐

COMMENTS/FEEDBACK: (Make written comments for any steps graded unsatisfactory).

EVALUATOR'S SIGNATURE: _____

NOTE: Only this page needs to be retained in examinee's record if completed satisfactorily. If unsatisfactory performance is demonstrated, the entire JPM should be retained.

Retention: Life of Plant
Retain in: Training Record
Form retained in accordance with record retention schedule identified in FP-G-RM-01.

(Modify text in Briefing/Turnover Box as necessary)

JPM BRIEFING/TURNOVER
Add required site specific JPM briefing material here: for example: *This section is read once for the entire package of JPMs. It is not required to review this section for every JPM being performed in the package. The initial conditions and initiating cue(s)/tasks to be performed should be read and then provided to the examinee.* *You may use any approved reference materials normally available including logs. Make all written reports, oral reports, and log entries as if the evolution is actually being performed.* *EOP Immediate Actions are required to be performed from memory. After completing immediate action steps without using the procedure, you may then use any approved reference materials.* *If this JPM is performed on the simulator, the JPM administrator should only give cues that are NOT indicated on the simulator. If simulator indication is sufficient to indicate the completion of a step, the JPM administrator should NOT have to give a cue to the trainee to continue the evolution.*

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

DURING THE JPM, ENSURE PROPER SAFETY PRECAUTIONS, FME, AND/OR RADIOLOGICAL CONCERNS AS APPLICABLE ARE FOLLOWED.

INITIAL CONDITIONS:

- A Reactor startup is planned for next shift. All control rods are fully inserted and reactor water level is above 30”.

INITIATING CUES (IF APPLICABLE):

- The Control Room Supervisor directs you to perform a Cold Start No. 11 Recirculation Pump.

JPM PERFORMANCE INFORMATION

Required Materials: See Simulator Setup

General References: B.01.04-05, Rev 24,
C.6-004-B-25, Rev. 2

Task Standards:

Start Time: _____

NOTE: When providing "Evaluator Cues" to the examinee, care must be exercised to avoid prompting the examinee. Typically cues are only provided when the examinee's actions warrant receiving the information (i.e., the examinee looks or asks for the indication).

IMPORTANT: Critical steps are marked with a "Y" below the performance step number. Failure to meet the standard for any critical step SHALL result in failure of this JPM, per FP-T-SAT-73, Licensed Operator Requalification Program Examinations.

Performance Step: 1 **Critical N**	Locates procedure and verifies all prerequisites are met. Procedure B.01.04-05.D.1
Standard:	Locates procedure B.01.04-05.D.1, and Reads precaution that SR 3.4.9.3 must be logged within 15 minutes prior to starting 11 Recirc pump, and Verifies form 2114 has been completed as a prerequisite.
Evaluator Cue:	Inform candidate that temperature difference between reactor coolant temperature and the Recirc loop is <50F and SR 3.4.9.3 was just completed satisfactorily. Inform the candidate that the 2114 Form prerequisite has already been completed by another operator.
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 2 **Critical N**	(Procedure STEP 1) IF power to Bus 11 is being supplied from 2R, THEN check knife switch 4 in Panel C-31 CLOSED.
Standard:	Verifies knife switch 4 CLOSED
Evaluator Note:	**Procedure step 2 is N/A**
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 3 **Critical N**	(Procedure STEP 3) Verify the following for start of 11 Recirc Pump: a. Valve MO-2-53A (11 Recirc Pump Discharge Closed). b. Valve MO-2-43A (11 Recirc Pump Suction Open). c. Position Indicator 2-184-22A reads approximately 2.55 (2.45 - 2.65) for 11 Recirc Pump. d. Scoop tube lock is reset for 11 Recirc Pump. e. The recirculation system annunciation on Panel C-04 is normal for 11 Recirc Pump. f. Valve SV-2-2-11A (11 Recirc Pmp Seal Leakoff) is CLOSED as indicated on Panel C-04 (green light on). g. Verify approximately 3 gpm seal injection flow to P-200A, 11 Recirc Pump.
Standard:	a. Verifies valve MO-2-53A is closed. b. Verifies valve MO-2-43A is open. c. Verifies that No. 11 Recirc pump Position Indicator 2-184-22A reads approx 2.55 (2.45 - 2.65). d. Verifies alarm C04-C-05 is <u>NOT</u> in the alarm condition. e. Verifies no abnormal or unexpected annunciators are in the alarm condition. f. Verifies green light on. g. Calls Reactor Building Operator(RBO) to verify 3 gpm seal injection flow to 11 Recirc Pump
Evaluator Cue:	**Respond as RBO that 3 gpm seal injection flow has been established to 11 Recirc Pump.**
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 4 **Critical N**	**NOTE: Reactor Coolant Temperature can be obtained using any of the suction temperatures (e.g. RWCU, RHR Shutdown Cooling, or Running Loop of Recirc) provided there is flow.** (Procedure STEP 4) IF in MODES 1, 2, 3 or 4, THEN perform TS 3.4.9.3 within 15 minutes prior to Recirc Pump start by confirming that the idle loop temperature is within 50F of reactor coolant temperature. a. IF the temperature difference is less than or equal to 50F, THEN Log completion time of SR 3.4.9.3 within 15 minutes prior to starting 11 Recirc Pump
Standard:	Reads and acknowledges this requirement.
Evaluator Note:	**This may or may not have been questioned during the review of the precautions. This may be determined by RHR S/D Cooling, but a prompt is preferred to minimize distraction of other JPMs occurring in the simulator.**
Evaluator Cue:	Inform candidate that temperature difference is <50F and another operator will log the completion of this SR.
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 5 **Critical Y**	(Procedure STEP 5) **CAUTION: The RECIRC PUMP DISCHARGE valve must be at least 20-25% open within 66 seconds of MG Set start or a trip will occur. 20-25% open corresponds to a 6-8 second open signal with the valve control switch.** Place 11 MG Set drive motor control switch to START and observe: a. Generator speed peaks between 80 to 100% speed (because field generator breaker is OPEN). b. Generator field breaker CLOSED approximately 6 seconds after drive motor breaker is CLOSED. c. Generator speed lowers to about 40% speed and then lowers to minimum speed.
Standard:	Places #11 Recirc MG Set drive motor handswitch (2A-S1A) to the START position momentarily. **(Non-Critical portion of Standard)** Verifies pump start by the following: 1. MG Set Drive Motor light indication changes from green to red, And 2. Generator speed peaks at a point between 80 and 100% speed, as indicated on meter SI 2-184-16A, Pump Speed. And 3. Generator field breaker closes about 6 seconds after the drive motor breaker is closed, as indicated by the indicating light changing from green to red, And 4. After the field breaker closes, generator speed slowly decreases to 40% speed and then lowers to minimum (approx. 30%).
Evaluator Cue:	None
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 6 **Critical Y**	(Procedure STEP 6) When 10 seconds have passed after MG Set start, Then OPEN MO-2-53A (11 Recirc Pump Discharge), And observe the following: a. Loop flow rises to 6500 gpm. b. Pump speed remains constant. c. Jet pump flow rises to 20% of rated (6 x 10^6 lb/Hr). d. Pump Current - 50 (Normal for 25% speed) e. Pump Volts - 900 (Normal for 25% speed) f. Drive Motor Amps - 150 (Normal for 25% speed) g. Valve SV-2-2-11A, 11 RECIRC PMP SEAL LEAKOFF, is OPEN as indicated on Panel C-04 (green light off).
Standard:	Opens #11 recirc pump discharge valve by holding handswitch 2A-S7A, CW to the OPEN position, until the valve position indication changes from green to red. **(Non-Critical portion of Standard)** 1. Performs required observations and verifications: a. Loop Flow - min 6500 gpm on FI-2-159A. b. Pump speed remains constant SI-2-184-16A. c. Jet Pump Flow - Flow on FI-2-3-92B is dependent on plant condition. d. Pump Amps - min 50 on 2-184-22A e. Pump Volts - min 900 on 2-184-23A. f. Drive Motor Amps - min 150 on 2- 184-24A. g. Seal Leakoff Block valve light indication, SV-2-2-11A, is no longer lit.
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 7 **Critical: N**	**NOTE: The pumps will be operated at minimum speed until reactor power is increased to approximately 60% by control rod withdrawal per Ops. Manual C.1 (Startup Procedure).** (Procedure STEP 7) Monitor and adjust service water at 11 MG Set oil cooler to maintain lube oil temperature at approximately 100°F leaving the cooler.
Standard:	Calls APEO to monitor temperature and adjust it as necessary to maintain 100°F.
Evaluator Cue:	Outlet of lube oil heat exchanger is 100°F.
Evaluator Note:	**NOTE TO SIMULATOR OPERATOR:** AFTER RO calls RBO to adjust/monitor oil temperature, or at the discretion of the lead evaluator, **Insert Trigger 1.**
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Deleted: ,

Deleted:

Performance Step: 8 **Critical N**	(Procedure STEP 8) Increase speed to the maximum allowed by the Feedwater interlocks, about 30%.
Standard:	11 Recirc Pump speed should already be about 30%
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 8 **Critical N**	(Procedure C.6-004-B-25 STEPs 1-3) 1. Monitor A Pump Motor temperatures and vibration via SPDS and TR-2-2-31 (C-21), 2. Dispatch an operator to the Recirc MG Set Room to determine A Recirc Pump Motor vibration as indicated on local indicator VM-5602. 3. If A Recirc Pump Motor vibration remains at or above 3 mils, Then trip A Recirc MG Set per B.01.04-05 (Reactor Recirculation System - System Operation).
Standard:	Operator Actions: C.6-4-B-25 (Recirc Pump Motor A Hi Vibration) 1. Operator monitors Recirc pump motor vibration and temperatures on TR-2-2-31, point 1 and 2 on C-21 and SPDS screen 510, point REC126. 2. Operator dispatches Rx Bldg APEO to the Recirc MG Set Room to: a. Determine Recirc pump motor vibrations on VM-5602 3. Operator determines vibrations are high and trips A Recirc MG Set per B.01.04-05.
Evaluator Cue:	When candidate dispatches RBO to MG Set Room, inform him vibration on No. 11 pump motor is at 5 mils, and oil flow and temperature appear to be normal.
Evaluator Note:	The procedure to be used is B.01.04-05. F.1.
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Performance Step: 9 **Critical: Y**	B.01.04-05. F.1. Steps 1-3 are N/A (Procedure STEPS 4-7) 4. Place the MG Set drive motor control switch for one pump to STOP. 5. Verify the drive motor breaker OPENED. 6. Verify the generator field breaker OPENED. 7. CLOSE the stopped pump RECIRC PUMP DISCHARGE valve. a. MO-2-53A, Or b. MO-2-53B.
Standard:	4. Places the MG Set drive motor control switch for 11 recirc pump to STOP. 5. Verify the 11 recirc pump drive motor breaker OPENED. 6. Verify the 11 recirc pump generator field breaker OPENED. 7. CLOSE 11 RECIRC PUMP DISCHARGE valve MO-2-53A.
Evaluator Cue:	After completion of these steps inform the candidate, "This JPM is complete."
Evaluator Note:	**NOTE TO SIMULATOR OPERATOR:** When candidate trips recirc pump, delete malfunction RR08A.
Performance:	**SATISFACTORY** ☐ **UNSATISFACTORY** ☐
Comments:	

Terminating Cues: See Evaluator Cue in Performance Step 9

Stop Time: _____

Historical Record: MNGP JPM Exam Bank – 2007 NRC Exam
Procedure revision updates for 2009 NRC Exam

SIMULATOR SET UP: (*Modify table as necessary)*

Simulator Setup Instructions:

- Initialize to Cold shutdown (IC-290 for 2009 NRC Exam).
- Verify both Recirc pumps are off and the discharge valves are closed.
- Insert RR08A (No. 11 Recirc Pump Motor Hi Vibration) during MG Set "A" Lube Oil temperature adjustment Step No. 11 of JPM.

	EVENT NUMBER	EVENT FILE NAME	EVENT WORD DESCRIPTION
1.			
2.			

SIMULATOR - MALFUNCTIONS:

	MALF ID	MALFUNCTION TITLE	DELAY	RAMP	EVENT	VALUE	FINAL.
1.	RR08A	Recirc pump # 11 Motor High Vibes	00:00:00	00:00:00	1	0	99
2.							
3.							
4.							

SIMULATOR - OVERRIDES:

	OVERRIDE ID.	OVERRIDE DESCRIPTION	DELAY	RAMP	EVENT	VALUE	FINAL
1.							
2.							
3.							
4.							

SIMULATOR - REMOTE FUNCTIONS:

	REMOTE FUNC. No.	REMOTE FUNCTION TITLE	DELAY	RAMP	EVENT	VALUE	FINAL
1.							
2.							
* Set for current weather condition							

TURNOVER SHEET

INITIAL CONDITIONS:

- A Reactor startup is planned for next shift. All control rods are fully inserted and reactor water level is above 30”.

INITIATING CUES (IF APPLICABLE):

- The Control Room Supervisor directs you to perform a Cold Start No. 11 Recirculation Pump.

ATTACHMENT 1

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

ALL STEPS IN THIS CHECKLIST ARE TO BE PERFORMED UPON INITIAL VALIDATION AND PRIOR TO USE.

REVIEW STATEMENTS	YES	NO	N/A
1. Are all items on the cover page filled in correctly?	☐	☐	
2. Has the JPM been reviewed and validated by SMEs?	☐	☐	☐
3. Can the required conditions for the JPM be appropriately established in the simulator if required?	☐	☐	☐
4. Do the performance steps accurately reflect trainee's actions in accordance with plant procedures?	☐	☐	
5. Is the standard for each performance item specific as to what controls, indications and ranges are required to evaluate if the trainee properly performed the step?	☐	☐	
6. If the task is NOT time critical, has the completion time been established based on validation data or incumbent experience?	☐	☐	☐
7. If the task is time critical, is the time critical portion based upon actual task performance requirements?	☐	☐	☐
8. Is the Licensee level appropriate for the task being evaluated if required? NOT applicable to Non-Licensed Operators	☐	☐	☐
9. Is the K/A appropriate to the task and to the licensee level if required? NOT applicable to Non-Licensed Operators	☐	☐	☐
10. Have the performance steps been identified and typed (Critical / Sequence / Time Critical) appropriately?	☐	☐	
11. Have all special tools and equipment needed to perform the task been identified?	☐	☐	
12. Are all references identified, current, and accurate?	☐	☐	
13. Have all required cues (as anticipated) been identified for the evaluator to assist task completion?	☐	☐	

All applicable questions must be answered "YES" or the JPM is NOT valid for use. If all applicable questions are answered "YES" then the JPM is considered valid and can be performed as written. The individual(s) performing the validation sign and date this form.

_____ _____
Validation Personnel /Date Validation Personnel/Date

_____ _____
Validation Personnel /Date Validation Personnel/Date

_____ _____
Validation Personnel /Date Validation Personnel/Date

_____ _____
Validation Personnel /Date Validation Personnel/Date

Retention: Life of Plant
Retain in: Training Record
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To be able to use the macros, after opening Word go to: Tools/Macro/Security and set the security level at either Low or Medium, close completely out of Word and reopen Word to activate Macros. If you are concerned with macro viruses, check with your site to be assured of active virus scanning.

Buttons	Results from pressing toolbar buttons
	Update JPM Information - Runs the macro for inputting information into the cover sheet. [Note: - The JPM Title and Number is automatically added to the top of the second page by the use of Cross Reference fields.]
	Add JPM Step - Adds a Performance Step table at the end of that section, prior to the 'Terminating Cues:'.
	Insert JPM Step - Inserts a Performance Step table in front of an existing Performance Step table. [NOTE: - You must have your cursor inside a Performance Step table, otherwise; you will get an error message if your cursor is anywhere else.]
	Critical Step - Toggles the Performance Step to 'Critical'. Removes **all** of the text to the right of the words '**Critical**' and replaces them with the text string ' **Y (SEQ-)**'. The cursor is placed between the '**-**' and the '**)**', to allow you to insert the sequence number for the performance step. [NOTE - You must have your cursor inside the Performance Step table you want to make into a critical step otherwise you get an error message.]
	Non-Critical Step - Toggles the Performance Step to 'Non-Critical'. Removes **all** of the text to the right of the words '**Critical**' and replaces them with the text string ' **N (SEQ-)**'. The cursor is placed between the '**-**' and the '**)**', to allow you to insert the sequence number for the performance step. [NOTE - You must have your cursor inside the Performance Step table you want to make into a non-critical step otherwise you get an error message.]
	Evaluator Note - Adds a row to the Performance Step table under the '**Standard:**' line, to allow you to enter any notes for the Evaluator.
	Remove Evaluator Note - Removes the '**Evaluator Note:**' line if it was added to the Performance Step table. [NOTE - You must have your cursor inside the Performance Step you want to remove the Evaluator Note from otherwise it removes two lines from the table above the cursor.]
	Evaluator Cue - Adds a row to the Performance Step table above the '**Performance:**' line, to allow you to enter any cues for the Evaluator.
	Remove Evaluator Cue - Removes the '**Evaluator Cue:**' line if it was added to the Performance Step table. [NOTE - You must have your cursor inside the Performance Step you want to remove the Evaluator Cue from otherwise it removes two lines from the table above the cursor.]
	Simulator Setup Page - Adds a Simulator Setup page near the end.
	Remove Simulator Setup Page - Removes the inserted Simulator Setup page.
	Update Turnover Sheet - Takes the turnover information from page 3 (JPM Briefing / Turnover page) and updates the Trainee's version of the turnover page, located prior to Attachment 1 (the last page of the JPM).
	Not For Exam Use - Places a shaded Word Art text box diagonally across the first page. To remove the text, place your cursor near the top right side of the coversheet and select the Word Art text and delete.

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