Job Performance Measure

Perform a 50 PPM Dilution with 1CV111A Failure

JPM Number: SIM-106

Revision Number: 2018

Date: 1/22/18

Developed By:	Eric Steinberg /S/ Instructor	1/22/2018 Date
Validated By:	Dan Burton /S/ SME or Instructor	2/21/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure BwOP CV-5 Rev: 30
Procedure BwCB-1 Table 3-1 Rev: 3
Procedure BwCB-1 Fig. 12 Rev: 2
Procedure BwAR 1-9-B6 Rev: 6

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2010, Change format and verify latest procedure revisions.

Revision 2011, Update to latest procedure revisions.

Revision 2012, Per ATI 1089778-64 all JPMs were updated as applicable to each JPM the following information - KA, Critical Path, Cues, Boron Concentration, Fundamentals. Also Updated to latest procedure revisions if changed.

Revision 2013, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2014, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2015, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

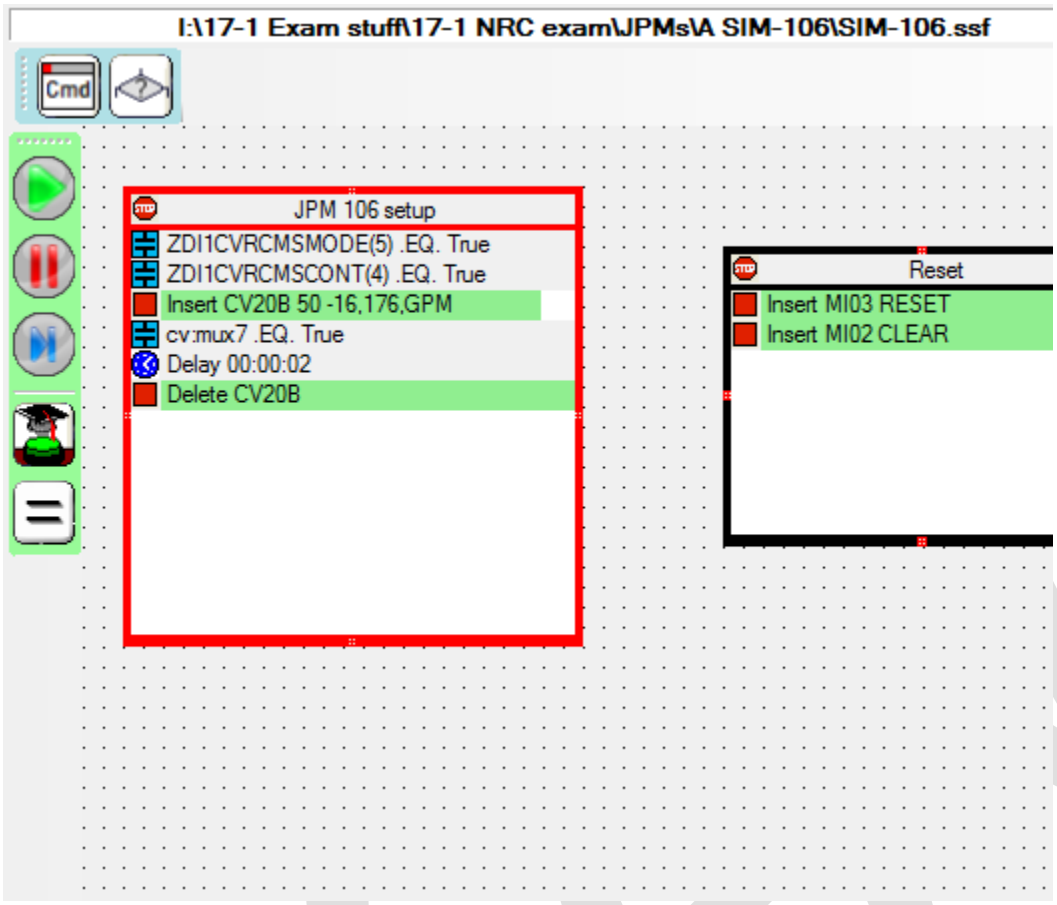
Revision 2016, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template.

Revision 2017, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template.

Revision 2018, Revision includes 7300 mod changes to procedure and current revision of TQ-AA-150-J020 JPM Template.

SIMULATOR SETUP INSTRUCTIONS

1. RESET the simulator to IC-7, Mode 3, NOP/NOT.
2. Set 1FK-0110 for 1230 ppm, 19.2 GPM.
3. Ensure PW & AB Totalizers at 0.
4. Set 1FK-0111 setpoint to 120 GPM.
5. Set 1LK-0112 setpoint to 73%.
6. Ensure VCT level ~45-50% to preclude auto make-up or divert.
7. Advance SER and SER printer.
8. Ensure curve books are clean and put away.
9. Verify 1CV110A/B and 1CV111A/B are closed and each C/S in Auto.
10. Verify RMCS Mode Select switch in Auto.
11. Verify/place Makeup Control switch in Start.
12. Verify BwAR 1-9-B6 is clean and put away.
13. Check flags removed AND verify calculator is cleared of data.
14. Release **SSF JPM 106 setup (see below for content of SSF).**
15. When the above steps are completed for this and other JPMs to be run concurrently, then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
16. This completes the setup for this JPM. SNAP to IC-0.
17. To re-perform this JPM, RESET to IC-0, then verify/perform steps 2-14, then complete the following step:
    - Clear calculator of data.


I:\17-1 Exam stuff\17-1 NRC exam\JPMs\A SIM-106\SIM-106.ssf
Cmd
JPM 106 setup
ZDI1CVRCMSMODE(5) .EQ. True
ZDI1CVRCMSCONT(4) .EQ. True
Insert CV20B 50 -16,176,GPM
cv:mux7 .EQ. True
Delay 00:00:02
Delete CV20B
Reset
Insert MI03 RESET
Insert MI02 CLEAR

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Perform a 50 PPM Dilution with 1CV111A Failure**
JPM Number: **SIM-106** Revision Number: **2018**
Task Number and Title: **R-CV-003, Perform Boron Dilution of the RCS**
K/A Number and Importance: **004000A4.07, 3.9/3.7**
Suggested Testing Environment: **Simulator**
Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): BwOP CV-5, Operation of the Reactor Makeup System in the Dilute Mode/ Alternate Dilute Mode/Batch Dilution Mode, Rev 30
BwCB-1 Table 3-1, Boration/Dilution Tables for 557°F, Rev 3
BwCB-1 Fig. 12, Boron Dilution Rate Nomograph, Rev 2
BwAR 1-9-B6 "PW FLOW DEVIATION", Rev 6

Materials:
1. BwOP CV-5
2. BwAR 1-9-B6

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **33** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are the Unit 1 NSO.
2. Unit 1 is in Mode 3 at 557°F with all plant systems and controls normal.
3. Normal plant startup is in progress.
4. Recently calculated ECC = CB D @ 100 steps and ECC Boron = 1180 ppm from the Rx startup ReMA.
5. Most Recent B10 Corrected RCS Boron sample = 1230 ppm.
6. 120 gpm letdown is in service.

INITIATING CUE

1. The US has directed you to perform a 70-minute dilution to the critical boron concentration in preparation for startup. Use the NORMAL DILUTION flowpath.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator's particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to BwOP CV-5.	Locate and Open BwOP CV-5.	___	___	___
CUE	After student locates procedures, provide a copy of each procedure. All Prerequisites, Precautions, Limitations, and Actions have been met.				
***2**	**Determine the required number of gallons of Primary Water to add to accomplish a 50 ppm dilution from 1230 ppm to 1180 ppm RCS boron concentration.**	DETERMINE the required amount of PW to accomplish a 50 ppm dilution of the RCS as follows: *(Reactivity Management)* o Determine current RCS boron concentration to be 1230 ppm. • **Using BwCB-1, Table 3-1 for 557°F, determine total number of gallons of PW to be added to be 2824-2872 gallons.**	___	___	___
NOTE CUE	Current RCS boron concentration was given as a Task Condition. If asked, another NSO will complete OP-AP-300-1004, Attachment 1.				
***3**	**Align the Makeup Control System switches.**	Align the MAKE-UP Control switches as follows: *(Reactivity Management)* • **PLACE the MAKEUP CONT Switch to STOP.** • **PLACE the MODE SELECT switch in the DIL position.** Determine the desired PW flowrate to accomplish the dilution in 70 minutes: o 40.3 to 41 gpm.			

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
4	Adjust the setpoint on 1FK-111, PW/Total Flow Controller, to 40.3 - 41.0 gpm.	• Note the AS FOUND setpoint on 1FK-111. • ADJUST the setpoint on 1FK-111, PW/Total Flow Controller, to the desired flowrate of 40.3 to 41.0 gpm.	___	___	___
***5**	**Set the Primary Water/Makeup Flow Totalizer for the total number of gallons to be added.**	Set the PW/Makeup Flow Totalizer for the total number of gallons to be added as follows: *(Reactivity Management)* ○ SELECT OWS graphic 6003, RMCS. ○ SELECT soft button SETPOINT ADJUST & RESET for the PW/MAKEUP TOTALIZER. ○ SELECT the HEADER for the PW/MAKEUP PREDET SETPOINT (cornsilk). ○ SELECT the RESET soft button to set TOTALIZED field to 0. ○ VERIFY the TOTALIZED field = 0. • **ENTER the desired volume in the PW/MAKEUP PREDET SETPOINT Field (right most digit is gallons) - 2824 to 2872.** ○ SELECT ENTER soft button. ○ VERIFY that the correct volume entered is displayed in PREDETERMINED field of the PW/MAKEUP TOTALIZER and THEN SELECT EXIT soft button.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	Control VCT level, if desired.	Control VCT level, if desired: ○ VERIFY/PLACE 1LK-112 in AUTO, and ADJUST the setpoint to desired value; - OR - ○ PLACE 1LK-112 in MANUAL and depress the RAISE pushbutton to the desired demand.	___	___	___
*7	**Start the Dilution of the RCS.**	Start the Dilution as follows: *(Reactivity Management)* • **PLACE the MAKE-UP CONT Switch to the START position.** ○ VERIFY 1CV111B OPENS. ○ VERIFY 1CV111A MODULATES OPEN. ○ VERIFY 0PW02PA/B is in OPERATION. ○ VERIFY proper PW/Total Flow on 1FR-110, Rx Make-up Flow Recorder (~41 gpm).	___	___	___

NOTE	**Alternate Path Begins Here**				
NOTE	When the M/U CONT SWITCH is placed in start, PW flow indication will drop slowly causing a PW FLOW DEVIATION alarm. The operator may stop the dilution prior to receiving the alarm by any reasonable method (i.e. placing the M/U switch in stop or closing 1CV111B, etc.) prior to performing the next step.				
CUE	As US, provide the following cue if needed: Perform the necessary steps to dilute the RCS by 50 PPM.				
***8**	**Respond to PW Flow Deviation Alarm and Re-establish RCS Dilution.**	Locate and Open BwAR 1-9-B6 and perform the following: *(Control Board Awareness)* ○ 1CV111B CLOSES after 30 secs. ○ VERIFY/START PW Make-up pump. ○ DETERMINE reason for deviation to be slow response of 1CV111A. ○ DISPATCH operator to check status of 1CV111A. ○ Report findings to US. • **Manually OPEN 1CV111B.** ○ VERIFY proper PW/Total Flow on 1FR-110, Rx Make-up Flow recorder. ○ Verify proper valve lineup.	___	___	___
CUE	If EO is dispatched to 1CV111A, then report no abnormal conditions exist at the valve. As US, acknowledge PW flow status. Another NSO will continue the steps of BwOP CV-5. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are the Unit 1 NSO.
2. Unit 1 is in Mode 3 at 557°F with all plant systems and controls normal.
3. Normal plant startup is in progress.
4. Recently calculated ECC = CB D @ 100 steps and ECC Boron = 1180 ppm from the Rx startup ReMA
5. Most Recent B10 Corrected RCS Boron sample = 1230 ppm.
6. 120 gpm letdown is in service.

INITIATING CUE

1. The US has directed you to perform a 70-minute dilution to the critical boron concentration in preparation for startup. Use the NORMAL DILUTION flowpath.

Job Performance Measure

Establish Excess Letdown to the Volume Control Tank

JPM Number: SIM-210

Revision Number: 2018

Date: 1/17/18

Developed By:	Eric Steinberg /S/ Instructor	1/17/2018 Date
Validated By:	Dan Burton /S/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure BwOP CV-15 Rev: 17

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2010, Change format and verify latest procedure revision.

Revision 2011, Verify latest procedure revision.

Revision 2012, Per ATI 1089778-64 all JPMs were updated as applicable to each JPM the following information - KA, Critical Path, Cues, Boron Concentration, Fundamentals. Also Updated to latest procedure revisions if changed.

Revision 2013, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2014, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2015, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2018, Revision includes 7300 mod changes to procedure and current revision of TQ-AA-150-J020 JPM Template.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC-22 or any IC at NOP/NOT or above.
2. Verify Rx power is below 99.8%.
3. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
4. This completes the setup for this JPM.
5. To re-perform this JPM:
   - OPEN 1CV123 to 25% and allow excess letdown temperature to lower.
   - CLOSE: 1CV123
   - CLOSE: 1CV8153A
     1CV8153B
   - CLOSE: 1RC8037A
     1RC8037B
     1RC8037C
     1RC8037D
   - CLOSE: 1CC9437A
     1CC9437B
   - Monitor PZR level and VCT level.
   - Clear recorders.
   - Verify PPC has no monitor associated with excess letdown.
   - Verify Ovation does not have excess Letdown screen up.
   - Clear SER.
   - ENSURE the following controllers are in AUTO:
     - 1CV121.
     - Master PZR Level.
   - ENSURE ALL PZR Heaters contactors are in AUTO.

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Establish Excess Letdown to the Volume Control Tank**
JPM Number: **SIM-210** Revision Number: **2018**
Task Number and Title: **R-CV-007, Establish Excess L/D to Either VCT or RCDT**
K/A Number and Importance: **011000A4.05, 3.2/2.9**
Suggested Testing Environment: **Simulator**
Alternate Path: ☐Yes ☒No SRO Only: ☐Yes ☒No Time Critical: ☐Yes ☒No
Reference(s): BwOP CV-15, EXCESS LETDOWN OPERATIONS, Rev. 17

Materials
1. BwOP CV-15

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **11** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐Yes ☐No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐Satisfactory ☐Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are the Unit 1 NSO.
2. The Unit is at steady state power.
3. Normal letdown is in-service at 120 gpm.

INITIATING CUE

1. You have been directed by the US to establish Excess Letdown to the VCT using all loop drains and both excess letdown heat exchangers due to a suspected 0.5 gpm leak in the normal letdown line.
2. Estimated time for Excess Letdown operations will be approximately 2 hours.
3. The SM does NOT desire flow directed to the VCT spray nozzle.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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 timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Determine correct procedure.	Locate and Open BwOP CV-15.	___	___	___
CUE	After student locates correct procedure, provide a copy. All Prerequisites, Precautions, Limitations and Actions have been met.				
NOTE	Initiating cue was to align to the VCT.				
***2**	**Establish CC Flow to the Excess Letdown HXs.**	Perform the following: *(Procedural Adherence)* ○ VERIFY/OPEN 1CV8100 & 1CV8112, Seal Water Return Cnmt Isolation Valves. • **OPEN 1CC9437A, CC to Excess Letdown HX Isol Vlv at 1PM06J.** • **OPEN 1CC9437B, CC from Excess Letdown HX Isol Vlv at 1PM06J.** ○ VERIFY/CLOSE 1HCV-CV123, Excess Letdown HX Flow Control Vlv at 1PM05J. ○ VERIFY/PLACE 1CV8143, Excess Letdown to Seal Filter or RCDT Vlv, in the VCT position. ○ Align seal return to the bottom of the VCT.	___	___	___
NOTE	Per cue sheet, the SM does NOT desire flow directed to the VCT spray nozzle. If asked, EO reports that 1CV8482 is CLOSED & 1CV8484 is OPEN.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*3	**Align Excess Letdown Flowpath.**	Perform the following: *(Procedural Adherence)* • **OPEN 1RC8037A-D, Loop Drain Valves, for the desired loop(s).** • **OPEN 1CV8153A&B, Excess Letdown HX 1A/B Inlet Isol Vlv.**	___	___	___
NOTE	Using one or more Loop Drain Valve(s) is acceptable. Using one or both Excess Letdown HX(s) is acceptable.				
*4	**Initiate Excess Letdown Flow.**	Perform the following: *(Procedural Adherence)* • **SLOWLY OPEN 1HCV-CV123, Excess Letdown HX Flow Cont Vlv, as required to obtain desired flow.** ○ ENSURE Excess Letdown Outlet Temperature is < 165°F as indicated on Ovation Graphic 6005.	___	___	___
CUE	After excess letdown outlet temperature is ~ stable, this completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are the Unit 1 NSO.
2. The Unit is at steady state power.
3. Normal letdown is in-service at 120 gpm.

INITIATING CUE

1. You have been directed by the US to establish Excess Letdown to the VCT using all loop drains and both excess letdown heat exchangers due to a suspected 0.5 gpm leak in the normal letdown line.
2. Estimated time for Excess Letdown operations will be approximately 2 hours.
3. The SM does NOT desire flow directed to the VCT spray nozzle.

Job Performance Measure

Align for Hot Leg Recirculation

JPM Number: SIM-306

Revision Number: 2018

Date: 01/10/2018

Developed By:	Eric Steinberg /s/ Instructor	1/10/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

SRRS: 3D.105 (when utilized for operator initial or continuing training)

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwEP ES-1.4 Rev: 300

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, New JPM written for ILT class 17-1.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC-67 (PW = ilt171).

NOTE:	It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

2. Release **SSF file SIM-306 setup** which performs the following:

   2.1. IMF TH06A 540000 GPM LOCA actuating SI.

   2.2. When RWST LEVEL LO-2 comes in, align the RH to the containment sump as follows:

   2.2.1. Open 1CC9412A and B.
   2.2.2. Energize both train's SVAG valves.
   2.2.3. Close 1SI8812A and B.
   2.2.4. Close 1SI8813, 8814 & 8920.
   2.2.5. Close 1RH8716A and B.
   2.2.6. Open 1SI8807A and B.
   2.2.7. Open 1CV8804A and 1SI8804B.
   2.2.8. Reset both trains of SI.
   2.2.9. Close 1SI8806.
   2.2.10. Close and De-energize 1CV112D and 1CV112E.
   2.2.11. When the RWST is at 12%, align CS as follows:
   2.2.12. Open 1CS009A and B.
   2.2.13. Close 1CS001A and B.
   2.2.14. Deenergize both train's SVAG valves.

3. When the above steps are completed for this and other JPMs to be run concurrently, then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.

4. This completes the setup for this JPM.

INITIAL CONDITIONS

1. Unit 1 had an automatic SI actuate 5 hours and 50 minutes ago. RH, CV, SI and CS have all been aligned for recirculation per 1BwEP ES-1.3 “TRANSFER TO COLD LEG RECIRCULATION.”
2. SI has been reset.

INITIATING CUE

1. The Unit Supervisor has directed you to align hot leg recirculation per 1BwEP ES-1.4 “TRANSFER TO HOT LEG RECIRCULATION.”
2. **THIS IS A TIME CRITICAL JPM.**

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

NOTE

Ensure the Examinee is aware that they can review the procedure and Main Control Boards before acknowledging the cue and beginning the time clock. At 4 hours and 50 minutes into the SI, 1BwEP-1 directs the crew prepare for Hot Leg Recirculation. This allows the crew 1 hour to prepare for the transfer to hot leg recirc.

Information For Evaluator’s Use:

UNSAT requires written comments on respective step.

* **Denotes critical steps**.

Number any comments in the “Comment Number” column on the following pages. Then annotate that comment in the “Comments” section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site’s appropriate tracking system.

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 timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE	Provide the examinee a copy of the procedure and allow them to review it before entering the JPM Start Time (above).				
1	Energize 480V SVAG valve feeds.	Place the control switches for SVAG VALVES 480 bus feeds at 1PM06J in CLOSE. *(Procedural Adherence)* • Train A. • Train B.	___	___	___
CUE	As SM, acknowledge the Emergency Plan evaluation request.				
***2**	**Align RH flow path for recirculation.**	Align RH flow path for recirculation. *(Procedural Adherence)* **Close RH cold leg isol valves:** • **1SI8809A.** • **1SI8809B.** Verify and align 1A RH pump: ○ Check 1A RH pump running. • **Open 1RH8716A.** • **Open 1SI8840.**	___	___	___
***3**	**Align 1A SI flow path for Hot Leg Recirculation.**	Align 1A SI flow path for Hot Leg Recirculation: *(Procedural Adherence)* • **Stop the 1A SI pump.** • **Close 1SI8821A.** • **Open 1SI8802A.** • **Start the 1A SI pump.**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*4	**Align 1B SI flow path for Hot Leg Recirculation.**	Align 1B SI flow path for Hot Leg Recirculation: *(Procedural Adherence)* • **Stop the 1B SI pump.** • **Close 1SI8821B.** • **Open 1SI8802B.** • **Start the 1B SI pump.** o Check OPEN 1SI8802A/B. o Close 1SI8835.	___	___	___
NOTE: Record the time that <u>both</u> SI pumps were re-started: _____					
*5	**Verify TIME CRITICAL actions are completed.**	Verify TIME CRITICAL actions are completed: *(Procedural Adherence)* o Determine CRITICAL TIME by subtracting <u>time recorded above</u> from <u>JPM start time</u>: _____ - _____ = _____ minutes. • **CRITICAL TIME is <u>≤</u> 20 minutes.**	___	___	___
6	Deenergize 480V SVAG valve feeds.	Place the control switches for SVAG VALVES 480 bus feeds at 1PM06J in OPEN. • Train A. • Train B.	___	___	___
CUE	This completes this JPM.				

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Align for Hot Leg Recirculation**
JPM Number: **SIM-306** Revision Number: **2018**
Task Number and Title: **R-EP-016, Transfer ECCS to Hot Leg Recirculation**
K/A Number and Importance: **006000A4.07, 4.4/4.4**
Suggested Testing Environment: **Simulator**
Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☒ Yes ☐ No
Reference(s): 1BwEP ES-1.4, TRANSFER TO HOT LEG RECIRCULATION, Rev. 300

Materials:

1. 1BwEP ES-1.4

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 8 minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. Unit 1 had an automatic SI actuate 5 hours and 50 minutes ago. RH, CV, SI and CS have all been aligned for recirculation per 1BwEP ES-1.3 “TRANSFER TO COLD LEG RECIRCULATION.”
2. SI has been reset.

INITIATING CUE

1. The Unit Supervisor has directed you to align hot leg recirculation per 1BwEP ES-1.4 “TRANSFER TO HOT LEG RECIRCULATION.”
2. **THIS IS A TIME CRITICAL JPM.**

Job Performance Measure

Swap Essential Service Water Pumps

JPM Number: SIM-414S

Revision Number: 2018

Date: 2/14/18

Developed By:	Eric Steinberg /s/ Instructor	2/14/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure BwOP SX-7 Rev: 26
Procedure BwAR 1-2-C1 Rev: 5E2

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template. Updated to ILT format from LORT JPM N-072A. Modified the Alternate Path to use the SX PUMP SUCT PRESS LOW alarm as the initiating cue to the crew.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any Mode 1-5 IC.
2. Ensure that 1A SX pump is running, 1B SX pump is secured.
3. Remove SX Pump trends from the PPC monitor(s).
4. Clear SER / printer.
5. If repeating the JPM without resetting the IC**, IRF MI03 RESET** to restore the PPC to its initial IC starting condition.
6. Ensure flags removed.
7. Remote functions for SX pumps aux. oil pumps:
   - 1A SX pump aux. oil pump: **RF SW03 ON / OFF**
   - 1B SX pump aux. oil pump: **RF SW04remf ON / OFF**
8. Perform the following to cause a SX PUMP SUCT PRESS LOW alarm (1-2-C1) on CUE from evaluator:
   - **IMF PB2300 ON**
9. If asked as an EO to report 1B SX pump suction pressure, report 8 psig (after alarm is in).
10. When the above steps are completed for this and other JPMs to be run concurrently, then validate if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
11. This completes the setup for this JPM.

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Swap Essential Service Water Pumps**
JPM Number: **SIM-414S** Revision Number: **2018**
Task Number and Title: **R-SX-002/003, Startup/shutdown an Essential Service Water Pump**
K/A Number and Importance: **076000A4.01, 2.9/2.9**
Suggested Testing Environment: **Simulator**
Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): BwOP SX-7, SWAPPING ESSENTIAL SERVICE WATER PUMPS, Rev. 26
BwAR 1-2-C1, SX PUMP SUCT PRESS LOW, Rev. 5E2

Materials
1. BwOP SX-7

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **22** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are the Assist NSO.
2. The Unit is in a normal alignment for the current mode.
3. Unit 2 has placed the 2A SX pump in service and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
4. An EO has been briefed and is standing by to assist in the field.

INITIATING CUE

1. The US has directed you to start the 1B SX pump and shutdown the 1A SX pump.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator's particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to BwOP SX-7.	Locate and open BwOP SX-7.	___	___	___
CUE	Provide the student with a copy of procedure.				
CUE	If asked, all Prerequisites, Precautions, Limitations, and Actions have been met.				
2	Verify 1B SX pump suction valve open.	• Verify/Open 1SX001B.	___	___	___
CUE	If requested, EO reports that 1SX001B is full open. If requested, EO reports good oil level, 1B SX pump ready for a start.				
NOTE	Student may verify 1PR02J/3J are in operation.				
3	Verify RCFC 1B and 1D inlet and outlet valves open.	Perform the following: • Verify/Open 1SX016B/1SX027B. - or - ○ Place a jumper to simulate valve position per Attachment A.	___	___	___
CUE	If asked, US does not desire to use a jumper.				
4	Start 1A and 1B SX pump Aux Oil pumps.	• Direct EO to locally start 1A and 1B SX pump Aux Oil pumps (1SX01PA/B-C). • Verify both Aux Oil Run lights lit.	___	___	___
CUE	EO reports that the 1A and 1B SX pump Aux Oil pumps are running.				

***5**	**Start 1B SX pump.**	• **Start 1B SX pump by taking its control switch to close until pump starts.** *(Procedural Adherence)*	___	___	___
CUE	EO reports a good start on 1B SX pump.				
6	Check running amps on both SX pumps approximately equal.	• Check running amps on both SX pumps approximately equal.	___	___	___
CUE	If asked, 0SX115A-F are OPEN.				
***7**	**Stop 1A SX pump.**	• **Stop 1A SX pump by placing the control switch to TRIP.** *(Procedural Adherence)*	___	___	___
CUE	EO reports a good shutdown on 1A SX pump.				
8	Check running SX pump discharge pressure < 112 psig.	• Check running SX pump discharge pressure < 112 psig.	___	___	___
NOTE	**Alternate Path Begins Here**				
NOTE	Cue the booth operator to insert 1B SX Pump Suction Pressure Low alarm.				
***9**	**@ Respond to a 1B SX Pump Suction Pressure Low alarm.**	Respond to a 1B SX Pump Suction Pressure Low alarm. *(Procedural Adherence)* o Review BwAR 1-2-C1. • **Start the 1A SX pump.** • **Shutdown the 1B SX pump.** o Inform the US to refer to 1BwOA PRI-8.	___	___	___
CUE	The US acknowledges to refer to 1BwOA PRI-8. If asked as an EO, report 1B SX pump suction pressure = 8 psig. Another NSO will complete this evolution. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are the Assist NSO.
2. The Unit is in a normal alignment for the current mode.
3. Unit 2 has placed the 2A SX pump in service and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
4. An EO has been briefed and is standing by to assist in the field.

INITIATING CUE

1. The US has directed you to start the 1B SX pump and shutdown the 1A SX pump.

Job Performance Measure

Perform RCFC Surveillance

JPM Number: SIM-511

Revision Number: 2018

Date: 1/31/18

Developed By:	Eric Steinberg /s/ Instructor	1/31/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwOSR 3.6.6.2 Rev: 31
Procedure BwOP VP-5 Rev: 58
Procedure BwOP VP-6 Rev: 56
Procedure BwAR 1-3-C5 Rev: 6

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

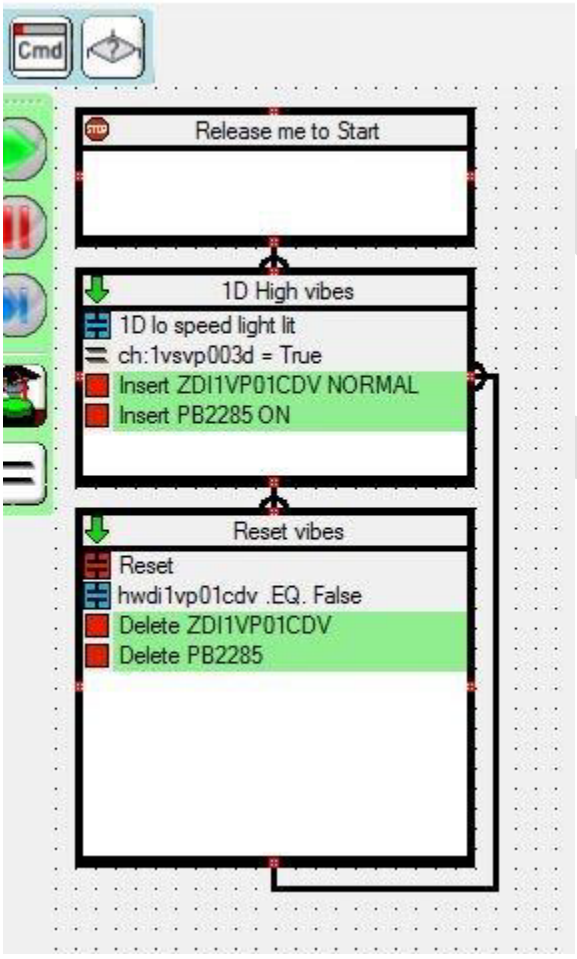
Revision Record (Summary)

Revision 2018, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any at power IC.
2. Ensure that ALL high speed RCFCs are running.
3. Remove RCFC trends from the PPC monitor(s).
4. Clear SER / printer.
5. If repeating the JPM without resetting the IC**, IRF MI03 RESET** to restore the PPC to its initial IC starting condition.
6. Ensure flags removed.
7. Release **SIM-511 SETUP.ssf** and verify the following:
   - See file below.
8. When the above steps are completed for this and other JPMs to be run concurrently, then validate if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
9. This completes the setup for this JPM.

SIM-511SETUP.ssf



JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Perform RCFC Surveillance**

JPM Number: **SIM-511** Revision Number: **2018**

Task Number and Title: **R-VP-007, Startup a RCFC**

K/A Number and Importance: **022000A4.01, 3.6/3.6**

Suggested Testing Environment: **Simulator**

Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No

Reference(s): 1BwOSR 3.6.6.2, REACTOR CONTAINMENT FAN COOLER SURVEILLANCE, Rev. 31
BwOP VP-5, REACTOR CONTAINMENT FAN COOLER START-UP, Rev. 58
BwOP VP-6, REACTOR CONTAINMENT FAN COOLER SHUTDOWN, Rev. 56
BwAR 1-3-C5, RCFC VIBRATION HIGH, Rev. 6

Materials

1. 1BwOSR 3.6.6.2 (marked up through step 1)
2. BwOP VP-5
3. BwOP VP-6

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **17** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:

Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at power with all systems properly aligned.
3. 1BwOSR 3.6.6.2 “REACTOR CONTAINMENT FAN COOLER SURVEILLANCE” has been initiated and completed through step F.1.

INITIATING CUE

1. The Unit 1 US has directed you to perform 1BwOSR 3.6.6.2 “REACTOR CONTAINMENT FAN COOLER SURVEILLANCE” steps F.2.0 and F.3.0.
2. ALL RCFCs are to be returned to their “as found” condition when surveillance runs are completed.
3. Inform the Unit 1 US when steps F.2.0 and F.3.0 are complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator’s Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the “Comment Number” column on the following pages. Then annotate that comment in the “Comments” section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site’s appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator’s particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to 1BwOSR 3.6.6.2, step 2.	Refer to 1BwOSR 3.6.6.2, step 2.	___	___	___
CUE	Provide the student with a copy of BwOP VP-5 and BwOP VP-6 and a marked up copy of 1BwOSR 3.6.6.2.				
CUE	If asked, all Prerequisites, Precautions, Limitations, and Actions have been met.				
2	Stop 1A and 1C High Speed RCFCs per BwOP VP-6.	Stop 1A and 1C High Speed RCFCs per BwOP VP-6. • Refer to BwOP VP-6 • Determine step F.1 is applicable step. Perform the following at 1PM06J: • Place 1VP01CA, 1A High Speed RCFC, C/S to trip. • Place 1VP01CC, 1C High Speed RCFC, C/S to trip.	___	___	___
CUE	If asked, all BwOP Prerequisites, Precautions, Limitations, and Actions have been met.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*3	**Start 1A and 1C Low Speed RCFCs per BwOP VP-5.**	Start 1A and 1C Low Speed RCFCs per BwOP VP-5. *(Procedural Adherence)* o Refer to BwOP VP-5. o Determine step F.2 is applicable step. o Verify 1A/1C High Speed RCFCs C/S in AFTER TRIP. After waiting at least 20 seconds from securing RCFCs, perform the following at 1PM06J: • **Place 1VP01CA, 1A Low Speed RCFC, C/S to start.** • **Place 1VP01CC, 1C Low Speed RCFC, C/S to start.** o Verify/reset vibration alarms that may occur on startup.	___	___	___
CUE	If asked, all BwOP Prerequisites, Precautions, Limitations, and Actions have been met.				
4	Record start time of last Unit 1 Train A RCFC started.	• Record start time of last Unit 1 Train A RCFC started. • Record the 15 minute flow completion time for the RCFCs. • Calculate and record Total Train A Low Speed RCFC run time.	___	___	___
CUE	Record start time of last Unit 1 Train A RCFC started. **Time Compression** 15 minutes has elapsed since the start of last train A Low Speed RCFC. The current time is now _____ (15 minutes later).				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
5	Return Train A RCFCs to "as found" condition.	Return Train A RCFCs to "as found" condition. • Refer to BwOP VP-6. • Determine step F.2 is applicable step. Perform the following at 1PM06J: • Place 1VP01CA, 1A Low Speed RCFC, C/S to trip. • Place 1VP01CC, 1C Low Speed RCFC, C/S to trip. Refer to BwOP VP-5. • Determine step F.1 is applicable step. Perform the following at 1PM06J: • Verify 1A/1C Low Speed RCFCs C/S in AFTER TRIP. • Place 1VP01CA, 1A High Speed RCFC, C/S to start. • Place 1VP01CC, 1C High Speed RCFC, C/S to start. • Verify/reset vibration alarms that may occur on startup. • Record "AS LEFT" positions of 1A/1C Low/High Speed RCFCs control switches. • Obtain verification of "AS LEFT" positions.	___	___	___
CUE	If asked, all BwOP Prerequisites, Precautions, Limitations, and Actions have been met.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	Stop 1B and 1D High Speed RCFCs per BwOP VP-6.	Stop 1B and 1D High Speed RCFCs per BwOP VP-6. • Refer to BwOP VP-6 • Determine step F.1 is applicable step. Perform the following at 1PM06J: • Place 1VP01CB, 1B High Speed RCFC, C/S to trip. • Place 1VP01CD, 1D High Speed RCFC, C/S to trip.	___	___	___
NOTE	**Alternate Path Begins Here**				
***7**	**@ Start 1B and 1D Low Speed RCFCs per BwOP VP-5.**	Start 1B and 1D Low Speed RCFCs per BwOP VP-5. *(Procedural Adherence)* o Refer to BwOP VP-5. o Determine step F.2 is applicable step. o Verify 1B/1D high speed RCFCs C/S in AFTER TRIP. After waiting at least 20 seconds from securing RCFCs, perform the following at 1PM06J: • **Place 1VP01CB, 1B Low Speed RCFC, C/S to start.** • **Place 1VP01CD, 1D Low Speed RCFC, C/S to start.** o Verify/reset vibration alarms that may occur on startup. o Determine that 1VP01CD Low Speed RCFC High Vibration will NOT reset.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*8	**Perform required actions for high vibrations on 1D Low Speed RCFC.**	Perform required actions for high vibration on 1D Low Speed RCFC. *(Procedural Adherence)* ○ Refer to BwAR 1-3-C5. • **Stop the 1D Low Speed RCFC.**	___	___	___
NOTE	Placing 1D Low Speed RCFC C/S to PTL satisfies immediate action of placing C/S in NAT position.				
9	Notify US of 1D Low Speed RCFC vibration (alarm will NOT reset).	• Notify US of 1D Low Speed RCFC vibration (alarm will NOT reset). • Notify US to refer to Tech Spec 3.6.6 and 3.6.7.	___	___	___
CUE	US acknowledges 1D RCFC status and Tech Spec evaluation request. Another NSO will complete this surveillance. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at power with all systems properly aligned.
3. 1BwOSR 3.6.6.2 “REACTOR CONTAINMENT FAN COOLER SURVEILLANCE” has been initiated and completed through step F.1.

INITIATING CUE

1. The Unit 1 US has directed you to perform 1BwOSR 3.6.6.2 “REACTOR CONTAINMENT FAN COOLER SURVEILLANCE” steps F.2.0 and F.3.0.
2. ALL RCFCs are to be returned to their “as found” condition when surveillance runs are completed.
3. Inform the Unit 1 US when steps F.2.0 and F.3.0 are complete.

Job Performance Measure

Crosstie ESF to Non-ESF Bus

JPM Number: SIM-606

Revision Number: 2018

Date: 1/18/18

Developed By:	Eric Steinberg /s/ Instructor	1/18/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwEP-1 Rev: 300
Procedure 1BwOA ESP-4 Rev: 1

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template. Added 1BwOA ESP-4 steps due to WOG 3 revision. This was a major re-write. Adapted from LORT JPM N-30 for class ILT 17-1.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC-67 (PW = ilt171) and verify items 2-6 are written into the IC. If IC-67 is NOT used, reset to IC-22 or to the IC written below.
2. Fault bus 143 via **IMF ED07C.**
3. Fault SAT 142-1 via **IMF ED04A.**
4. Initiate 1000 gpm RCS LOCA, **IMF TH06A 1000** (big enough to cause SI, but not cause a CS actuation) **or** initiate any size LOCA with both CS pump suctions swapped to the cnmt sumps.
5. Reset SI.
6. Ensure SATs and bus 143 are locked out.
7. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
8. This completes the setup for this JPM.
9. If needed, write an IC to re-perform this JPM on exam day.
10. The simulator must be reset to re-perform this JPM.

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Crosstie ESF to Non-ESF Bus**
JPM Number: **SIM-606** Revision Number: **2018**
Task Number and Title: **R-OA-024, Energize an Electrical Bus**
K/A Number and Importance: **062000A4.01, 3.3/3.1**
Suggested Testing Environment: **Simulator**
Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): 1BwEP-1, LOSS OF REACTOR OR SECONDARY COOLANT, Rev. 300
1BwOA ESP-4, 4KV ESF/NON-ESF BUS CROSSTIE, Rev. 1

Materials:
1. 1BwEP-1, step 10
2. 1BwOA ESP-4

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **8** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are an extra NSO.
2. Unit 1 has experienced a loss of coolant accident and a loss of Offsite power.
3. Unit 1 DGs are powering the ESF buses, but the Non-ESF buses are still de-energized.
4. TSO has dispatched crews to Braidwood Station to assess offsite power status, expected arrival time is 1 hour.
5. Unit 2 is at full power.

INITIATING CUE

1. The US has directed you to re-energize available 4 KV Non-ESF buses per step 10.a. of 1BwEP-1.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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 timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to 1BwEP-1 step 10.a.	Refer to 1BwEP-1 step 10.a.	___	___	___
CUE	Provide a copy of 1BwEP-1, step 10 to the examinee.				
2	Determine SATs are NOT available to power the Non-ESF buses.	DETERMINE offsite power is NOT available to Non-ESF buses: • SAT Trouble alarms. • SAT Sudden Pressure alarm. • Transition to 1BwOA ESP-4.	___	___	___
NOTE	Once the examinee locates 1BwOA ESP-4, provide a copy. At any time, the student may determine that bus 143 is NOT available. Subsequent actions will then focus on restoring bus 144.				
3	Check Offsite Power – Available.	Check Offsite Power – Available: • SAT 142-1/142-2 are de-energized. • Both U-1 DGs are providing power to the ESF buses. • Verify ESF buses energized.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number

4	Prepare to crosstie bus 141 to bus 143.	Prepare to crosstie bus 141 to bus 143:
		• Check bus 141/241 reserve feed breaker OPEN:
		  • ACB 1414.
		• Place breakers in PULL OUT:
		  • UAT 141-1 Feed (1431).
		  • SAT 142-1 Feed (1432).
		  • Bus Tie 141/143 (1411).
		• **NOTES alarm is LIT –** transitions to 1BwOA ESP-4 step 3 per RNO column.
		  • 1-21-A1
		  • 1-21-A2 (LIT)
		  • 1-21-B6
			___	___	___

5	Prepare to crosstie bus 142 to bus 144.	Prepare to crosstie bus 142 to bus 144:
		• Check bus 142/242 reserve feed breaker OPEN:
		  • ACB 1424.
		• Dispatch operator to place 0A Service Building Chiller C/S in PULL OUT.
		• PLACE breakers in PULL OUT:
		  • UAT 141-2 Feed (1441).
		  • SAT 142-2 Feed (1442).
		  • Bus Tie 142/144 (1421).
			___	___	___

CUE	EO reports 0A Service Building (VS) Chiller control switch is in PULL OUT.				

*6	**Prepare to crosstie bus 142 to bus 144 (cont).**	Prepare to crosstie bus 142 to bus 144: ○ CHECK Bus 144 alarms <u>NOT lit:</u> ○ 1-22-A1. ○ 1-22-A2. ○ 1-22-B6. ○ OPEN all 480V HIGH side breakers: ○ 1445XY. ○ 1445ZW. ○ 1445BC. ○ 1445VU. ○ 1445RA. ○ OPEN all 480V LOW side breakers and PZR LOW side breakers: ○ 134X1. ○ 134Y1. ○ 134Z1. ○ 034W1. ○ 134V1. ○ 034R1. ○ 034P1. ○ B/U htrs Grp B. ○ Var htrs Grp C. ○ PLACE B/U PZR htr contactor B switch in OFF. ○ RESET SI (already reset). ○ Depress both SI reset pushbuttons. ○ Verify SI actuated light NOT LIT. ○ Verify AUTO SI BLOCKED light NOT LIT. ○ With Bypass Perm Panel de-energized, continue to next step. • **RESET SI recirc sump isol valve (1SI8811B) (SIRSIVRB).** *(Procedural Adherence)*	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number

7	Prepare to crosstie bus 142 to bus 144 (cont).	Prepare to crosstie bus 142 to bus 144:
		• PLACE non-running equipment in PULL OUT:
		  • 1B CNMT chiller.
		  • 0B WS pump.
		  • Unit 1 SAC.
			___	___	___

***8**	**Energize bus 144 from bus 142 via the crosstie breaker.**	Energize bus 144 from bus 142 via the crosstie breaker: *(Procedural Adherence)* • **CLOSE Non-ESF to ESF crosstie breaker:** • **1421.** ○ Inform US that bus 144 is crosstied to bus 142.	___	___	___
CUE	Acknowledge as US that bus 144 is crosstied to bus 142 and inform examinee that another NSO will complete energizing bus 144 loads. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are an extra NSO.
2. Unit 1 has experienced a loss of coolant accident and a loss of Offsite power.
3. Unit 1 DGs are powering the ESF buses, but the Non-ESF buses are still de-energized.
4. TSO has dispatched crews to Braidwood Station to assess offsite power status, expected arrival time is 1 hour.
5. Unit 2 is at full power.

INITIATING CUE

1. The US has directed you to re-energize available 4 KV Non-ESF buses per step 10.a. of 1BwEP-1.

Job Performance Measure

Perform Calorimetric using Process Plant Computer

JPM Number: SIM-702

Revision Number: 2018

Date: 1/18/18

Developed By:	Eric Steinberg /s/ Instructor	1/18/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwOSR 3.3.1.2-1 Rev: 19

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template. Adapted from LORT JPM N-006b for ILT 17-1.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC-22 or equivalent 100% power IC.
2. Adjust Tave to be 0.1 - 0.2°F above Tref.
3. Simulator needs to run for at least 10 minutes.
4. Ensure PPC screen alignments are normal for the selected IC.
5. Adjust gain pot on PR channel N-42 to indicate 99.0% at 1PM07J.
6. Verify/adjust other PRNIs = 100% at 1PM07J.
7. Lock gain pots in position.
8. Ensure rods in auto.
9. Clear recorders.
10. Clear calculator.
11. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
12. This completes the setup for this JPM.

To re-perform this JPM:

1. Ensure all paperwork from previous JPM is removed.
2. Perform steps 3-10 above.
3. Logoff RealTime on any PPC monitor used for this JPM.
4. Check PPC printer clear of paper.

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☒ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Perform Calorimetric using Process Plant Computer**
JPM Number: **SIM-702** Revision Number: **2018**
Task Number and Title: **R-NI-004, Perform Calorimetric Calculation**
K/A Number and Importance: **015000A1.01, 3.5/3.8**
Suggested Testing Environment: **Simulator**
Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): 1BwOSR 3.3.1.2-1, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Computer Calorimetric), Rev. 19
Materials:

1. 1BwOSR 3.3.1.2-1

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **31** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are an Extra NSO.
2. Both Units are at power, steady state.
3. All systems and controls are normal for the present conditions.

INITIATING CUE

1. The US has directed you to perform a calorimetric using the PPC per 1BwOSR 3.3.1.2-1, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Computer Calorimetric).

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator's particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE	PR N42 should be 99%.				
1	Refer to 1BwOSR 3.3.1.2-1, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Computer Calorimetric).	Locate and refer to 1BwOSR 3.3.1.2-1 and on Data Sheet D-2: • Record Date and Time in Block 1. • Record Gross MWe in Block 2. • Record Control Bank C & D positions in Block 2. • Sign for all prerequisites met in Block 2. • Record the % power from the NIS drawers in Block 3.	___	___	___
NOTE	Provide a copy of the procedure.				
CUE	If asked, all Prerequisites, Precautions, and Limitations and Actions are met.				

2	Access the PPC program for the Calorimetric.	Access the PPC program for the Calorimetric as follows: • Review manually entered point values. ➢ From the Main Menu page, SELECT User Functions. ➢ From User Functions menu, SELECT Point Summaries. ➢ Generate a Point Summaries Report. ➢ On POINTS WITH SUBSTITUTED VALUES line, SELECT All. ➢ SELECT Get Report. ➢ Print if desired. ➢ REVIEW report against list of Calorimetric Program Inputs provided in Appendix B. ➢ On POINTS DELETED FROM PROCESSING line, SELECT All. ➢ SELECT Get Report. ➢ Print if desired. ➢ REVIEW report against list of Calorimetric Program Inputs provided in Appendix B. ➢ Verify any off scan or manually entered values that affect calorimetric are correct for present conditions (NONE). ➢ VERIFY minimum of 15 minutes elapsed for manual entry (N/A).	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
2	Access the PPC program for the Calorimetric (cont).	• From the Main Menu page, SELECT Operator Demandable. • Select Calorimetric. • Review Alert status for input points out of scan or poor quality (NONE highlighted). • N/A - steps F.4.e/f/g.			
***3**	**Create Calorimetric Report from the PPC.**	Perform the following to create a Calorimetric Report from the plant process computer: *(Procedural Adherence)* • **Select the Calculation Method Control Screen.** ○ Verify current calculation method is 1 or 3. ○ N/A - step F.4.j. • **Print the Calorimetric Calculation Method Control page.**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE	**Alternate Path Begins Here**				
***4**	**@ Determine if an adjustment is required for each operable power range channel.**	Determine if an adjustment is required for each operable power range channel as follows: *(Procedural Adherence)* • **Record the 10 minute reactor power % value from the Calorimetric Calculation Method Control printout in Block 5.** • **Determine the power difference by subtracting the Calorimetric power from the NIS power for each channel and record in block 6.** • Determine that an adjustment is necessary: o Check "NO" boxes for channels N41, N43, and N44 in block 7. • **Check "YES" for channel N42 in block 7.**	___	___	___
NOTE	All block 6 numbers are positive numbers and less than 2% except for PR N42 which is negative.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*5	**Determine the amount to adjust Channel N42.**	Determine the amount to adjust Channel N42 as follows: *(Procedural Adherence)* • **Record the present percent power reading from N42 NIS drawer in block 8.** • **Record the power difference calculated in step 6 in block 9.** • **Subtract the power difference from the current reading to determine the indicated power level to adjust to and record in block 10.** ○ Obtain review/approval authorization from SM or designee signature in block 11.	___	___	___
CUE	SM concurs with the NI readjustment.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*6	**Adjust Channel N42.**	Adjust Channel N42 as follows: *(Procedural Adherence)* • **Place the Rod Control System in MANUAL.** • **Adjust the GAIN potentiometer on Drawer B of N42 until the indicated power equals the calculated value of block 10.** ○ Reset any rate trip present. • **Indicate "YES" in block 14 for channel N42.** ○ Restore Rod Control System to AUTO when Tave is within 1.0° of Tref.	___	___	___
CUE	Another NSO will restore Rod Control to AUTO.				
7	Attach the computer printout behind data sheet D-2 and complete block 17.	Complete the Data Sheet as follows: • Obtain SM/designee review of data. • Attach the computer printout behind data sheet D-2. • MARK "YES" in both boxes of block 17. • Report completion of surveillance to US.	___	___	___
CUE	As SM, acknowledge review of data if asked.				
CUE	As US, acknowledge completion of surveillance. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are an Extra NSO.
2. Both Units are at power, steady state.
3. All systems and controls are normal for the present conditions.

INITIATING CUE

1. The US has directed you to perform a calorimetric using the PPC per 1BwOSR 3.3.1.2-1, Unit One Power Range High Flux Setpoint Daily Channel Calibration (Computer Calorimetric).

Job Performance Measure

Perform a Containment Mini-Purge Release with 1PR01J Alarm

JPM Number: SIM-902

Revision Number: 2018

Date: 1/22/2018

Developed By:	Eric Steinberg /s/ Instructor	1/22/2018 Date
Validated By:	Dan Burton /s/ SME or Instructor	2/22/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure BwOP VQ-6 Rev: 25
Procedure RP-BR-980 Rev: 18

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template. Revised from a 2009 NRC ILT JPM (SIM-805).

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any Mode 1-5 IC.
2. RP-BR-980 needs to be filled out through section D. If desired, place the required examinee materials in a purple release folder.
3. Verify 0VA02CA is running.
4. Raise containment pressure to $\geq$ 0.3 psig with containment mini-purge supply system.
5. Place “RELEASE IN PROGRESS” placard on 0PM02J.
6. Perform the following to cause a 1PR01J High Alarm on CUE from evaluator:
   - **IMF RM06T -3.02**
7. When the above steps are completed for this and other JPMs to be run concurrently, then validate, if not previously validated, then concurrently run JPMs using the JPM Validation Checklist.
8. This completes the setup for this JPM.

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Perform a Containment Mini-Purge Release with 1PR01J Alarm**
JPM Number: **SIM-902** Revision Number: **2018**
Task Number and Title: **R-VQ-006, Start the Containment Mini-purge System**
K/A Number and Importance: **071000A3.03, 3.6/3.8**
Suggested Testing Environment: **Simulator**
Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): BWOP VQ-6, CONTAINMENT MINI PURGE SYSTEM OPERATION, Rev. 25
RP-BR-980, CONTAINMENT VENT AND MINI PURGE GASEOUS EFFLUENTS, Rev. 18

Materials

1. BwOP VQ-6
2. RP-BR-980 (Marked up copy)

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ Other

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: **18** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are the Unit 1 Assist NSO.
2. Both Units are at full power.
3. 1PR01J is currently operable, but is scheduled to be taken OOS for maintenance next shift.
4. A Unit 1 containment release is scheduled in anticipation of the 1PR01J outage.

INITIATING CUE

1. The Unit Supervisor has handed you a Containment release package G-18-001, completed through Section D, and has directed you to perform Section E using the containment mini-flow purge exhaust fan and BwOP VQ-6. All previous sections of the release package have been successfully completed.
2. An Equipment Operator is standing by to obtain the 1FI-VQ009 flowrate.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator's particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to RP-BR-980, Section E.1.	• Open RP-BR-980. • REVIEW the applicable Prerequisites, Precautions, Limitations and Actions.	___	___	___
CUE	Provide the student with a marked copy of RP-BR-980 and a copy of BwOP VQ-6.				
2	Record the affected Containment.	• Record 1 in the affected containment blank. • Initial and date “operator” blank. • Request SRO initial and date “SRO” blank.	___	___	___
CUE	US has initialed and dated the “SRO” blanks.				
3	RECORD the affected containment pressure.	• Record affected containment pressure in blank. • Initial and date “operator” blank.	___	___	___
NOTE	If the examinee indicates they would use the 1PM06J Cnmt Pressure meter, show the photo attached to the back of JPM to prevent interference with other JPMs.				
4	Ensure HVAC requirements are still in effect.	• Verify 0VA02CA is running. • Initial and date the “operator” blank.	___	___	___
5	Refer to BwOP VQ-6.	• Open BwOP VQ-6. • REVIEW the applicable Prerequisites, Precautions, and Limitations and Actions. • Determine step 8 is applicable.	___	___	___
CUE	All Prerequisites, Precautions, Limitations and Actions are met.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
***6**	**Open mini-flow purge exhaust isolation valves.**	• At 0PM02J, OPEN mini-flow purge exhaust isolation valves: *(Procedural Adherence)* • **Open 1VQ005A.** • **Open 1VQ005B.** • **Open 1VQ005C.**	___	___	___
7	Record the time the mini-flow purge exhaust isolation valves were open in RP-BR-980 step E.1.d.	• Record the current time. • Initial and date the "operator" blank.	___	___	___
***8**	**Start Cnmt Mini-Flow Purge Exhaust Fan.**	• At 0PM02J, start Cnmt Mini-Flow Purge Exhaust Fan: *(Procedural Adherence)* • **Start 1VQ05C.**	___	___	___
9	Record the time the fan was started in RP-BR-980 step E.1.e.	• Record the current time. • Initial and date the "operator" blank.	___	___	___
10	Locally obtain 1FI-VQ009 flowrate and record purge flowrate in RP-BR-980 step E.1.f.	• Record 1FI-VQ009 flowrate. • Initial and date the "operator" blank.	___	___	___
CUE	EO reports flowrate is 2950 cfm.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE	**Alternate Path Begins Here**				
NOTE	Cue the booth operator to insert the 1PR01J High Alarm malfunction. If needed, prompt the Examinee that they must respond to RMS alarms.				
***11**	**After receiving High Alarm on 1PR01J, secure the release.**	• After receiving High Alarm on 1PR01J, secure the release. *(Procedural Adherence)* GO TO BwOP VQ-6, Attachment A, _PR01J ALARM RESPONSE DURING CNMT RELEASES or BwAR 2-1PR01J. o Secure the release by performing applicable steps of BwOP VQ-6 (step F.9): • **Stop 1VQ05C.** o Record fan stop time in RP-BR-980, step E.1.g. • **Close 1VQ005A.** • **Close 1VQ005B.** • **Close 1VQ005C.**	___	___	___
CUE	Another NSO will complete the evolution. This completes the JPM.				

JPM Stop Time: _____

1PM06J Containment Pressure meter

INITIAL CONDITIONS

1. You are the Unit 1 Assist NSO.
2. Both Units are at full power.
3. 1PR01J is currently operable, but is scheduled to be taken OOS for maintenance next shift.
4. A Unit 1 containment release is scheduled in anticipation of the 1PR01J outage.

INITIATING CUE

1. The Unit Supervisor has handed you a Containment release package G-18-001, completed through Section D, and has directed you to perform Section E using the containment mini-flow purge exhaust fan and BwOP VQ-6. All previous sections of the release package have been successfully completed.
2. An Equipment Operator is standing by to obtain the 1FI-VQ009 flowrate.

Exelon Nuclear

Job Performance Measure

Align AF from the Opposite Unit

JPM Number: IP-412S

Revision Number: 2018

Date: 2/02/2018

Developed By:	Eric Steinberg /s/ Instructor	2/02/2018 Date
Validated By:	John Logan /s/ SME or Instructor	2/23/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwFR-H.1 Rev: 300
Procedure 1BwFSG-3 Rev: 2

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2018, New JPM written for ILT class 17-1.

SIMULATOR SETUP INSTRUCTIONS

1. N/A, In-Plant.

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Align AF from the Opposite Unit**
JPM Number: **IP-412S** Revision Number: **2018**
Task Number and Title: **R-EP-018: Feed the Steam Generator with the Auxiliary Feedwater System**
K/A Number and Importance: **APE054AA1.01, 4.5/4.4**
Suggested Testing Environment: **In-Plant**
Alternate Path: ☒ Yes ☐ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): 1BwFR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Rev. 300
1BwFSG-3, ALTERNATE LOW PRESSURE FEEDWATER, Rev. 2
Materials:

1. 1BwFSG-3

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: **25** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are a Safe Shutdown Operator.
2. Unit 1 experienced a reactor trip due to loss of FW.
3. Unit 1 experienced a loss of heat sink after the reactor was tripped.
4. Unit 2 remains at full power with no equipment currently out of service or unavailable.
5. All attempts to restore Unit 1 feedwater have failed and the Shift Manager has declared 10 CFR 50.54(x) and (y) to allow actions per 1BwFSG procedures.
6. The US is reviewing 1BwFR-H.1 “RESPONSE TO LOSS OF SECONDARY HEAT SINK” Attachment B “FEED FLOW LIMITATIONS.”

INITIATING CUE

1. The Shift Manager has directed you to perform 1BwFSG-3 “ALTERNATE LOW PRESSURE FEEDWATER” to crosstie U-1 AF train A from U-2 AF train A.

EXAMINER’S NOTE: Start this JPM near/in the MCR. The examinee will perform some MCR actions followed by local actions.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator’s Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the “Comment Number” column on the following pages. Then annotate that comment in the “Comments” section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site’s appropriate tracking system.

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.

ALTERNATE PATH JUSTIFICATION

JPMs are intended to be tasks that an operator must be able to perform, which relate to the operator’s particular job task analysis. Operators are frequently challenged to perform auxiliary procedures when equipment or instrumentation fails during use. Therefore, examinees are expected to be able to use alternative methods to perform tasks. **Alternative paths are evaluated during an examination by incorporating malfunctions of instrumentation or components that require the examinee to perform actions other than those performed when a system responds normally.**

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to 1BwFSG-3.	Locate and open 1BwFSG-3.	___	___	___
CUE	After the examinee locates procedure, provide a copy.				
2	Check AF crosstie available.	Check AF crosstie available. • 2A AF pump - NOT required for Unit 2 heat sink. • 2A AF pump - power available. • 2A AF pump - suction source available.	___	___	___
CUE	If asked, the 2A AF pump is as you see it. Per the initiating cue, no Unit 2 equipment is out of service or unavailable.				
*3	**Close Unit 2 AF isol valves.**	Close Unit 2 AF isol valves at 2PM06J: *(Procedural Adherence)* ○ Attempt to close 2AF013A (remains open, will NOT close). • **Close 2AF013B.** • **Close 2AF013C.** • **Close 2AF013D.**	___	___	___
CUE	2AF013A valve position does NOT change (red closed light off, green open light on). 2AF013B-D: red closed light on, then the green open light goes out as each valve is manipulated (~ 20 seconds stroke time). If required, inform the examinee that the examinee is required to continue the steps in 1BwFSG-3.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE	**Alternate Path Begins Here**				
***4**	**@ Locally close 2AF005A.**	Locally close 2AF005A: *(Procedural Adherence)* ○ Set 2AF005A flow controller pot to 0% demand at 2PM06J. • **Locally close 2AF005A (364' P10) using the handwheel (engage 2AF005A manual jacking device by turning it clockwise).**	___	___	___
CUE	At 2PM06J: 2AF005A potentiometer reads 0%. At 2AF005A: If the examinee turns the jack in the clockwise direction, indicate the jack engages the valve. As the jack continues to be turned clockwise, 2AF005A closes. Respond or call as the unit 2 RO that 2AF005A indicates closed in the MCR.				
***5**	**Unlock and open Train A AF pump crosstie isol valves.**	**Unlock and OPEN Train A AF pump crosstie isol valves:** *(Procedural Adherence)* • **1AF036 (383' M18 F2 Key).** • **2AF036 (383' M18 F2 Key).**	___	___	___
CUE	As each valve is unlocked, its valve stem moves outward as the valve is turned counter clockwise until it stops.				
6	Prior to initiating feed flow, inform the U-1 US to review 1BwFR-H.1 Attachment B.	Prior to initiating feed flow, inform the U-1 US to review 1BwFR-H.1 Attachment B.	___	___	___
CUE	As US acknowledge the request. Report that there are no feed flow limits currently.				
CUE	The Unit 1 Assist NSO will continue with 1BwFSG-3 from this point in the procedure. This completes the JPM.				

JPM Stop Time: _____

INITIAL CONDITIONS

1. You are a Safe Shutdown Operator.
2. Unit 1 experienced a reactor trip due to loss of FW.
3. Unit 1 experienced a loss of heat sink after the reactor was tripped.
4. Unit 2 remains at full power with no equipment currently out of service or unavailable.
5. All attempts to restore Unit 1 feedwater have failed and the Shift Manager has declared 10 CFR 50.54(x) and (y) to allow actions per 1BwFSG procedures.
6. The US is reviewing 1BwFR-H.1 “RESPONSE TO LOSS OF SECONDARY HEAT SINK” Attachment B “FEED FLOW LIMITATIONS.”

INITIATING CUE

1. The Shift Manager has directed you to perform 1BwFSG-3 “ALTERNATE LOW PRESSURE FEEDWATER” to crosstie U-1 AF train A from U-2 AF train A.

Exelon Nuclear

Job Performance Measure

Energize an Instrument Bus from the CVT and Shutdown the Inverter

JPM Number: IP-604

Revision Number: 2018

Date: 1/22/2018

Developed By: Eric Steinberg /s/ 1/22/2018
Instructor Date

Validated By: John Logan /s/ 2/23/2018
SME or Instructor Date

Reviewed By: Daniel Wyatt /s/ 2/23/2018
Operations Representative Date

Approved By: Eric Steinberg /s/ 2/23/2018
Training Department Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure 1BwOA ELEC-2 Rev: 108
Procedure BwOP IP-2 Rev: 39

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2016, Copied from LORT JPM N-28 for ILT 15-1 and added a note for a procedure change that requires additional action if using this JPM for Unit 2.

Revision 2018, No changes required, verified procedures were still current.

SIMULATOR SETUP INSTRUCTIONS

1. N/A, In-Plant

JPM SUMMARY

Operator's Name: _____ **Emp ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Energize an Instrument Bus from the CVT and Shutdown the Inverter**
JPM Number: **IP-604** Revision Number: **2018**
Task Number and Title: **R-OA-006: Respond to a loss of vital AC electrical instrument bus**
K/A Number and Importance: **APE057AA1.01, 3.7/3.7**
Suggested Testing Environment: **In-Plant**
Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): 1BwOA ELEC-2, LOSS OF INSTRUMENT BUS, Rev. 108
BwOP IP-2, TRANSFERRING AN INSTRUMENT BUS FROM THE INVERTER TO THE CONSTANT VOLTAGE TRANSFORMER, Rev. 39

Materials:
1. BwOP IP-2

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: **13** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INITIAL CONDITIONS

1. You are an Equipment Operator.
2. Both units are at full power.
3. Instrument Inverter 111 output breaker B2 has been declared inoperable due to improper overcurrent trip setting.

INITIATING CUE

1. The Unit Supervisor has directed you to transfer Instrument Bus 111 to the Constant Voltage Transformer and shutdown Inverter 111 in accordance with BwOP IP-2 section F.1. An Equipment Operator is standing by at MCC 131X2.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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 timeclock starts when the candidate acknowledges the initiating cue.

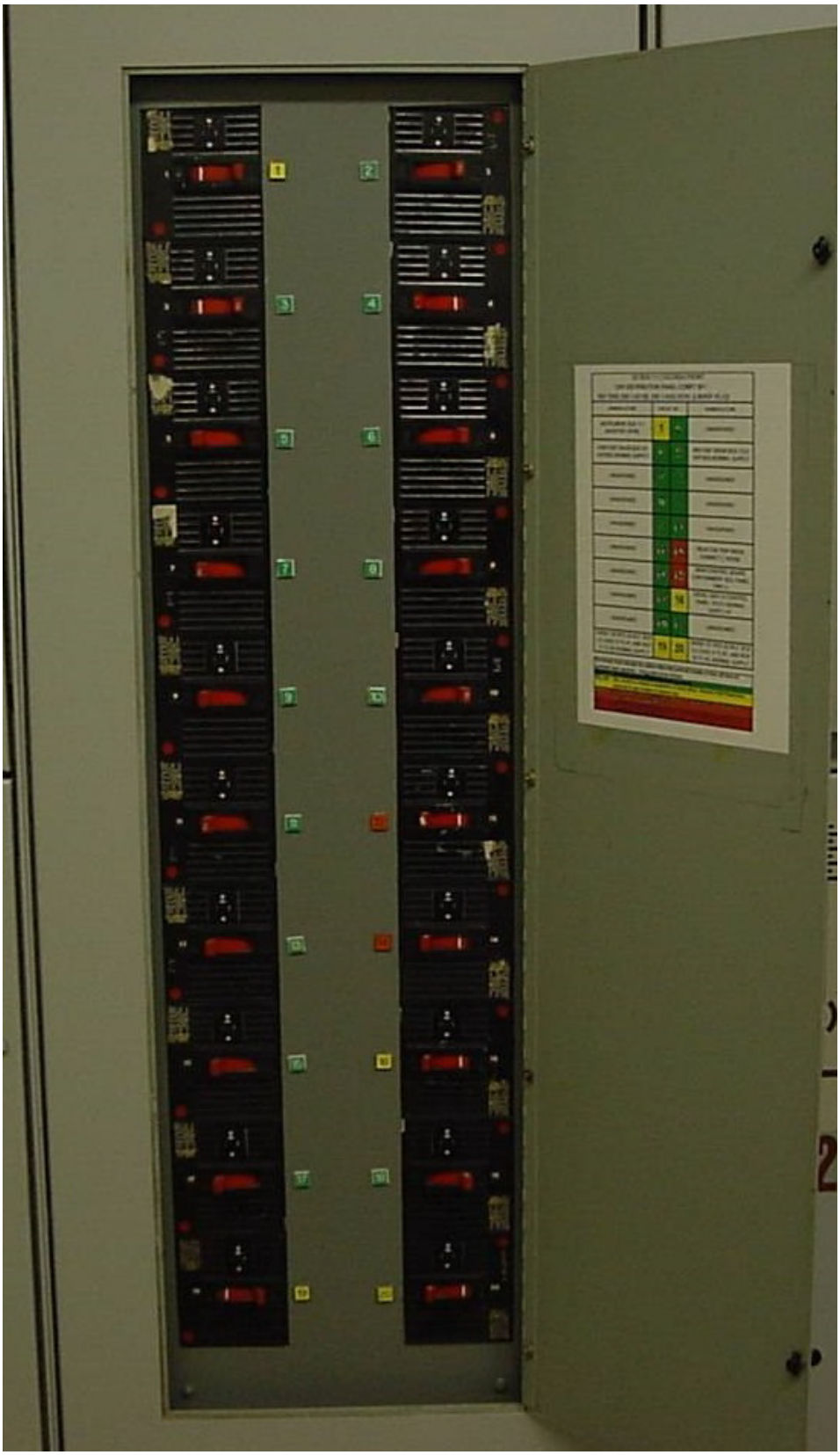
JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to BwOP IP-2.	Locate and open BwOP IP-2, step F.1.	___	___	___
CUE	After the student locates procedure, provide a copy.				
CUE	All applicable Prerequisites, Precautions, Limitations and Actions have been met.				
NOTE	If this JPM is going to be performed on Unit 2, additional steps are required for WHPS relay checks.				
CUE	If asked, the Control Room is aware of the upcoming steps and all required personnel are staged for the critical task performance.				
2	Proceed to Inverter 111.	Locate Inverter 111 (Elev. 451' MEER).	___	___	___
***3**	**Transfer Instrument Bus 111 to the Constant Voltage Transformer.**	Transfer Instrument Bus 111 to the Constant Voltage Transformer: ○ VERIFY Inverter IN SYNC light P3, is lit at 1IP05E. • **DEPRESS and RELEASE the BYPASS SOURCE TO LOAD pushbutton S202, at 1IP05E.** *(Configuration Control)* ○ VERIFY BYPASS SOURCE SUPPLYING LOAD light P2, is lit at 1IP05E.	___	___	___
CUE	Inverter IN SYNC light P3 is lit.				
CUE	BYPASS SOURCE TO LOAD pushbutton S202 DEPRESSED and RELEASED.				
CUE	BYPASS SOURCE SUPPLYING LOAD light P2 is lit, as you see it.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*4	**Shutdown Instrument Inverter 111, 1IP05E.**	Shutdown Instrument Inverter 111, 1IP05E: *(Configuration Control)* • **OPEN the Inverter Output Bkr B2, at 1IP05E.** • **PLACE the Manual Bypass Switch S1 in the BYPASS TO LOAD position at 1IP05E.** • **OPEN Battery Input Bkr B1, at 1IP05E.** • **OPEN Rectifier AC Input Bkr B301, at 1IP05E.** • **OPEN the Bypass Source AC Input Bkr B4, at 1IP05E.** • **OPEN 111 Inverter D.C. feed breaker on 125 volt D.C. distribution panel 111 BF1, CKT1.** o Dispatch an EO to OPEN 111 Inverter A.C. feed breaker on MCC 131X2, CUB C2.	___	___	___

CUE	Inverter Output Bkr B2 is DOWN.
CUE	Manual Bypass Switch is pointing to the right (BYPASS TO LOAD position).
CUE	Battery Input Bkr B1 is DOWN.
CUE	Rectifier AC Input Bkr B301 is DOWN.
CUE	Bypass Source AC Input Bkr B4 is DOWN.
CUE	USE supplied picture in back of JPM (111 Inverter D.C. feed breaker on DC dist panel 111, BF1 is LEFT).
CUE	EO reports that 111 Inverter A.C. feed breaker on MCC 131X2, CUB C2, is DOWN (OPEN). This completes the JPM.

JPM Stop Time: _____



Picture Inside BF-1

SRRS: 3D.105 There are no retention requirements for this section

INITIAL CONDITIONS

1. You are an Equipment Operator.
2. Both units are at full power.
3. Instrument Inverter 111 output breaker B2 has been declared inoperable due to improper overcurrent trip setting.

INITIATING CUE

1. The Unit Supervisor has directed you to transfer Instrument Bus 111 to the Constant Voltage Transformer and shutdown Inverter 111 in accordance with BwOP IP-2 section F.1. An Equipment Operator is standing by at MCC 131X2.

SRRS: 3D.105 There are no retention requirements for this section

Job Performance Measure

Local Start of a Station Air Compressor

JPM Number: IP-803

Revision Number: 2018

Date: 01/08/18

Developed By:	Eric Steinberg /s/ Instructor	1/08/2018 Date
Validated By:	John Logan /s/ SME or Instructor	2/23/2018 Date
Reviewed By:	Daniel Wyatt /s/ Operations Representative	2/23/2018 Date
Approved By:	Eric Steinberg /s/ Training Department	2/23/2018 Date

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 9 and 13 below.

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

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

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

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue if required) are properly identified.

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

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

_____ 8. If an alternate path is used, the task standard contains criteria for successful completion.

_____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure BwOP SA-1 Rev: 44

_____ 10. Verify cues both verbal and visual are free of conflict.

_____ 11. Verify performance time is accurate

_____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 13. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below:

SME / Instructor	Date
SME / Instructor	Date
SME / Instructor	Date

Revision Record (Summary)

Revision 2010, Change format and verify latest procedure revision.

Revision 2011, Verify latest procedure revision.

Revision 2012, Per ATI 1089778-64 all JPMs were updated as applicable to each JPM the following information - KA, Critical Path, Cues, Boron Concentration, Fundamentals. Also Updated to latest procedure revisions if changed.

Revision 2013, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2014, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2015, Revision includes current revisions of referenced procedures and current revision of TQ-JA-150-02 JPM Template.

Revision 2016, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template.

Revision 2017, Revision includes current revisions of referenced procedures and current revision of TQ-AA-150-J020 JPM Template.

Revision 2018, Revision includes current revisions of referenced procedures.

SIMULATOR SETUP INSTRUCTIONS

1. N/A, In-Plant

JPM SUMMARY

Operator's Name: _____ **Emp. ID#:** _____

Job Title: ☐ EO ☐ RO ☐ SRO ☐ FS ☐ STA/IA ☐ SRO Cert

JPM Title: **Local Start of a Station Air Compressor**
JPM Number: **IP-803** Revision Number: **2018**
Task Number and Title: **R-SA-002, Startup a Station Air Compressor**
K/A Number and Importance: **APE065AA1.03, 2.9/3.1**
Suggested Testing Environment: **In-Plant**
Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No Time Critical: ☐ Yes ☒ No
Reference(s): BwOP SA-1, STARTUP AND OPERATION OF STATION AIR COMPRESSORS, Rev. 44

Materials:
1. BwOP SA-1

Actual Testing Environment: ☐ Simulator ☐ Control Room ☒ In-Plant ☐ Other

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: **28** minutes **Actual Time Used:** _____ minutes

EVALUATION SUMMARY:
Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

The operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory

Comments: _____

Evaluator's Name (Print): _____

Evaluator's Signature: _____ **Date**: _____

INSTRUCTOR NOTE:

1. This JPM is setup for use on the Unit 1 SAC, but may be marked for use on any SAC.

INITIAL CONDITIONS

1. You are an Equipment Operator.
2. Both Units have tripped due to a loss of Instrument Air.
3. Instrument Air header pressure is 25 psig and the IA header leak is isolated.
4. Unit 1 SAC is aligned for standby and has no targets up at its breaker.
5. The U-0 and U-2 SACs have failed and cannot be started.

INITIATING CUE

1. The Field Supervisor has directed you to perform a LOCAL EMERGENCY start of the Unit 1 SAC per BwOP SA-1. The FS directs skipping step F.1 per the second NOTE.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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 timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1	Refer to BwOP SA-1.	Locate and Open BwOP SA-1. • Obtain key for SAC emergency start nitrogen bottle storage cage. • Selects step F.5 per step F.2 NOTE.	___	___	___
CUE	After student locates procedure, provide a copy.				
NOTE	All Prerequisites are met with the exception of the control air pressure being available.				
***2**	**Align Nitrogen bottle to provide control air to the Unit 1 SAC for startup.**	Align Nitrogen bottle to supply control air pressure to allow start of Unit 1 SAC as follows: *(Configuration Control)* • **Obtain N_2 bottle from cage (401' TB E-3) and relocate it to near the Unit 1 SAC.** ○ VERIFY N_2 bottle regulator is backed all the way out. • **CONNECT N_2 bottle regulator outlet to quick disconnect inlet piping of 1SA01C on the left side of U-1 SAC control panel.** • **CLOSE 1IA1285, IA supply Isolation valve to 1SA01C control panel.** • **OPEN 1IA1286, Emergency Nitrogen Supply Isolation valve to Unit 1 SAC.** • **VALVE IN N_2 bottle and SET regulator for ~35 psig on regulator outlet.** ○ VERIFY ~ 30 psig supply pressure to SAC control panel on gauge 1SA01J-REG-1.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	N_2 bottle is near Unit 1 SAC.				
CUE	After hand wheel is rotated in the CCW direction, regulator is backed all the way out.				
CUE	After locating connection at left side of control panel, regulator outlet is connected.				
NOTE	If performed on U0/2 SAC, IA Supply Isol – 0IA1323/2IA1297; Emer N2 Supply Isol – 0IA1324/2IA1298, respectively.				
CUE	After valve (1IA1285) is located behind and to the right of the quick disconnect, and valve handle is rotated in CW direction, valve is perpendicular to the pipe.				
CUE	After rotating valve (1IA1286) handle in CCW direction, valve is in line with pipe.				
CUE	Show picture of inside of SAC control panel. Regulator indicates 36 psig.				
CUE	Supply pressure indicates 30 psig. (1SA01J-REG-1 is the only pressure gauge inside the cabinet).				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*3	**Perform step F.4 local start of Unit 1 SAC.** **(step 3 of BwOP SA-1 is N/A)**	Perform a LOCAL Start of Unit 1 SAC as follows: *(Procedural Adherence)* ○ Record data on Attachment B for the running SAC. ○ Contact NSO in MCR to VERIFY/PLACE 1SA01C SAC Control Switch in After-Trip position. ○ VERIFY/PULL OUT the Emergency Stop p/b. ○ Depress the following: - MENU - 5 - Use up/down arrows to verify the following: - 1 inlet valve (AUTO). - 1 unload valve (AUTO). - 1 start/stop (Man/Man). - 1 control mode (suction throttle). ○ Depress the following to check lube oil temp: - MENU - 4 - Check temperature > 74F. ○ Check for alarms on control panel. • **Depress the start key.** ○ Verify the AOP starts. ○ Verify after 15 seconds the SAC starts.	___	___	___
CUE	If asked, Attachment B data was previously recorded by another EO. U-1 Assist NSO reports U-1 SAC control switch in after-trip.				
CUE	Emergency stop P/B is pulled out.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	Menu is depressed.				
CUE	5 is depressed.				
CUE	1 inlet valve (auto) is verified. 1 unload valve (auto) is verified. 1 start/stop (Man/Man) is verified. 1 control mode (suction throttle) is verified.				
CUE	Menu is depressed.				
CUE	4 is depressed.				
CUE	Temperature is 88°F.				
CUE	No alarms are present on the control panel.				
CUE	Start key is depressed and the AOP is running.				
CUE	15 seconds has elapsed and the U-1 SAC has started.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
4	Check operating conditions of compressor.	CHECK operating conditions of SAC after compressor is running: • No unusual noise or vibration. • No oil or water leaks. • Adequate cooling water flow to maintain normal lube oil and air outlet temperatures. After 40 seconds, verify the following: • Aux Oil pump shuts off. • Inlet valve begins to THROTTLE OPEN from the CLOSED position. • Unloader begins to THROTTLE CLOSED from the FULL OPEN position. Direct NSO to place 1SA01C control switch in after-close.	___	___	___
CUE	No unusual noise or vibration. No oil or water leaks. Lube oil temp is 115°F. Air temp is 105°F. Aux Oil Pump is off. Inlet valve is throttled open. Unloader begins to THROTTLE CLOSED from the FULL OPEN position.				
CUE	1SA01C control switch is in NORMAL AFTER-CLOSE.				
CUE	Another operator will complete the remainder of BwOP SA-1. This completes the JPM.				

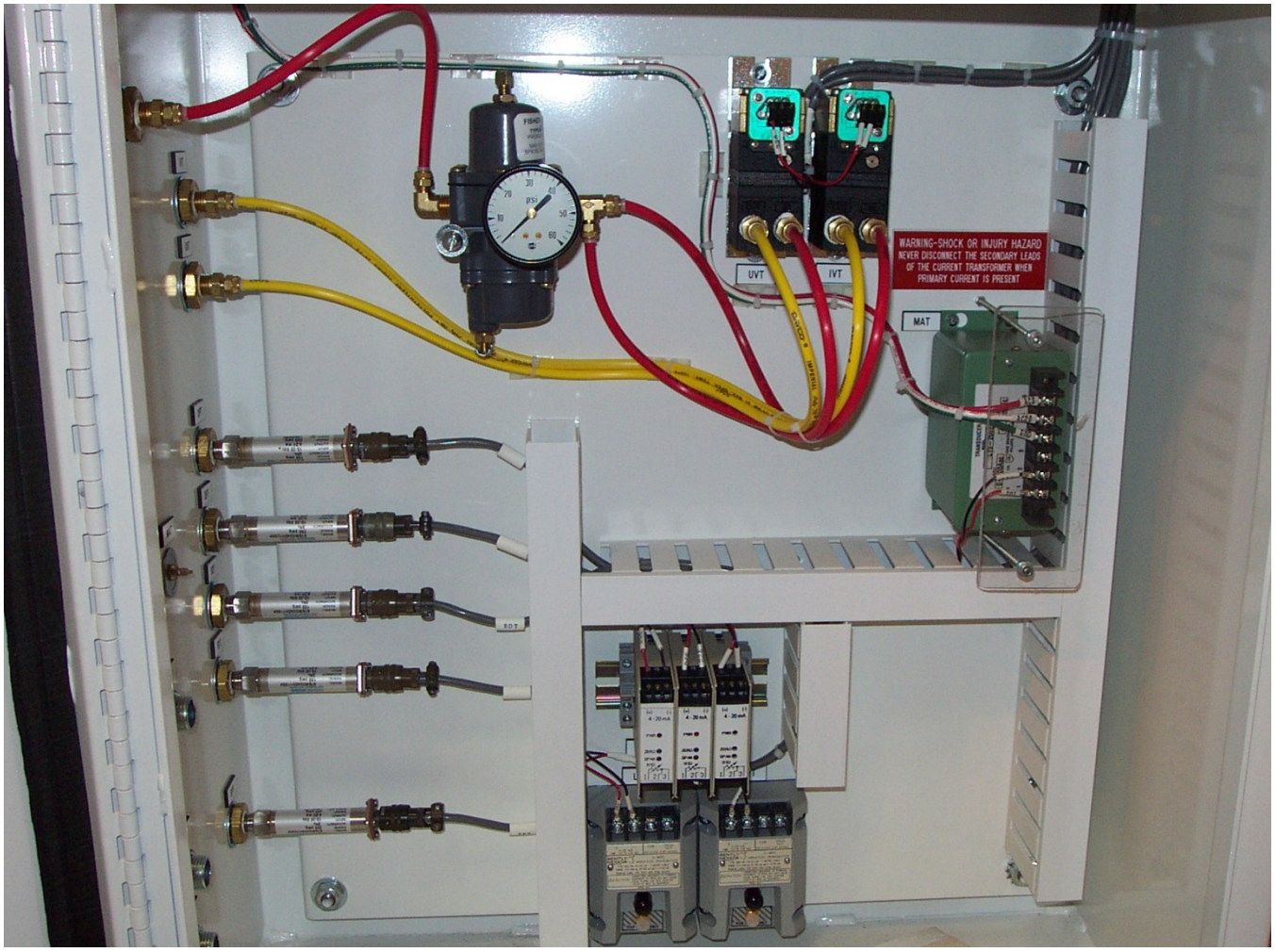
JPM Stop Time: _____

INITIAL CONDITIONS

1. You are an Equipment Operator.
2. Both Units have tripped due to a loss of Instrument Air.
3. Instrument Air header pressure is 25 psig and the IA header leak is isolated.
4. Unit 1 SAC is aligned for standby and has no targets up at its breaker.
5. The U-0 and U-2 SACs have failed and cannot be started.

INITIATING CUE

1. The Field Supervisor has directed you to perform a LOCAL EMERGENCY start of the Unit 1 SAC per BwOP SA-1. The FS directs skipping step F.1 per the second NOTE.



Inside SAC Control Panel