

Exelon Nuclear

Job Performance Measure

Trip the Reactor Outside the Control Room

JPM Number: IP-i

Revision Number: 10

Date: 12/5/2015

Developed By:	<u>Robert Peterson</u> Instructor	<u>12/5/2015</u> Date
Validated By:	<u>J. O'Keefe</u> SME or Instructor	<u>12/9/2015</u> Date
Approved By:	<u>B. Lewin</u> Operations Representative	<u>12/9/2015</u> Date

Revision Record (Summary)

Revision 09

- Applied new template TQ-JA-150-02 Rev.1
- Verified/ updated KAs and TPOs to current revision
- Changed Non Licensed Operator to Equipment Operator
- Separated step 3 into two critical steps.
- 9/16/10 Changed procedure revision reference

Revision 10

- Added steps to JPM to require local operation of MCC breakers.

INITIAL CONDITIONS

1. You are an extra NSO.
2. The unit has experienced an ATWS situation, and _BFR-S.1 has been entered

INITIATING CUE

1. All attempts to trip the reactor from the control room have been unsuccessful.
2. The Unit Supervisor directs you to locally trip the reactor per _BFR-S.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. **3 and 6**

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.

RECORD START TIME: _____

<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
1. Refer to _BFR-S.1, step 6. Note: This step may be performed at any time.	LOCATE and OPEN _BFR-S.1.	_____	_____	_____
<u>NOTE</u> The examinee may request to contact the Control Room with a “First Check” to ensure they are at the correct location. If that is done provide the following CUE: CUE: First check with Control Room acknowledged.				
<u>NOTE</u> Provide the examinee with a copy of _BFR S.1.				
2. Locally open Reactor Trip Breakers Cue: You have heard no noise from your breaker operation Cue: You have heard no page announcements concerning a reactor trip Cue: (If asked about RT breaker position (open/closed) when the cubicle door is open), report that the breaker position indicates closed Note: If asked, Reactor Trip Bypass Breakers are open and racked out.	DEPRESS: <ul style="list-style-type: none"> ○ Both Rx trip switchgear manual TRIP buttons. <li style="text-align: center;">-AND- ○ Both Rx trip bypass switchgear manual TRIP buttons. 	_____	_____	_____
*3. Locally shutdown _A MG set with hand switches Cue: “A” Generator output current has lowered to 0 amps and noise from the running machine is diminishing If examinee looks at the B MG set: Cue: B MG set amps have risen	<ul style="list-style-type: none"> ● PLACE _A Generator side control switch in PULL OUT <li style="text-align: center;">-AND- ● PLACE _A Motor side control switch in PULL OUT 	_____	_____	_____

<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
4. Attempt to Locally shutdown _B MG set with hand switches Cue: Breakers have not opened and B MG set is still running	<ul style="list-style-type: none"> • PLACE _B Generator side control switch in PULL OUT <li style="text-align: center;">-AND- • PLACE _B Motor side control switch in PULL OUT 	_____	_____	_____
5. Attempt to Locally shutdown _B MG set with manual breaker trip Cue: Breaker has not opened and B MG set is still running	<ul style="list-style-type: none"> ○ Depress _A MG Set Generator side switchgear manual TRIP PB. (This breaker is already tripped, but action might be done for procedure adherence.) • Depress _B MG Set Generator side switchgear manual TRIP PB. 	_____	_____	_____
Alternate path initiated in the following step.				
*6. Open _B MG set motor side switchgear breaker Cue: Page announcement: Unit 1 Reactor Trip. NSO calls and states Unit 1 reactor is tripped.	<ul style="list-style-type: none"> • Trip the Unit specific breaker: ○ Depress Bus 134Y, Cub 2A manual TRIP PB at TB1 426 K3. ○ Depress Bus 234Y, Cub 2A manual TRIP PB at TB2 426 K32. 	_____	_____	_____
CUE: The JPM is complete.				

RECORD STOP TIME: _____

JPM SUMMARY

Operator's Name: _____ **Job Title:** EO RO SRO FS
 STA/IA SRO Cert

JPM Title: Trip the Reactor Outside the Control Room

JPM Number: IP i Revision Number: 10

Task Number and Title: 4D.FR-01 RESPOND to an Anticipated Transient Without Trip.

K/A Number and Importance: 029 EA1.12 (4.1/4.0)

Suggested Testing Environment: PLANT

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

Reference(s): 1/2BFR-S.1, Response To Nuclear Power Generation/ATWS

CRITICAL STEPS (*) 3 and 6

Actual Testing Environment: Simulator Control Room In-Plant Other

Testing Method: Simulate Perform

Estimated Time to Complete: 12 minutes **Actual Time Used:** _____ minutes

Critical Time to Complete: N/A

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. The unit has experienced an ATWS situation, and _BFR-S.1 has been entered

INITIATING CUE

1. All attempts to trip the reactor from the control room have been unsuccessful.
2. The Unit Supervisor directs you to locally trip the reactor per _BFR-S.1.

Exelon Nuclear

Job Performance Measure

Transfer an Instrument Bus from the Inverter to the Constant Voltage Transformer

JPM Number: IP j

Revision Number: 11

Date: 01/27/2010

Developed By: Robert Peterson 01/27/2010
Instructor Date

Validated By: J. O'Keefe 12/9/2015
SME or Instructor Date

Approved By: B. Lewin 12/9/2015
Operations Representative 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 8 and 12 below.

- | | |
|--------------------|--|
| <u> RFP </u> | 1. Task description and number, JPM description and number are identified. |
| <u> RFP </u> | 2. Knowledge and Abilities (K/A) references are included. |
| <u> RFP </u> | 3. Performance location specified. (in-plant, control room, simulator, or other) |
| <u> RFP </u> | 4. Initial setup conditions are identified. |
| <u> RFP </u> | 5. Initiating cue (and terminating cue if required) are properly identified. |
| <u> RFP </u> | 6. Task standards identified and verified by SME review. |
| <u> RFP </u> | 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). |
| <u> RFP </u> | 8. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure <u>BOP IP-2</u> Rev: <u>22</u>
Procedure _____ Rev: _____ |
| <u> RFP </u> | 9. Verify cues both verbal and visual are free of conflict. |
| <u> RFP </u> | 10. Verify performance time is accurate |
| <u> RFP </u> | 11. If the JPM cannot be performed as written with proper responses, then revise the JPM. |
| <u> RFP </u> | 12. When JPM is initially validated, sign and date JPM cover page. Subsequent validations, sign and date below: |

<u>Brian Lewin/Robert Peterson</u>	<u>10/6/2013</u>
SME / Instructor	Date
<u>Brian Lewin/Robert Peterson</u>	<u>12/9/2015</u>
SME / Instructor	Date
_____	_____
SME / Instructor	Date

Revision Record (Summary)

Revision 11 Revised format to current standard

Comment	Resolution
OTPS: KA should be APE057AA1.01 3.7/3.7	Changed from 061000K4.09 3.7/3.3 Changed to current format

INITIAL CONDITIONS

1. You are an Equipment Operator.
2. The unit is in MODE 1.
3. Annunciator _-4-C5, BUS _13 INVERTER TROUBLE is lit.
4. SER point 0013 INSTRUMENT BUS _13 INVERTER DC INPUT VOLTAGE FAILURE is printed and locally the battery input breaker 2CB has been found tripped open.
5. The Main Control Room has implemented _BOA ELEC-2, LOSS OF INSTRUMENT BUS UNIT _.
6. No problem exists on the instrument bus and it is energized.

INITIATING CUE

1. The Unit Supervisor directs you to transfer bus _13 from the inverter to its constant voltage transformer and de-energize _13 inverter per BOP IP-2.
2. Rod Control is being maintained in MANUAL.
3. An extra EO is standing by to position any MCC breakers you direct.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* **Denotes critical steps 3, 5 & 8**

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 _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
This JPM can be performed on either Unit 1 or Unit 2 for Bus _13					
<u>NOTE</u>					
<p>This JPM shall be <u>simulated</u> at the appropriate inverter and constant voltage transformer. It is not necessary to open the instrument bus door as long as the trainee can describe the MAIN/RESERVE feed breaker arrangement. Ensure the candidate <u>points out all components and indicates how they would be manipulated</u>. Ensure all communications with the NSO/EO are performed with repeat-backs and provide appropriate cueing to complete the communication loop.</p>					
1.	Refer to BOP IP-2 (step F.4) Note: This step may be performed at any time.	LOCATE and OPEN BOP IP-2	—	—	—
CUE	All prerequisites have been met				
2.	Verify constant voltage transformer AC supply breaker is closed CUE: EO reports MCC _31X3, Cubicle B3 is CLOSED	DIRECT EO to VERIFY/CLOSE MCC _31X3, Cubicle B3	—	—	—
*3.	Close transformer input breaker CUE: The instrument bus _13 Transformer Input Breaker is in ON (up position).	PLACE instrument bus _13 transformer input breaker at _IP03E to ON	—	—	—
4.	Establish communications with unit NSO CUE: NSO on Unit _ is in communication NSO to place Rod Control in Manual	ESTABLISH communication with Unit NSO via: <ul style="list-style-type: none"> ○ Telephone ○ Page ○ Radio NSO to place Rod Control in Manual	—	—	—
Note: The AEER is a NO RADIO zone. Communications must use a telephone or page phone.					

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
Note: Ensure trainee identifies correct bus					
*5.	<p>Energize instrument bus through the constant voltage transformer</p> <p>Cue: MAIN AC feed breaker is in the position indicated (OFF) position</p> <p>Cue: The feed breaker interlock bar (is in a position to allow brkr operation)</p> <p>Cue: RESERVE AC feed breaker is in the position indicated (ON) position</p>	<ul style="list-style-type: none"> • PLACE NORMAL AC feed breaker on 120 VAC instrument panel _13 in OFF position ○ Place interlock bar in a position to allow operation of the feed bkr • PLACE RESERVE AC feed breaker on 120 VAC instrument panel _13 to ON position 	—	—	—
6.	<p>Note: Candidate may inquire about one or more items to verify NI's status:</p> <p>Verify NI status</p> <p>Cue: (If asked) NSO reports N-43 is ENERGIZED</p> <p>Cue: (If asked) NSO reports all NIS related alarms are clear</p>	<p>Contact NSO to verify expected actions occurred by checking status of NI's</p> <ul style="list-style-type: none"> ○ VERIFY N-43 energized ○ VERIFY NIS related alarms cleared 	—	—	—
7.	<p>Verify no load on inverter</p> <p>Cue: Indicate "zero" on meter and say "needle indicates here".</p>	<p>VERIFY inverter AC amps zero (on 2AM)</p>	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
*8.	De-energize inverter Cue: AC output breaker 4CB is in down position (OPEN) Cue: DC Input Breaker 3CB is in down position (OPEN) Cue: Rectifier Breaker 1CB is in down position (OPEN) Cue: Battery Breaker 2CB is in down position (OPEN) Cue: NLO reports MCC _31X4, cubicle B1, AC feed breaker has been OPENED After Candidate locates, cue: DC feed breaker is OPEN	<ul style="list-style-type: none"> • OPEN AC output breaker 4CB on the inverter • OPEN DC input breaker 3CB on the inverter • OPEN rectifier AC input breaker 1CB on the inverter • OPEN battery input breaker 2CB on the inverter • DIRECT EO to OPEN inverter _IP07E AC feed breaker on MCC _31X4, cubicle B1 • OPEN inverter _IP07E DC feed breaker on 125 VDC distribution panel _11 BR1 CKT 1 	—	—	—
9.	Turn off inverter cooling fan Cue: Fan C/S is in down position (OFF)	PLACE inverter fan _IP011E in OFF	—	—	—
10.	Place Rod Control to AUTO Cue: NSO reports Rod Control is in AUTO	Contact NSO to place RD to AUTO at US discretion	—	—	—
CUE	This JPM is complete.				

JPM Stop Time _____

JPM SUMMARY

Operator's Name: _____ **Job Title:** EO RO SRO FS
 STA/IA SRO Cert

JPM Title: Transfer an Instrument Bus from the Inverter to the Constant Voltage Transformer

JPM Number: IP j Revision Number: 11

Task Number and Title: IV.C.IP-01, Transfer an Instrument Bus from the Inverter to the Constant Voltage Transformer

K/A Number and Importance: APE057AA1.01 Imp Factor 3.7/3.7

Suggested Testing Environment: In Plant

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

Reference(s):

- BOP IP-2, Transferring an Instrument Bus from the Inverter to the Constant Voltage Transformer (Rev. 22)

Actual Testing Environment: Simulator Control Room In-Plant Other

Testing Method: Simulate Perform

Estimated Time to Complete: 26 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. The unit is in MODE 1.
3. Annunciator _-4-C5, BUS _13 INVERTER TROUBLE is lit.
4. SER point 0013 INSTRUMENT BUS _13 INVERTER DC INPUT VOLTAGE FAILURE is printed and locally the battery input breaker 2CB has been found tripped open.
5. The Main Control Room has implemented _BOA ELEC-2, LOSS OF INSTRUMENT BUS UNIT _.
6. No problem exists on the instrument bus and it is energized.

INITIATING CUE

1. The Unit Supervisor directs you to transfer bus _13 from the inverter to its constant voltage transformer and de-energize _13 inverter per BOP IP-2.
2. Rod Control is being maintained in MANUAL.
3. An extra EO is standing by to position any MCC breakers you direct.

Exelon Nuclear

Job Performance Measure

Manual Makeup to CC Surge Tank from Backup SX System

JPM Number: IP k

Revision Number: 00

Date: 11/17/2015

Developed By: Robert Peterson 11/17/2015
Instructor Date

Validated By: J. O'Keefe 12/9/2015
SME or Instructor Date

Approved By: B. Lewin 12/9/2015
Operations Representative 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 8 and 12 below.

- | | |
|------------|---|
| <u>RFP</u> | 1. Task description and number, JPM description and number are identified. |
| <u>RFP</u> | 2. Knowledge and Abilities (K/A) references are included. |
| <u>RFP</u> | 3. Performance location specified. (in-plant, control room, simulator, or other) |
| <u>RFP</u> | 4. Initial setup conditions are identified. |
| <u>RFP</u> | 5. Initiating cue (and terminating cue if required) are properly identified. |
| <u>RFP</u> | 6. Task standards identified and verified by SME review. |
| <u>RFP</u> | 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*). |
| <u>RFP</u> | 8. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure <u>1BOP Pri-6</u> Rev: <u>113</u> |
| <u>RFP</u> | 9. Verify cues both verbal and visual are free of conflict. |
| <u>RFP</u> | 10. Verify performance time is accurate |
| <u>RFP</u> | 11. If the JPM cannot be performed as written with proper responses, then revise the JPM. |
| <u>RFP</u> | 12. 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 0

Comment	Resolution
New JPM	

INITIAL CONDITIONS

1. You are an Extra Equipment Operator.
2. The unit is in MODE 1.
3. 1A and 2A CC pumps are running.
4. Annunciator 1-2-A5, CC SURGE TANK LEVEL HIGH LOW is lit.
5. CC Surge Tank Level is 29% and lowering slowly.

INITIATING CUE

1. The Unit Supervisor instructs you to perform Attachment B of 1BOA PRI-6, to restore level to normal.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

*** Denotes critical steps 8 & 10**

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 _____

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE	Provide 1BOA Pri-6 to examinee. If examinee contacts the U-1 operators for instructions, tell examinee: “The Unit Supervisor directs you to take the necessary local actions of 1BOA Pri-6, Attachment B.”				
CUE	If examinee contacts the U-1 operators for instructions regarding leakage, or starts to look for leakage, tell examinee: “Another operator is looking for CC system leakage.”				
1	Refer to 1BOA PRI-6 Attachment B	Locate and read 1BOA PRI-6, Attachment B.	—	—	—
2	Check CC Surge Tank level.	Identify CC Surge Tank Level is Dropping	—	—	—
CUE	(Examinee may use Initial Conditions, local gauges, or contact MCR) “CC Surge Tank Level is 29% and dropping slowly.”				
CUE	(At any time) If examinee calls the MCR and asks for status of PW and WM MU valves, U-1 NSO reports BOTH 1CC182 and 1CC183 are closed and will not open from the MCR switch.				
5	Verify 1CC183 is OPEN.	Contact U-1 NSO for 1CC183 position.	—	—	—
CUE	U-1 NSO reports 1CC183 is closed and will not open from the MCR switch.				
6.	Verify 1CC182 is OPEN.	Contact U-1 NSO for 1CC182 position.	—	—	—
CUE	U-1 NSO reports 1CC182 is closed and will not open from the MCR switch.				
7.	Check CC Surge Tank Level is < 30% and Dropping	Identify CC Surge Tank Level is <30% and Dropping	—	—	—
7a.	Verify 1CC201A is OPEN.	Look at 1CC201A local hand switch position lights.	—	—	—
CUE	1CC201A OPEN light is dark, CLOSED light is LIT.				
8*	Open 1CC201A.	Place 1CC201A hand switch to OPEN.	—	—	—

<u>STEP</u>	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	Comment Number
CUE	1CC201A OPEN light is LIT. (After 5 seconds): 1CC201A OPEN light is LIT, CLOSED light is dark.				
9	Verify 1CC202A is OPEN.	Look at 1CC202A local hand switch position lights.	—	—	—
CUE	1CC202A OPEN light is dark, CLOSED light is LIT.				
10*	Open 1CC202A.	Place 1CC202A hand switch to OPEN.	—	—	—
CUE	1CC202A OPEN light is LIT. (After 5 seconds): 1CC202A OPEN light is LIT, CLOSED light is dark.				
11	Check CC Surge Tank Level.	<ul style="list-style-type: none"> ○ Locally read U-1 CC Surge Tank level gauges. ○ Contact MCR for CC Surge Tank level 	—	—	—
CUE	(When examinee looks at the appropriate gauge, or Contacts the MCR) “CC Surge Tank Level is <u>30% and rising.</u>”				
CUE	This JPM is complete.				

JPM Stop Time _____

JPM SUMMARY

Operator's Name: _____ **Job Title:** EO RO SRO FS
 STA/IA SRO Cert

JPM Title: Manual Makeup to CC Surge Tank from Backup SX System.

JPM Number: IP k Revision Number: 00

Task Number and Title: R-OA-027, Respond to a Component Cooling System malfunction.

K/A Number and Importance: 008K4.02.01 Imp Factor 2.9/2.7

Suggested Testing Environment: In Plant

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

Reference(s):

- 1BOA Pri-6, Rev 113

Actual Testing Environment: Simulator Control Room In-Plant Other

Testing Method: Simulate Perform

Estimated Time to Complete: 20 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 Equipment Operator.
2. The unit is in MODE 1.
3. 1A and 2A CC pumps are running.
4. Annunciator 1-2-A5, CC SURGE TANK LEVEL HIGH LOW is lit.
5. CC Surge Tank Level is 29% and lowering slowly.

INITIATING CUE

1. The Unit Supervisor instructs you to perform Attachment B of 1BOA PRI-6, to restore level to normal.