Limerick Generating Station

Job Performance Measure

START REACTOR RECIRC PUMP
-ALTERNATE PATH

JPM Number: LLOJPM0526

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

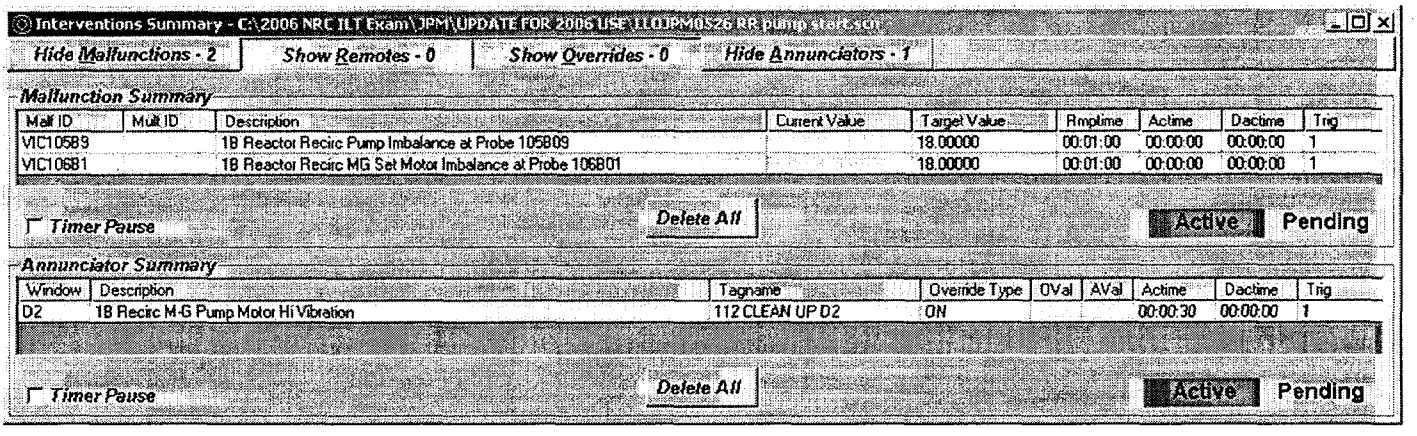
_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary)

Revision 2, Changed setup instructions.

SIMULATOR SETUP INSTRUCTIONS:

1. Reset to Single Loop IC (5% power)
2. Ensure that the "1B" RRP shutdown IAW S43.2.A and then Startup of the "1B" RRP is complete up to and including step 4.3.5
3. Insert the following malfunctions on Trigger #1. Set up Trigger #1 to activate the malfunctions when the "B" RRP discharge valve is full open (Trigger Text !ZRRL31BG)



TASK STANDARD:

"1B" RRP started then secured due to Reactor Recirc Pump High Vibration

INITIAL CONDITIONS:

1. Unit 1 is at 5% power in Single Loop operation, with the "1A" Reactor Recirc Pump in service and the "1B" Reactor Recirc Pump shutdown.
2. S43.1.A, Start Up of Recirculation System, has been completed up to and including step 4.3.5

INITIATING CUES:

You are directed by shift supervision start the "1B" Reactor Recirc pump in accordance with step 4.3.6 of S43.1.A.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: START REACTOR RECIRC PUMP (ALTERNATE PATH)

JPM Number: LLOJPM0526 **Revision Number:** 003

K/A Number and Importance: 202001 A3.02 3.1/3.0

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: Yes

Time Critical: No

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____minutes

References: S43.1.A, START UP OF RECIRCULATION SYSTEM

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time: _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*1. **PLACE** "Recirc Pp M-G Set Drive Motor Control" (MOTOR), to "START" at *0C602 **AND VERIFY** the following:	"Recirc Pp M-G Set Drive Motor Control" (MOTOR), taken to "START"			
1a. XY4-M1-*R621A(B), "Recirc Pp Speed" (S), increases to approximately 100%	XY4-M1-*R621A(B), "Recirc Pp Speed" (S), increases to approximately 100%			
1b. M-G Field breaker closes approximately 13 seconds after M-G start	M-G Field breaker closed approximately 13 seconds after M-G start			
1c. B32-*R627A(B), "Generator Current" (AM), rise	B32-*R627A(B), "Generator Current" (AM) rises			
1d. B32-*R623A(B), "Generator Voltage" (V), rise	B32-*R623A(B), "Generator Voltage" (V), rises			
1e. PDI-43-*R612A(B), "Recirc Pp Differential Pressure" (DELTA PX), rise	PDI-43-*R612A(B), "Recirc Pp Differential Pressure" (DELTA PX), rose			
1f. XY5-M1-*R621A(B), "Recirc Pp Speed Demand" (DEMAND), reduces to approximately 20%	XY5-M1-*R621A(B), "Recirc Pp Speed Demand" , at approximately 20%			
1g. XY4-M1-*R621A(B), "Recirc Pp Speed" (S), reduces to approximately 20%	XY4-M1-*R621A(B), "Recirc Pp Speed" (S), reduces to approximately 20%			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*2. **JOG OPEN** HV-43-*F031A(B), DISCHARGE, at 0C602 for 1 to 2 seconds allowing 5 to 10 seconds for power **AND** level to stabilize repeating as necessary until the following conditions are met:	HV-43-*F031A(B), DISCHARGE jogged open			
2a. Recirc Pp speed is stable	Recirc Pp speed is stable			
2b. FI-42-*R611A(B), "Total Jet Pump Loop Flow" (FL), is approximately 15 lbs/hr X10E6 or Higher	FI-42-*R611A(B), "Total Jet Pump Loop Flow" (FL), is approximately 15 lbs/hr X10E6 or Higher			
NOTE TO Evaluator: Ensure Malf VIC105B9 0-18 inserted over 1 minute after Discharge Valve is fully open Ensure Malf VIC106B1 0-18 inserted over 1 minute after Discharge Valve is fully open Ensure Annunciator 112 D-2 1B RECIRC M-G PUMP MOTOR HI VIBRATION inserted 30 seconds after Discharge Valve is fully open				
NOTE TO Evaluator: The following actions are from ARC 112 D-2 1B RECIRC M-G PUMP MOTOR HI VIBRATION **NOTE TO Evaluator (IF Candidate attempts to respond to VMS), provide the following Cue:** Cue: The CRS informs you another operator will respond to the VMS alarms on 107 REACTOR				
3. IF no speed changes on "1B" Recirc Pump were made OR Vibration Monitoring System indicates a problem during a speed change, THEN reduce speed of "1B" Recirc Pump to clear annunciator	"1B" Recirc Pump at minimum speed			
4. IF annunciator cannot be cleared after reducing flow to the low speed setpoint, THEN secure "1B" Recirc Pump, per S43.2.A	Recognize that the vibration alarms will not clear			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE TO Evaluator: The following actions are from S43.2.A				
5. **ENSURE** XC-M1-*R621A(B), "Recirc Pp & MG set-M/A" (S), set at 0%, at *0C602	XC-M1-*R621A(B), "Recirc Pp & MG Set-M/A" (S), set at 0%,			
6. **IF** Rx is at power **THEN MONITOR** position ON power/Flow Map in accordance with GP-5 Appendix 2, Planned Rx Maneuvering Without Shutdown **AND/OR** OT-112 U/*, Recirculation Pump Trip, as applicable Otherwise, **MARK** this step N/A	N/A			
*7. **TRIP** M-G Drive Motor breaker (MOTOR) **AND**	M-G Drive Motor breaker (MOTOR) Handswitch placed in STOP			
7a. **VERIFY** B32-*R628A(B), "Motor current" (AM), lowers to zero	B32-*R628A(B), "Motor current" (AM), at zero			
*8. **CLOSE** HV-43-*F031A(B), "Recirc Pp Disch Vlv" (DISCHARGE) **OR** HV-43-*F023A(B), "Recirc Pp Suction Vlv" (SUCTION) CUE:"You can stop here you have met the termination criteria for this JPM"	HV-43-1F031A(B), "Recirc Pp Discharge" (DISCHARGE) **OR** HV-43-1F023A(B), "Recirc Pp Suction" (SUCTION) CLOSED			

JPM Stop Time _____

INITIAL CONDITIONS:

1. Unit 1 is at 5% power in Single Loop operation, with the "1A" Reactor Recirc Pump in service and the "1B" Reactor Recirc Pump shutdown.
2. S43.1.A, Start Up of Recirculation System, has been completed up to and including step 4.3.5

INITIATING CUES:

You are directed by shift supervision start the "1B" Reactor Recirc pump in accordance with step 4.3.6 of S43.1.A.

Limerick Generating Station

Job Performance Measure

SHUTDOWN "1C" REACTOR FEED PUMP FROM A STANDBY CONDITION- ALTERNATE PATH

JPM Number: LLOJPM0117

JOB PERFORMANCE MEASURE (JPM)

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

_____ _____
SME/Instructor Date

_____ _____
SME/Instructor Date

_____ _____
SME/Instructor Date

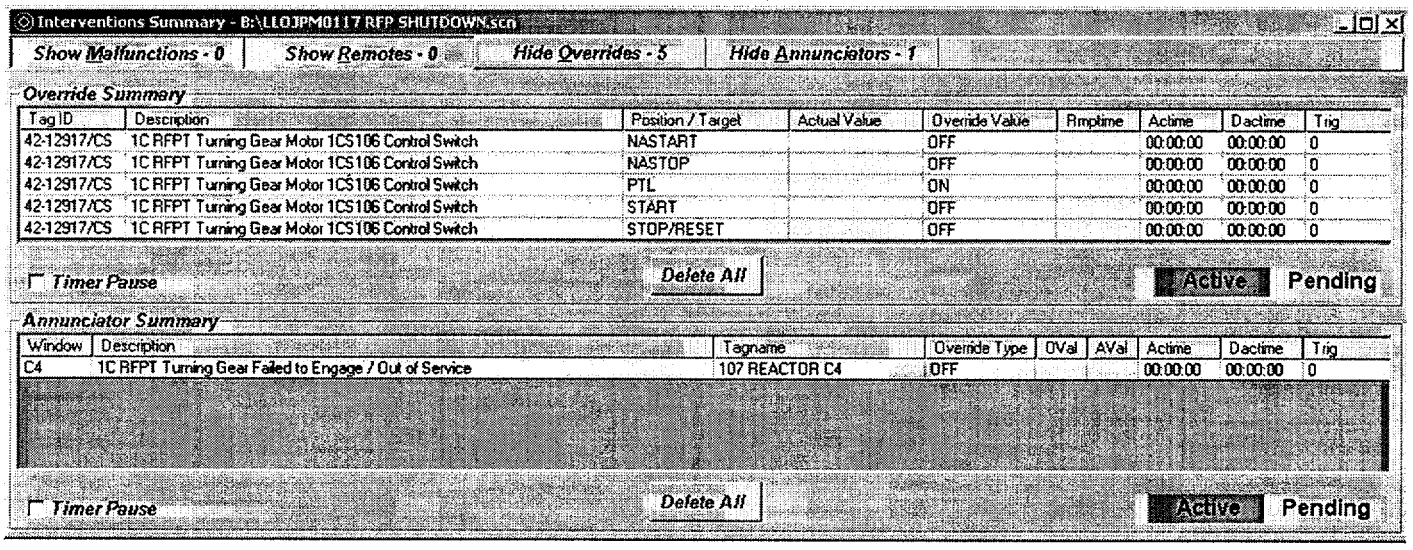
JOB PERFORMANCE MEASURE (JPM)

Revision Record (Summary)

1. None

SIMULATOR SETUP INSTRUCTIONS:

- Reset simulator to an IC with Reactor Power below 65%
- "1C" RFP in STANDBY in accordance with S06.2.C U/1
- Insert the following Override (1C RFPT Turning Gear Motor Switch (42-12917/CS), Position "PTL" ON) and Annunciator (107 C4 ON)



TASK CONDITIONS:

- RFP "1C" not feeding RPV and in STANDBY in accordance with S06.2.C U/1, Removing The Reactor Feed Pumps From Service To A Standby Condition
- RFPT Lube Oil System in service in accordance with S39.1.A, "Startup Reactor Feed Pump Turbine Lube Oil System."
- "1C" Reactor Feed Pump Turbine (RFPT) Turning Gear operational
- Hydrogen Water Chemistry H_2 injection has been secured to "1C" RFPT per S06.8.H
- All personnel involved have been briefed

INITIATING CUES:

You are directed by Shift Supervision to Shutdown the "1C" RFP in accordance with S06.2.A U/1

TASK STANDARD(S): "1C" RFPT shutdown in accordance with S06.2.C U/1, with turning gear engaged per S06.0.B

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

JOB PERFORMANCE MEASURE (JPM)

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

JOB PERFORMANCE MEASURE (JPM)

TITLE: Shutdown "1C" Reactor Feed Pump From Standby Condition

Operator's Name: _____

Job Title: NLO RO SRO STA SRO Cert

JPM Title: Shutdown "1C" Reactor Feed Pump From Standby Condition

JPM Number: LLOJPM 0117 Revision Number: 000

K/A Number and Importance: 259002 A4.01 3.8/3.6

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: No **Time Critical:** No

Estimated Time to Complete: 20 minutes **Actual Time Used:** ____ Minutes

References: S06.2.A U/1 Shutdown Reactor Feed Pump From Standby Condition

EVALUATION SUMMARY:

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

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

Comments: _____

_____

_____

_____

_____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

JOB PERFORMANCE MEASURE (JPM)

JPM Start Time: _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. **DISPATCH** Equipment Operator to observe "1C" RFPT shutdown locally	Equipment Operator dispatched to "1C" RFPT			
2. **REFER TO** S06.8.H, Startup. Shutdown And Operation Of The Hydrogen Water Chemistry System, to ensure the HWC H_2 injection path is secured for RFP being removed from service	HWC secured in initial conditions			
3. **RESET** "1C" S106, RFP C Turning Gear Motor, by momentarily placing 42-12917/CS, "Control Switch For "1C" RFPT Turning Gear 1C-S106" (FEED TURBINE, C), in "STOP & RESET" **AND** allowing it to spring return to "AUTO"	Control Switch For 1C RFPT Turning Gear 1C-S106 (FEED TURBINE, C), in "STOP & RESET" AND allowed it to spring return to "AUTO"			
* 4. **PRESS** PB-006-149C-4, "1C" RFPT SPC Manual MSC Select (MSC SELECT)	PB-006-149C-4, "1C" RFPT SPC Manual MSC Select" (MSC SELECT) pressed			
5. **VERIFY** PB-006-149C-4, "1C" RFPT SPC Manual MSC Select" (MSC SELECT), is Lit.	"1C" RFPT SPC Manual MSC Select (MSC SELECT), is Lit.			
* 6. **PLACE** HS-006-149-C "1C RFPT Cont Sw" (MSC), in "SLOW LOWER" OR "FAST LOWER" until RFPT 1C speed demand is at Low Speed Stop (LSS).	HS-006-149-C, "1C RFPT Cont Sw" (MSC) taken to "SLOW LOWER" OR "FAST LOWER" until RFPT 1C speed demand is at Low Speed Stop (LSS).			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
7. **WHEN** RFPT 1C speed demand is at LSS, **THEN** PERFORM the following:	N/A			
7a. **VERIFY** RFPT 1C "LSS" light is Lit **AND** "HSS" light is **NOT** Lit.	"LSS" light verified Lit and "HSS" light not Lit			
7b. **VERIFY** RFPT 1C Control Valve position on ZRS-006-115, "RFPT HP Control Valve Position Recorder" (PUMP TURBINE CONTROL VALVE), is at 0% nominal.	Control Valve position on ZRS-006-115, "RFPT HP Control Valve Position Recorder" (PUMP TURBINE CONTROL VALVE) at 0% nominal.			
* 8. **TRIP** "1C" RFPT by depressing PB-3 W022A, "Pushbutton For 1C RFPT Trip Tripped Reset" (FEED TURBINE, TRIP C).	"1C" RFPT trip pushbutton depressed			
9. **VERIFY** FV-C-006-106C Reactor Feed Pump C Min Flow Recirculation Valve closes	FV-C-006-106C Reactor Feed Pump C Min Flow Recirculation Valve closed			
10. **VERIFY** the following valve is closed at panel 10C651:	N/A			
10a HV-006-105C, 1C Disch Chk Vlv (FEED, CHECK C)	HV-006-105C "1C" Disch Chk Vlv (FEED, CHECK C) closed			
11. **ENSURE** the following valves are open at panel 10C668:	N/A			
11a HV-006-112-C "1C" RFPT HP MSV Below Seat Drn (HP STEAM STOP, DRAIN BELOW)	HV-006-112-C "1C" RFPT HP MSV Below Seat Drn (HP STEAM STOP, DRAIN BELOW) Open			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
11b. HV-006-114C "1C" RFPT LP MSV Below Seat Drn (LP STEAM STOP, DRAIN BELOW)	HV-006-114C "1C" RFPT LP MSV Below Seat Drn (LP STEAM STOP, DRAIN BELOW) Open			
12. **ENSURE** HV-006-108C, "1C RFP Disch Vlv" (FEED, DISCH C), is closed at panel 10C651	HV-006-108C, "1C" RFP Disch Vlv" (FEED, DISCH C), is closed			
13. **IF** 'A' RFP was secured **THEN ENSURE** LIC-006-138 "A Feedwtr Start-up Level" (STARTUP BYPASS) in "MANUAL."	N/A			
14. **ENSURE** HIC-006-106C, "C RFP Min Flow Control" (FLOW), is in "MANUAL" (MAN) at panel 10C603.	HIC-006-106C, "1C RFP Min Flow Control" (FLOW), is in "MANUAL" (MAN)			
15. **VERIFY** "1C" RFPT HP **AND** LP Stop Valves are closed as indicated on Stop Valve Test Section of panel 10C668 (STOP VALVE TEST, HP, LP)	"1C" RFPT HP and LP Stop Valves are closed			
16. **WHEN** 1A(B,C) RFPT speed is at zero RPM, **THEN PERFORM** the following:	N/A			
NOTE TO DRIVER: **When RFP "ZERO SPEED" indicating light on panel 10C603 is lit DELETE ANN 107 C4 (OFF). This allows ANN to alarm, simulating a failure of Turning gear to engage.**				
16a. **VERIFY** 1A(B,C) RFPT Turning Gear Motor starts **AND** Turning Gear engages	N/A			
* 16b. **IF** 1A(B,C) RFPT Turning Gear fails to engage 30 seconds after RFPT speed reaches zero RPM, **THEN** manually **ENGAGE** RFPT 1A(B,C) Turning Gear IAW S06.0.B	Determine RFPT turning gear failed to engage			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
16c. **RESPOND** to ANN 107 C-4, "1C RFPT TURNING GEAR FAILED TO ENGAGE/ OUT OF SERVICE" **AND REPORT** Failure of Turning Gear to CRS	ANN Card REFERENCED and failure of Turning Gear communicated to CRS			
17. **ENTER AND EXECUTE** S06.0B "AUTOMATIC/MANUAL ENGAGEMENT OF REACTOR FEED PUMP TURBINE TURNING GEAR AND MANUAL ROTATION REQUIREMENTS"	Current revision of S06.0.B obtained			
18. **DISPATCH** Operator to "1C" RFPT room **AND ESTABLISH** communications. CUE: Operator has been briefed and is at the "1C" RFPT room with HP support	Operator Dispatched to "1C" RFPT room			
19. **ENSURE** RFPT Lube Oil System in service in accordance with S39.1.A, "Startup Reactor Feed Pump Turbine Lube Oil System."	RFPT Lube Oil System in service provided in initial cue			
20. Visually **VERIFY** RFPT at zero speed. CUE: Equipment Operator At "1C" Reactor Feedpump turbine reports RFPT is at Zero speed	Operator at RFPT contacted to determine speed of RFPT			
20a. **IF** RFPT speed is **not** at zero rpm, **THEN EXIT** this procedure **AND EVALUATE** whether automatic/manual engagement of Turning Gear is required.	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
21. **VERIFY** RFPT bearing oil temperature greater than or equal to 70 °F on local panel CUE: Equipment Operator At "1C" Reactor Feedpump reports bearing oil temperature is 90°F	Operator at RFPT contacted to determine bearing oil temperature			
NOTE to Driver: **Delete Intervention on 1C RFPT Turning Gear Motor Switch**				
* 22. **PLACE** 42-12907/CS (13007/CS, 12917/CS), Control Switch for "A(B,C) RFPT Turning Gear "A(B,C)-S106" (FEED TURBINE, A(B,C), in "STOP & RESET."	Control Switch for "C" RFPT Turning Gear taken to "STOP & RESET."			
NOTE TO DRIVER: When RFP Turning Gear Switch is taken to Start as observed visually, or on "Training Performance Monitor DELETE OVERRIDE for Turning Gear Hand Switch				
* 23. **START** *A(B,C)S106, "A(B,C) Reactor Feed Pump Turbine Turning Gear" by placing 42-12907/CS (13007/CS, 12917/CS), "Control Switch For *A(B,C) RFPT Turning Gear *A(B,C)-S106" (FEED TURBINE, A(B,C), in "START" at panel *0C603 **AND** allowing control switch to spring return to "AUTO."	Control Switch for "C" RFPT Turning Gear taken to "START" and allowed to spring return to "AUTO"			
24. **VERIFY** RFPT on Turning Gear by observing red "ENGAGE" light Lit **AND** yellow "ZERO SPEED" light **not** Lit.	"ENGAGE" light Lit **AND** yellow "ZERO SPEED" light **not** Lit.			
25. Visually **VERIFY** the turning gear has engaged locally at the pump. Cue: You may stop here you have met the termination criteria for this JPM	Operator at Operator at RFPT contacted to Verify turning gear has engaged locally			

JPM Stop Time: _____

TASK CONDITIONS:

- RFP "1C" not feeding RPV and in STANDBY in accordance with S06.2.C U/1, Removing The Reactor Feed Pumps From Service To A Standby Condition
- RFPT Lube Oil System in service in accordance with S39.1.A, "Startup Reactor Feed Pump Turbine Lube Oil System."
- "1C" Reactor Feed Pump Turbine (RFPT) Turning Gear operational
- Hydrogen Water Chemistry H_2 injection has been secured to "1C" RFPT per S06.8.H
- All personnel involved have been briefed

INITIATING CUES:

You are directed by Shift Supervision to Shutdown the "1C" RFP in accordance with S06.2.A U1

Limerick Generating Station

Job Performance Measure

MANUALLY INITIATE A CONTROL ROOM HIGH RADIATION ISOLATION

JPM Number: LLOJPM0024

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

_____ _____
SME/Instructor Date

_____ _____
SME/Instructor Date

_____ _____
SME/Instructor Date

REVISION RECORD (Summary)

Revision 09, Updated format and removed reference procedure revision.

SIMULATOR SETUP INSTRUCTIONS:

1. Reset the simulator to any IC with MCR HVAC operating

2. Ensure the A CREFAS fan switch is in AUTO, and the B CREFAS fan switch is in STBY.

3. Ensure the A Control Room Supply and Return fans are in RUN, and the B Control Room Supply and Return fans are in AUTO.

TASK STANDARD(S):

The Control Room HVAC system is operating in the Radiation Isolation Mode, with a Radiation Isolation signal present on the "A" subsystem (Channels A and C), and no Chlorine /Toxic Chemical Isolation signals present.

INITIAL CONDITIONS:

- Control Room HVAC is in the normal operating mode per S78.1.A
- The Control Room Emergency Fresh Air Supply System is lined up for automatic operation per S78.1.B.

INITIATING CUES:

You are directed by Shift Supervision to manually initiate a Control Room HVAC Radiation isolation for maintenance using the "A" subsystem only.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: MANUALLY INITIATE A CONTROL ROOM RADIATION ISOLATION

JPM Number: LLOJPM0024 **Revision Number:** 009

K/A Number and Importance: 290003 A4.01 3.2/3.2

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: No

Time Critical: No

Estimated Time to Complete: 10 minutes **Actual Time Used:** _____minutes

References: S78.8.A , Manual Initiation of Control Room radiation or Chlorine/Toxic Chemical Isolation

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

	STEP	STANDARD	SAT/UNSAT
1.	Obtain current revision of S78.8.A.	Current revision of S78.8.A obtained.	
2.	Control Room HVAC in normal operating mode per S78.1.A, Placing the Control Room HVAC System into Normal Operation.	N/A	N/A
3.	Control Room Emergency Fresh Air System lined up for automatic operation per S78.1.B, Aligning the Control Room HVAC Isolation and Emergency Fresh Air Supply System for Automatic Operation.	N/A	N/A
4.	**ENSURE** keys for keylock handswitches HS-78-017A,C (RESET), are available.	Two keys for keylock handswitches HS-78-017A,,C (RESET) are obtained.	
SUBSYSTEM "A" ISOLATION		N/A	N/A
5.	IF no radiation isolation has been initiated, THEN ensure alignment as follows:	N/A	N/A
5a.	HS-78-010A, "A" CONT RM EMERG FRESH AIR FAN CONT 0AV127 in AUTO	HS-78-010A, "A" CONT RM EMERG FRESH AIR FAN CONT 0AV127 in AUTO	
5b.	HS-78-010B, "B" CONT RM EMERG FRESH AIR FAN CONT 0BV127 in STANDBY	HS-78-010B, "B" CONT RM EMERG FRESH AIR FAN CONT 0BV127 in STANDBY	
*6.	**PLACE** Control Room Isolation Valve Reset Keylock switch HS-78-017C (RESET C) to "RESET".	Reset Keylock switch HS-78-017C (RESET C) is placed in "RESET" at 00C681.	
*7.	**PLACE** Control Room Isolation Valve Reset Keylock switch HS-78-017A (RESET A) to "RESET".	Reset Keylock switch HS-78-017A (RESET A) is placed in "RESET" at 00C681.	
*8.	**PLACE** Control Room Isolation Valve Trip Switch HSS-78-017C (TRIP C) to "RAD".	Switch HSS-78-017C (TRIP C) arming collar is rotated to "RAD" at 00C681.	
*9.	**PLACE** Control Room Isolation Valve Trip Switch HSS-78-017A (TRIP A) to "RAD".	Switch HSS-78-017A (TRIP A) arming collar is rotated to "RAD" at 00C681.	
10.	Acknowledge 002 VENT window B2.	002 VENT window B2 acknowledged.	

STEP	STANDARD	SAT/UNSAT
*11. **PLACE** Control Room Isolation Valve Reset Keylock switch HS-78-017C (RESET C) to "AUTO".	Reset Keylock switch HS-78-017AC (RESET C) is placed in "AUTO" at 00C681.	
*12. **PLACE** Control Room Isolation Valve Reset Keylock switch HS-78-017A (RESET A) to "AUTO".	Reset Keylock switch HS-78-017A (RESET A) is placed in "AUTO" at 00C681.	
*13. **DEPRESS AND RELEASE** pushbutton portion of Trip switch HSS-78-017C (TRIP C).	Switch HSS-78-017C (TRIP C) pushbutton is depressed and released at 00C681.	
*14. **DEPRESS AND RELEASE** pushbutton portion of Trip switch HSS-78-017A (TRIP A). (CUE: "You have met the termination criteria for the JPM. You may stop here.")	Switch HSS-78-017A (TRIP A) pushbutton is depressed and released at 00C681.	

JPM Stop Time _____

INITIAL CONDITIONS:

- Control Room HVAC is in the normal operating mode per S78.1.A
- The Control Room Emergency Fresh Air Supply System is lined up for automatic operation per S78.1.B.

INITIATING CUES:

You are directed by Shift Supervision to manually initiate a Control Room HVAC Radiation isolation for maintenance using the "A" subsystem only.

Limerick Generating Station

Job Performance Measure

MANUALLY INITIATE CORE SPRAY SYSTEM
- ALTERNATE PATH

JPM Number: LLOJPM0128

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

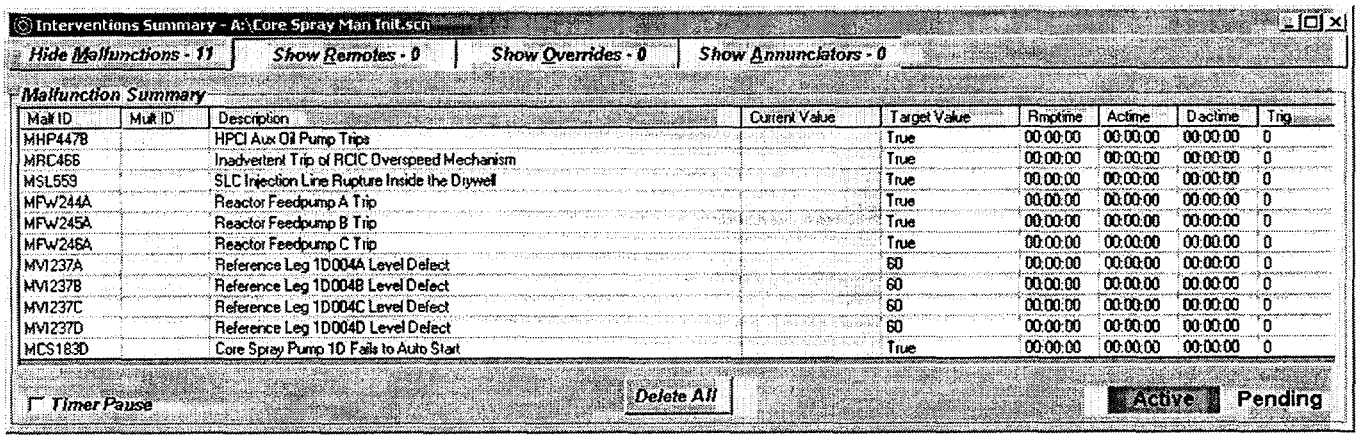
_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

Revision 0

SIMULATOR SETUP INSTRUCTIONS:

1. Put in the following malfunctions and MRR440A, Recirc Loop A Rupture, at 2%.



Malf ID	Malf ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MHP447B		HPCI Aux Oil Pump Trips		True	00:00:00	00:00:00	00:00:00	0
MRC466		Inadvertent Trip of RCIC Overspeed Mechanism		True	00:00:00	00:00:00	00:00:00	0
MSL559		SLC Injection Line Rupture Inside the Drywell		True	00:00:00	00:00:00	00:00:00	0
MFW244A		Reactor Feedpump A Trip		True	00:00:00	00:00:00	00:00:00	0
MFW245A		Reactor Feedpump B Trip		True	00:00:00	00:00:00	00:00:00	0
MFW246A		Reactor Feedpump C Trip		True	00:00:00	00:00:00	00:00:00	0
MVI237A		Reference Leg 1D004A Level Defect		60	00:00:00	00:00:00	00:00:00	0
MVI237B		Reference Leg 1D004B Level Defect		60	00:00:00	00:00:00	00:00:00	0
MVI237C		Reference Leg 1D004C Level Defect		60	00:00:00	00:00:00	00:00:00	0
MVI237D		Reference Leg 1D004D Level Defect		60	00:00:00	00:00:00	00:00:00	0
MCS183D		Core Spray Pump 1D Fails to Auto Start		True	00:00:00	00:00:00	00:00:00	0

2. When indicated level is approximately –140, remove the Recirc Loop A Rupture.

TASK STANDARD:

1. Core spray manually initiated per S52.7.A
2. Start the "1D" Core Spray Pump following failure to auto start.

INITIAL CONDITIONS:

1. Reactor has scrammed, all rods inserted, all scram actions have been taken.
2. Reactor vessel water level is –140" on Fuel Zone and lowering.
3. Reactor pressure is 950 psig.
4. Drywell pressure is 2.7 psig and rising.
5. Emergency Diesel Generators have failed to Auto Start.
6. Emergency buses are being powered from Off-site power.
7. Core spray has failed to automatically initiate.

INITIATING CUES:

1. Shift Supervision directs you to manually initiate Core Spray System per S52.7.A.
2. An additional RO is available to acknowledge alarms.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations. Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: MANUALLY INITIATE CORE SPRAY SYSTEM (ALTERNATE PATH – "D" CORE SPRAY PUMP FAILS TO START)

JPM Number: LLOJPM0128 **Revision Number:** 000

K/A Number and Importance: 295031 EA1.03 – 4.4/4.4

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: Yes

Time Critical: No

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____minutes

References: S52.7.A, MANUAL INITIATION AFTER FAILURE OF AUTOMATIC INJECTION DURING A LOCA

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. **TURN** collar of the following MANUAL INITIATION pushbuttons to "ARMED":	N/A			
*1a. (INITIATION 1) E21-S22A	Core Spray manual initiation pushbutton collar S22A is rotated clockwise to the ARMED position.			
*1b. (INITIATION 2) E21-S22B	Core Spray manual initiation pushbutton collar S22B is rotated clockwise to the ARMED position.			
*1c. (INITIATION 3) E21-S22C	Core Spray manual initiation pushbutton collar S22C is rotated clockwise to the ARMED position.			
*1d. (INITIATION 4) E21-S22D	Core Spray manual initiation pushbutton collar S22D is rotated clockwise to the ARMED position.			
2. **VERIFY** DIV 1 CORE SPRAY MANUAL INITIATION SWITCH ARMED, **AND** DIV 3 CORE SPRAY MANUAL INITIATION SWITCH ARMED, annunciator alarms on *13 COOL A	DIV 1 and DIV 3 CORE SPRAY MANUAL INITIATION SWITCH ARMED annunciators are verified lit on *13 COOL A.			
3. **VERIFY** DIV 2 CORE SPRAY MANUAL INITIATION SWITCH ARMED, **AND** DIV 4 CORE SPRAY MANUAL INITIATION SWITCH ARMED, annunciator alarms on *15 COOL B	DIV 2 and DIV 4 CORE SPRAY MANUAL INITIATION SWITCH ARMED annunciators are verified lit on *15 COOL B.			

JOB PERFORMANCE MEASURE (JPM)

4. **DEPRESS AND RELEASE** all four of the following MANUAL INITIATION pushbuttons to initiate Core Spray System:	N/A			
*4a. (INITIATION 1) E21-S22A	MANUAL INITIATION pushbutton S22A is momentarily depressed and released			
*4b. (INITIATION 1) E21-S22B	MANUAL INITIATION pushbutton S22B is momentarily depressed and released			
*4c. (INITIATION 1) E21-S22C	MANUAL INITIATION pushbutton S22C is momentarily depressed and released			
*4d. (INITIATION 1) E21-S22D	MANUAL INITIATION pushbutton S22D is momentarily depressed and released			
*5. Start the "1D" Core Spray Pump	The "1D" Core Spray Pump is running.			
6. **ENSURE** the following Core Spray Pump minimum flow bypass valves are open: -HV-52-*F031A, MIN FLOW -HV-52-*F031B, MIN FLOW CUE: You have met the termination criteria for this JPM	HV-52-*F031A, MIN FLOW and HV-52-*F031B, MIN FLOW are verified open.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. Reactor has scrammed, all rods inserted, all scram actions have been taken.
2. Reactor vessel water level is –140" on Fuel Zone and lowering.
3. Reactor pressure is 950 psig.
4. Drywell pressure is 2.7 psig and rising.
5. Emergency Diesel Generators have failed to Auto Start.
6. Emergency buses are being powered from Off-site power.
7. Core spray has failed to automatically initiate.

INITIATING CUES:

1. Shift Supervision directs you to manually initiate Core Spray System per S52.7.A.
2. An additional RO is available to acknowledge alarms.

Limerick Generating Station

Job Performance Measure

RESTORE RECW, DWCW, AND INSTRUMENT GAS (E-1AY160) (TIME CRITICAL)JPM

Number: LLOJPM0050

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

1. Revised format, added time requirement to Que.

SIMULATOR SETUP INSTRUCTIONS:

1. Reset the Simulator to IC-17
2. Insert Malfunction MED280A (Loss of 1AY160)

TASK STANDARD:

Restore RECW and DWCW flow to the drywell, and Instrument Gas aligned to the Drywell.

INITIAL CONDITIONS: <u>This task is time critical</u>

1. 1AY160 is de-energized
2. "1B" DW Chiller was running.
3. A Brief has been conducted by the CRs and has identified that RECW must be restored to the Recirc. Pump within 10 minutes.

INITIATING CUE:

You are directed by Shift Supervision to perform the initial actions of E-1AY160 to:

- Restore RECW to the Recirc. Pump within 10 minutes
- Restore DWCW, and Instrument Gas

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations. Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: RESTORE RECW, DWCW, AND INSTRUMENT GAS (E-1AY160)

JPM Number: LLOJPM0050 Revision Number: 011

K/A Number and Importance: 223001 A4.12 3.5/3.6

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: No

Time Critical: Yes

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____minutes

References: E-1AY160

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

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

Comments:_____
_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time: _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. Obtain current revision of E-1AY160. Cue: Once the trainee demonstrates the ability to locate the current revision of the procedure, provide him/her a copy.	Current revision of E-1AY160 obtained.			
2. **ENTER** ON-113, Loss of RECW. Cue: ON-113 is being performed	N/A			
3. **IF** Recirc Pumps trip, **THEN ENTER** OT-112, Recirculation Pump Trip.	N/A			
4. **PERFORM** the following to restore RECW to Recirc Pump seal **AND** motor oil coolers, on 10C655:	N/A			
*4a. **PLACE** HS-13-112, "Seals/ Oils Clrs Inbd Isol Bypass" to "BYPASS"	Within 10 minutes of start time, HS-13-112 in BYPASS			
*4b. **PLACE** HS-13-106, "Recirc Pumps Seals/Oil Coolers" (IN), to "OPEN"	Within 10 minutes of start time, HS-13-106 OPEN			
*4c. **PLACE** HS-13-107, "Recirc Pumps Seals/Oil Cooler" (OUT), to "OPEN"	Within 10 minutes of start time, HS-13-107 OPEN			
5. **REFER TO** Tech Spec 3.6.3 **AND TAKE** action for an inoperable isolation valve.	CRS notified T.S. 3.6.3 applicable.			

JOB PERFORMANCE MEASURE (JPM)

	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6.	**PERFORM** the following to restore Drywell Cooling:	N/A			
*6a.	**PLACE** HS-87-116, D/W CHILL WTR OUTBD ISOL BYPASS, keylock switch to "BYPASS" at 10C681.	HS-87-116 in BYPASS			
6b.	**ENSURE** compliance with Tech Spec action statement 3.6.3.a	CRS notified T.S. 3.6.3 applicable.			
7.	**OPEN** the following Drywell Chilled Water Isolation valves as required:	N/A			
*7a.	1) Handswitch #: HSS-87-121A (Loop A) Valve Number -- Description HV-87-120A "Chld Wtr In" HV-87-121A "Chld Wtr Out"	HSS-87-121A is placed in CHILLLED WATER HV-87-120A and 121A are OPEN			
*7b.	*2) Handswitch #: HSS-87-121B (Loop B) Valve Number -- Description HV-87-120B "Chld Wtr In" HV-87-121B "Chld Wtr Out"	HSS-87-121B is placed in CHILLED WATER HV-87-120B and 121B are OPEN			
8.	**IF** Drywell Chiller trips, **THEN REFER TO** S87.1.A, Startup of Drywell Chilled Water System, **AND START** Drywell Chilled Water System.	N/A			
9.	**PERFORM** the following to restore Instrument Gas on 10C601, ISOLATION:	N/A			
*9a.	**PLACE** HS-59-129A, "Instrument Gas Supply" (DRYWELL A), in "CLOSE".	HS-59-129A in CLOSE			
*9b.	**PLACE** HSS-57-191A, "Containment Isolation Bypass" (A), in "BYPASS".	HSS-57-191A in BYPASS			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*9c. **PLACE** HS-59-129A, "Instrument Gas Supply (DRYWELL A),in "AUTO".	HS-59-129A is in AUTO HV-59-129A is OPEN			
*9d. **PLACE** HS-59-101, "Instrument Gas Suction" (INBOARD), in "OPEN".	HV-59-101 is OPEN			
9e. **ENSURE** compliance with Tech.Spec action statement 3.6.3.a	CRS notified T.S. 3.6.3 applicable			
10. **PERFORM** the following to restore Instrument Gas Blocks AND Vents:	N/A			
*10a. **PLACE** HSS-57-191C, "Containment Isolation Bypass" (C), in "BYPASS".	HSS-57-191C in BYPASS			
*10b. **PLACE** HS-59-140, "Instrument Gas Block Valve Control Switch" to "OPEN".	HV-59-140 is OPEN			
10c. **ENSURE** compliance with Tech. Spec. Action Statement 3.6.3.a Cue:"You have met the termination criteria for this JPM."	CRS notified T.S. 3.6.3 applicable.			

JPM Stop Time: _____

INITIAL CONDITIONS: <u>This task is time critical</u>

4. 1AY160 is de-energized
5. "1B" DW Chiller was running.
6. A Brief has been conducted by the CRs and has identified that RECW must be restored to the Recirc. Pump within 10 minutes.

INITIATING CUE:

You are directed by Shift Supervision to perform the initial actions of E-1AY160 to:

- Restore RECW to the Recirc. Pump within 10 minutes
- Restore DWCW, and Instrument Gas

Limerick Generating Station

Job Performance Measure

DIESEL GENERATOR FAST START FROM THE CONTROL ROOM – ALTERNATE PATH

JPM Number: LLOJPM0130

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

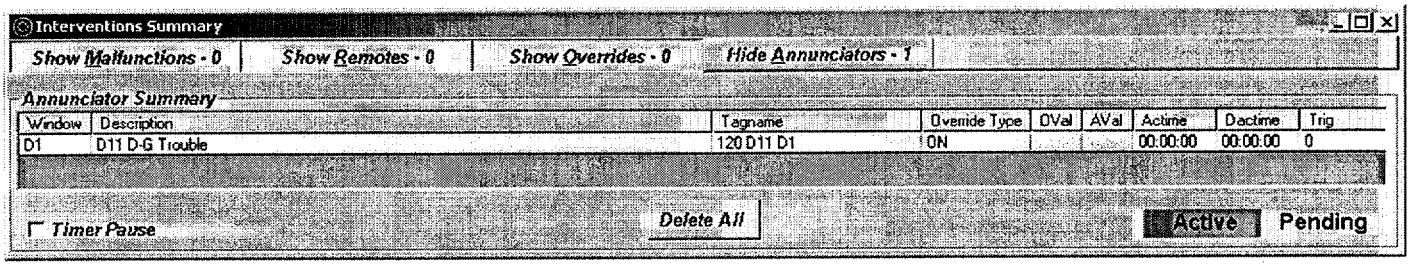
REVISION RECORD (Summary)

Revision 0

SIMULATOR SETUP INSTRUCTIONS:

1. This JPM can be run from any Simulator IC

2. Insert the following malfunction when DG Synch Switch 125-11507 is taken to OFF



TASK STANDARD:

D11 has been shutdown once it is noted that jacket water temperature is higher than trip setpoint

INITIAL CONDITIONS:

1. ST-6-092-315-1, "D11 DIESEL GENERATOR FAST START OPERABILITY TEST RUN", is complete up to and including step 4.5.9.2
2. An EO is standing by at D11 D/G to support diesel generator operation.

INITIATING CUES:

You are directed by the CRS to continue with ST-6-092-315-1, "D11 DIESEL GENERATOR FAST START OPERABILITY TEST RUN" at step 4.5.10 to completion of step 4.5.24

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

- Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____

Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: DIESEL GENERATOR FAST START FROM THE CONTROL ROOM – (ALTERNATE PATH –JACKET WATER HIGH TEMP)

JPM Number: LLOJPM0130 **Revision Number: 000**

K/A Number and Importance: 264000 A4.04 3.7/3.7

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** Yes

Alternate Path: Yes

Time Critical: No

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____minutes

References: ST-6-092-315-1, D11 DIESEL GENERATOR FAST START OPERABILITY TEST RUN
ANN 120 D-1, D11 D-G TROUBLE

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. Provide the candidate with a marked up copy of ST-6-092-315-1	N/A			
2. **IF** Bkr 152-11509, 101 SAFEGUARD, is closed, **THEN PLACE** 143-AX103, "Tap Changer" (SELECT), in "MANUAL," at panel 1AC661	143-AX103, "Tap Changer" (SELECT),placed in "MANUAL," at panel 1AC661			
3. **IF** Bkr 152-11502, 201 SAFEGUARD, is closed, at panel 1AC661 **THEN PLACE** 143-BX103, "Tap Changer" (SELECT), in "MANUAL," at panel 2DC661.	N/A			
*4. **PLACE** 125-11507/SS, DIESEL GEN 11, SYNC, to "ON," using Sync Switch handle, at panel 1AC661	125-11507/SS, DIESEL GEN 11, SYNC, placed to "ON," using Sync Switch handle, at panel 1AC661			
5. **VERIFY** Synchroscope is rotating with both lights lit fully bright at 180 degrees **AND** not lit at 0 degrees	Synchroscope S/EAS-1 verified rotating with both lights lit fully bright at 180 degrees and not lit at 0 degrees			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6. **OBSERVE** change in D/G frequency by placing 165-AG501/CS, SPEED GOVERNOR, to "RAISE," **AND** to "LOWER	165-AG501/CS rotated to RAISE, F/AG501-2 (HERTZ) increases. 65-AG501/CS rotated to LOWER, F/AG501-2 (HERTZ) decreases			
7. **OBSERVE** change in D/G voltage by placing 170-AG502/CS, VOLTAGE REGULATOR, to "RAISE," **AND** to "LOWER."	170-AG502/CS rotated to RAISE, V/1-EAS-1 (INCOMING) increases. 170-AG502/CS rotated o LOWER, V/1-EAS-1 (INCOMING) decreases			
*8. **ADJUST** 165-AG501/CS, SPEED GOVERNOR, so Synchroscope is rotating slowly in FAST (CW) direction	165-AG501/CS, SPEED GOVERNOR adjusted so that Synchroscope S/EAS-1 is rotating slowly in FAST direction			
9. **ADJUST** 170-AG502/CS, VOLTAGE REGULATOR, so INCOMING Voltage is slightly higher than RUNNING Voltage	VOLTAGE REGULATOR adjusted so that V/1-EAS-1 (INCOMING) indicates between 0 to 5 volts greater than V/R-EAS-1			
*10.**WHEN** Synchroscope is within 3° before 12 o'clock position rotating slowly in FAST (CW) direction, **THEN** simultaneously CLOSE 152-11507, GENERATOR Breaker	D11 D/G Output Breaker closed			
10a. **AND START** stopwatch, at panel 1AC661	Stopwatch started			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
11. Immediately **RAISE** load to 200 - 300 KW by placing 165-AG501/CS, SPEED GOVERNOR, to "RAISE."	165-AG501/CS, SPEED GOVERNOR rotated to "RAISE until W/AG501-2 (AC KILOWATTS) indicates between 200 to 300 KW			
12. **RAISE** reactive load to 100 - 150 KVAR by placing 170-AG 502/CS, VOLTAGE REGULATOR, to "RAISE."	170-AG 502/CS, VOLTAGE REGULATOR, rotated to "RAISE until "VAR/AG501-2 (AC KILOVARS) indicates between 100 and 150 KVAR using 170-AG502/CS			
13. **PLACE** 125-11507/SS, DIESEL GEN 11, SYNC, to "OFF"	Synch Switch 125-11507 OFF			
NOTE TO EVALUATOR When Synch Switch 125-11507 is taken to OFF the following alarm will be received: • 120 D11, D-1 "D11 D-G TROUBLE				
14. **RESPOND** to ANN 120 D11, D-1 "D11 D-G TROUBLE"	ANN reported to CRS			
14a. **REFER** to ARC D11, D-1	ARC for 120 D11, D-1 referenced			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*14b. CONTACT Equipment Operator to investigate Trouble Alarm CUE: EO reports Annuciators for D11 Jacket Water Temperature High and Jacket Water Pressure Low are in alarm The Annuciator cards both state consider tripping engine to avoid possible serious damage. Panel 1AC514: ANN B-2 J.W. TEMP HIGH ANN D-2 J.W. PRESS LOW IF Asked the following values can be given: Jacket Water Temperature is 200 degree F and increasing Jacket Water Pressure is 6 psig and dropping	CONTACT Equipment Operator to investigate Trouble Alarm			
15. **Determine** D11 should have tripped and SHUT down D11	N/A			
15a. **PLACE** Diesel Generator Breaker to "TRIP"	Diesel Generator Breaker placed to "TRIP"			
*15b **PLACE** Diesel Generator Control Switch 101-AG501/CS to "STOP" CUE: You have met the termination criteria for this JPM	Diesel Generator Control Switch 101-AG501/CS placed to "STOP"			

JPM Stop Time _____

INITIAL CONDITIONS:

1. ST-6-092-315-1, "D11 DIESEL GENERATOR FAST START OPERABILITY TEST RUN", is complete up to and including step 4.5.9.2
2. An EO is standing by at D11 D/G to support diesel generator operation.

INITIATING CUES:

You are directed by the CRS to continue with ST-6-092-315-1, "D11 DIESEL GENERATOR FAST START OPERABILITY TEST RUN" at step 4.5.10 to completion of step 4.5.24

Limerick Generating Station

Job Performance Measure

SCRAM RESET – ALTERNATE PATH

JPM Number: LLOJPM0001

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

1. JPM Revised, New format used. Step to obtain procedure removed. Initial Condition changed to include procedure number to enhance task clarity.

SIMULATOR SETUP INSTRUCTIONS:

1. Transfer house loads.
2. Place Reactor Mode Switch in "SHUTDOWN".
3. Trip Main Turbine.
4. Line up for startup level control
5. Insert malfunction MRP028B, RPS Group 1 Reactor Scram.

TASK STANDARD:

Insert a full reactor scram signal upon recognition that scram will not reset after 2nd attempt.

TASK CONDITIONS:

1. Unit 1 Reactor was scrammed for a planned shutdown.
2. There are NO indications of fuel damage.

INITIATING CUE:

You are directed by the CRS to perform a Unit 1 RPS scram reset per GP-11

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: SCRAM RESET (Alternate Path)

JPM Number: LLOJPM0001 **Revision Number:** 012

K/A Number and Importance: 212000 A4.14 3.8/3.8

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: Yes

Time Critical: No

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____minutes

References: GP-11, REACTOR PROTECTION SYSTEM – SCRAM RESET

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

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

Comments:_____
_____
_____
_____
_____
_____
Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. **REQUEST** Radiation Protection to perform the following:	RP contacted to survey the SDV and evaluate need to perform RT-6-047-600-1.			
1a. **SURVEY** SDV prior to release of fluid inventory.	N/A			
1b. **EVALUATE** the need for RT-6-047-600-*, Flush of CRD Scram Discharge Volume (SDV)." (CUE: Report that RP has surveyed the SDV and there is no need for the RT to be done.)	N/A			
*2. **PLACE** Scram Discharge Volume High Level Bypass Keylock Switch on *0C603 to "BYPASS".	SDV High Level Bypass Switch in "BYPASS" position.			
3. **VERIFY** Annunciator Panel *07, REACTOR, Window C-2, "SCRAM DISC VOLUME HI LEVEL SCRAM BYPASSED," is in alarm.	Verify by observation that "SDV HI LEVEL SCRAM BYPASSED", 107 REACTOR (C-2), is lit.			
4. **ENSURE** Annunciator panel *08, REACTOR, Window E-5, "RPIS INOPERATIVE" is clear.	Annunciator panel *08, REACTOR, Window E-5, "RPIS INOPERATIVE" is clear			
5. **IF** Annunciator Panel *08, REACTOR, Window E-4, "RDCS INOPERATIVE," is in alarm, **THEN RESET** the Rod Drive Control System (RDCS) in accordance with S73.0.F, "Resetting the Rod Drive Control System".	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6. **IF** CRD Full Core Display **OR** Process Computer indicates **not** all control rods are fully inserted, **THEN** PERFORM GP-11 Appendix I using Attachment 1.	N/A			
7. **RESET** Alternate Rod Insertion (ARI) at panel *0C603 as follows:	N/A			
8. **DEPRESS** ARI RESET pushbuttons (1A, 1B, 2A, 2B).	ARI Reset pushbuttons 1A, 1B, 2A, 2B depressed.			
9. **RESET** RPS at *0C603 as follows:	N/A			
*9a. **PLACE** Scram Reset switch to "GP 1/4".	Scram Reset Switch taken to GP 1/4 position.			
*9b. **PLACE** Scram Reset switch to "GP 2/3".	Scram Reset Switch taken to GP 2/3 positions.			
10. **VERIFY** the eight (8) scram group white lights are Lit for Scram System A **AND** Scram System B on *0C603.	Recognize 1 light for RPS 'A' and 1 light for RPS 'B' did **not** light.			
11. **IF** the eight scram group white lights are **not** lit after initial reset, **THEN VERIFY** proper Reactor Mode Switch position...	Verify Mode switch in "SHUTDOWN".			
12. **AND REPEAT** step 3.8 one time...	N/A			
*13. **PLACE** Scram Reset switch to "GP 1/4".	Scram Reset Switch taken to GP 1/4 position.			
*14. **PLACE** Scram Reset switch to "GP 2/3".	Scram Reset Switch taken to GP 2/3 position.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
15. **IF** the eight scram group white lights are **not** Lit after second reset attempt, **THEN PERFORM** the following:	N/A			
*16. **INSERT** a full scram signal via Manual Scram Pushbuttons. CUE: You have reached the termination point for the JPM.	CH A1 or CH A2, and CH B1 or CH B2 manual scram collars armed and pushbuttons depressed.			

JPM Stop Time _____

TASK CONDITIONS:

1. Unit 1 Reactor was scrammed for a planned shutdown.
2. There are NO indications of fuel damage.

INITIATING CUE:

You are directed by the CRS to perform a Unit 1 RPS scram reset per GP-11

Limerick Generating Station

Job Performance Measure

PLACING ALTERNATE RECW PUMP IN SERVICE- ALTERNATE PATH

JPM Number: LLOJPM0129

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

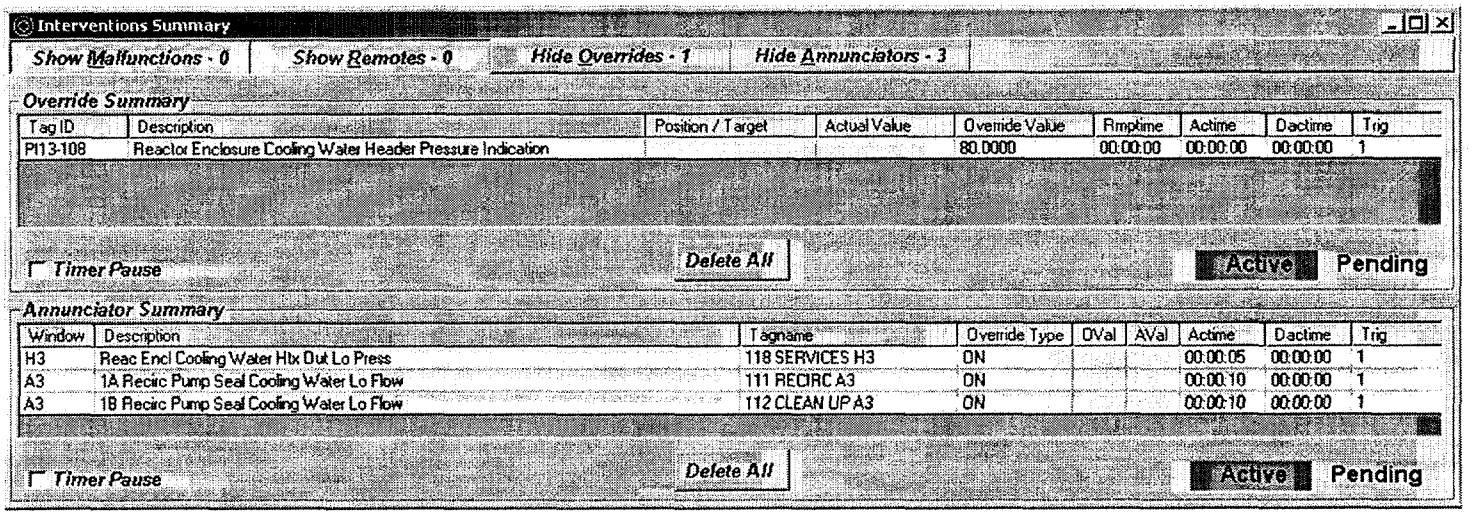
_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

Revision 0

SIMULATOR SETUP INSTRUCTIONS:

1. This JPM can be run in any Simulator IC
2. INSERT the following malfunctions on Trigger #1 when 1A RECW pump is secured (instructor station P&ID can be used to determine pump status)
3. DELETE PI13-108 Override when 1A RECW pump is RESTARTED (instructor station P&ID can be used to determine pump status)



INITIAL CONDITIONS:

1. The "1A" RECW Pump is in "service, the "1B" RECW Pump is in "AUTO"
2. The "1A" RECW Pump is to be removed from service to support scheduled maintenance to repack the pump
3. "1B" RECW pump is ready for start with the following conditions:
   - 13-1001B "RECW Pump Suction" and 13-1005B "RECW Pump Discharge" are open
   - Pump has been successfully vented, and 13-1003B "RECW Pump Vent" is closed
   - Pump oil level is in the green band
   - The EO is standing by to support swapping RECW Pumps

INITIATING CUES:

Shift Supervision directs you to start the "1B" RECW pump and the remove the "1A" RECW pump from service per S13.6.A, "Placing Alternate RECW Pump In Service".

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations. Some operations that are performed from outside of the control room may require multiple steps. These items may be listed as individual steps in this JPM. It is acceptable for the candidate to direct the local operator to perform groups of procedure steps instead of calling for each individual item to be performed.

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: PLACING ALTERNATE RECW PUMP IN SERVICE

JPM Number: LLOJPM0129 **Revision Number:** 000

K/A Number and Importance: 400000 A4.01 3.1/3.0

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: Yes

Time Critical: No

Estimated Time to Complete: 15 minutes **Actual Time Used:** _____minutes

References: S13.6.A, PLACING ALTERNATE RECW PUMP IN SERVICE

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. **OBTAIN** current revision of S13.6.A	Current revision of S13.6.A obtained			
1a. **VERIFY** standby 13-*001B, "RECW Pump Suction Valve," open.	N/A Provided in Initiating Cue			
1b. **VERIFY** standby 13-*005B, "RECW Pump Discharge Valve," open.	N/A Provided in Initiating Cue			
1c. **VENT** standby RECW Pump using 13-*003B, "RECW Pump Vent," until a steady stream is observed.	N/A Provided in Initiating Cue			
1d. **ENSURE** standby RECW Pump oil level is in green band	N/A Provided in Initiating Cue			
*2. **START** standby *BP210, "RECW Pump" (PUMP)	HS-13-103B ("1B" RECW pump Handswitch) is taken to START			
2a **AND PERFORM** the following: -**VERIFY** PI-13-*06B, "RECW Pump Disch," is 160 to 200 psig. -**VERIFY** **no** excessive vibration **OR** noise at pump/motor. CUE: The EO reports that "1B" RECW pump discharge pressure is 180 psig and no excessive vibration or noise are noted.	"1B" RECW pump discharge pressure verified, "1B" RECW pump is verified to **not** have excessive vibration or noise.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*3. **STOP** desired *AP210, "RECW Pump" (Pump).	HS-13-103A ("1A" RECW pump Handswitch) is taken to "STOP"			
NOTE TO EVALUATOR AND DRIVER When"1A" RECW pump is stopped the following malfunctions are inserted: • PI-13-108 "RECW Supply Pressure" indication on panel 10C655 will drop to 80 psig • ANN 118 H-3 "REAC ENCL COOLING WATER HTX OUT LO PRESS", will alarm (setpoint for this ANN is 124.5 psig RECW supply pressure • ANNs 111 A-3, and 112 A-3, "1A(B) RECIRC PUMP SEAL COOLING WATER LOW FLOW", will alarm				
4. **RESPOND** ANN 118 H-3 "REAC ENCL COOLING WATER HTX OUT LO PRESS	ANN reported to CRS			
5. **REFERENCE** ANN 118 H-3 "REAC ENCL COOLING WATER HTX OUT LO PRESS	ANN Card for 118 H-3 "REAC ENCL COOLING WATER HTX OUT LO PRESS referenced			
6. **VERIFY** Low RECW Supply pressure using PI-13-108 at 10C655 **IF EO at RECW pump is contacted**: CUE: The EO reports that "1B RECW Pump discharge pressure has dropped to 80 psig, and the pump is making excessive noise" **IF CRS is contacted** CUE: The CRS reports take required action to restore RECW and place any degraded equipment in a safe condition	RECW low supply pressure (80 psig) verified at PI-13-108 at 10C655			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE TO EVALUATOR AND DRIVER: When"1A" RECW pump is restarted the PI-13-108 "RECW Supply Pressure" indication override is removed				
*7.**START** AP210, "RECW Pump" (PUMP)	HS-13-103A ("1A" RECW pump Handswitch) is taken to START			
8. **STOP** 1BP210, "RECW Pump" (Pump). CUE: You have met the termination criteria for this JPM")	HS-13-103B ("1B" RECW pump Handswitch) is taken to "STOP"			

JPM Stop Time _____

INITIAL CONDITIONS:

1. The "1A" RECW Pump is in "service, the "1B" RECW Pump is in "AUTO"
2. The "1A" RECW Pump is to be removed from service to support scheduled maintenance to repack the pump
3. "1B" RECW pump is ready for start with the following conditions:
   - 13-1001B "RECW Pump Suction" and 13-1005B "RECW Pump Discharge" are open
   - Pump has been successfully vented, and 13-1003B "RECW Pump Vent" is closed
   - Pump oil level is in the green band
   - The EO is standing by to support swapping RECW Pumps

INITIATING CUES:

Shift Supervision directs you to start the "1B" RECW pump and the remove the "1A" RECW pump from service per S13.6.A, "Placing Alternate RECW Pump In Service".

Limerick Generating Station

Job Performance Measure

START 0B ESW PUMP FROM D12 SWITCHGEAR FOR SE-6

JPM Number: LLOJPM0207

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

Operator's Name: _____

Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: START 0B ESW PUMP FROM D12 SWITCHGEAR FOR SE-6

JPM Number: LLOJPM0207 Revision Number: 009

K/A Number and Importance: 262001 A4.03 3.2/3.4

Suggested Testing Environment: Plant

Actual Testing Environment: Plant

Testing Method: Simulate **Faulted:** No

Alternate Path: No

Time Critical: No

Estimated Time to Complete: 5 minutes **Actual Time Used:** _____minutes

References: SE-6, ALTERNATE REMOTE SHUTDOWN

EVALUATION SUMMARY:

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

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

Comments:_____

_____

_____

_____

_____

_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

REVISION RECORD (SUMMARY):

1. Updated format

SIMULATOR SETUP INSTRUCTIONS:

None

TASK STANDARD(S):

0B ESW Pump Breaker closed using local control at D12 Switchgear.

TASK CONDITIONS:

1. The Main Control Room has been evacuated.
2. The Remote Shutdown Panel has been manned
3. "0B" ESW pump failed to start automatically.

INITIATING CUES:

1. You have been summoned to the RSP by Shift Supervision, briefed, and provided with a copy of SE-6 and a GE-75 key
2. Shift supervision directs you to start the 0B ESW pump from the D12 switchgear per Step 4.10 of SE-6.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

JOB PERFORMANCE MEASURE (JPM)

Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. **IF** B ESW pump is **not** running, **THEN START** pump as follows from D12 Emergency Switchgear: *(Step 4.10)*	N/A			
*2. **PLACE** 152-11608/CST, "0B Emerg Service Water Pump (0BP548)," to "PULL-TO-LOCK". *(Step 4.10.1)* CUE: 152-11608/CST is in PULL-TO-LOCK	152-11608/CST is in PULL-TO-LOCK at D12 switchgear.			
*3. **PLACE** HSS-11-094, "Transfer Switch" to "EMERGENCY" *(Step 4.10.2)* CUE: (When the GE-75 key has been used) HSS-11-094 Transfer Switch is in EMERGENCY."	GE-75 key is placed in Transfer switch HSS-11-094, the key is turned clockwise, and then the Transfer Switch is turned clockwise to EMERGENCY.			
*4 **PLACE** 152-11608/CST to "CLOSE". *(Step 4.10.3)* CUE: 152-11608/CST is taken to close. Red lamp is lit, green lamp is out. Instructor should use pen to indicate starting current pegging high initially, then decaying to 52 amps on breaker ammeter. CUE: You have met the termination criteria for this JPM)	Breaker 152-11608 is closed.			

JPM Stop Time _____

TASK CONDITIONS:

1. The Main Control Room has been evacuated.
2. The Remote Shutdown Panel has been manned
3. "0B" ESW pump failed to start automatically.

INITIATING CUES:

1. You have been summoned to the RSP by Shift Supervision, briefed, and provided with a copy of SE-6 and a GE-75 key
2. Shift supervision directs you to start the 0B ESW pump from the D12 switchgear per Step 4.10 of SE-6.

Limerick Generating Station

Job Performance Measure

PLACING ALTERNATE CRD FLOW CONTROL VALVE IN SERVICE

JPM Number: LLOJPM0200

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

Revision 3, revised to new format

SIMULATOR SETUP INSTRUCTIONS:

N/A

TASK STANDARD:

"1B" Flow Control Valve (FCV) in service in the automatic mode and the CRD "1A" FCV removed from service.

INITIAL CONDITIONS:

1. 1A CRD flow control valve is in service.
2. A startup of Unit 1 is in progress per GP-2.
3. Unit 1 RPV pressure was recently increased to 920 psig.
4. All prerequisites to perform task are satisfied.

INITIATING CUES:

Shift supervision directs you to place the "1B" CRD flow control valve in service and remove the "1A" CRD flow control valve from service per S46.6.B.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Operator's Name: _____
Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: PLACING ALTERNATE CRD FLOW CONTROL VALVE IN SERVICE

JPM Number: LLOJPM0200 **Revision Number:** 003

K/A Number and Importance: 201001 A4.03 2.9/2.9

Suggested Testing Environment: Plant

Actual Testing Environment: Plant

Testing Method: Simulate **Faulted:** No

Alternate Path: No

Time Critical: No

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____minutes

References: S46.6.B, PLACING ALTERNATE CRD HYDRAULIC SYSTEM FLOW CONTROL VALVE IN SERVICE

EVALUATION SUMMARY:

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

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

Comments:_____
_____
_____
_____
_____
_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. Obtain a copy of S46.6.B	Copy of the most recent revision of S46.6.B is obtained			
2. **ESTABLISH** communications between Reactor Operator **AND** 10C213, CRD Hydraulic Master Control Area Panel *(Step 4.2)* CUE: (Via simulated radio communication) Unit 1 Reactor Operator standing by for the performance of S46.6.B.	Communication established with Unit 1 Reactor Operator			
3. **VERIFY** FC-046-1R600 "Rod Drive Flow Controller" (FL) is in "AUTO" at 10C603. *(Step 4.3)* CUE: Reactor Operator reports, "The CRD Flow Controller is in AUTO.	CRD Flow Controller verified in AUTO at 10C603 from the Reactor Operator			
4. **VERIFY** in-service D009A CRD Flow Controller" is in "AUTO" at 10C213 *(Step 4.4)* CUE: CRD Flow Controller D009A is in AUTO.	Local MANUAL/AUTO switch for controller D009A at 10C213 verified in AUTO			
5. **ENSURE** the on-coming D009B "CRD Flow Controller" in "MANUAL" **AND**... *(Step 4.5)* CUE: CRD Flow Controller D009B is in MANUAL.	Local MANUAL/AUTO switch for controller D009B at 10C213 verified in MANUAL			
5a. ...0% open as indicated by the red arrow at 10C213 *(Step 4.5)* CUE: The red arrow for D009B indicates 0% open.	The red arrow for D009B is verified at 0% at 10C213.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6. **PLACE** on-coming FV-C-46-1F002B, "CRD Flow Control Valve" in-service: *(Step 4.6)*	N/A			
* 6a. **OPEN** 46-1F046B Inlet Isolation Valve *(Step 4.6.1)* CUE: Valve handwheel is rotated counter-clockwise until it stops.	Handwheel for valve 46-1F046B is rotated counter-clockwise until the valve is full open			
* 6b. **OPEN** 46-1F047B Outlet Isolation Valve *(Step 4.6.2)* CUE: Valve handwheel is rotated counter-clockwise until it stops.	Handwheel for valve 46-1F047B is rotated counter-clockwise until the valve is full open			
7. Using FC-046-1R600, "Rod Drive Flow Controller" at 10C603, **ENSURE** FI-46-1R019, CRD Hydraulic System Flow Controller," indicates 50-55 gpm at 10C213 *(Step 4.6.3)* CUE: FI-46-1R019 indicates 52 gpm.	System flow is verified to be 50-55 gpm on FI-46-1R019			
8. **IF** 50 to 55 gpm cannot be achieved **THEN** slowly **THROTTLE** closed the off-going 46-1F047A, "Outlet Isolation Valve," until FI-46-1R019 indicates 50 to 55 gpm. *(Step 4.6.4)*	N/A			
* 9. **MATCH** off-going D009A, "CRD Flow Controller", "MANUAL" (red) indicating arrow to the same position as "AUTO" (black) indicating arrow. *(Step 4.6.5)* CUE: **(Before Adjustment)** The red arrow for D009A is indicating 15%; the black arrow for D009A is indicating 20%. CUE: **(After Adjustment)** The red and black arrow for D009A are indicating 20%.	The control knob for D009A is rotated clockwise until the red arrow is set to the same position as the black arrow			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 10. **PLACE** off-going D009A, "CRD Flow Controller", in "MANUAL" at 10C213 *(Step 4.6.6)* CUE: D009A in MANUAL	Local MANUAL/AUTO switch for controller D009A at 10C213 verified in MANUAL			
11. **MONITOR** system flow at FI-46-1R019 **AND MAINTAIN** 50 to 63 gpm while performing transition. *(Step 4.6.7)*	N/A			
12. Slowly **OPEN** on-coming D009B "CRD Flow Controller" by rotating control knob in clockwise (INCREASE) direction until a slight increase in flow is observed on FI-46-1R019 *(Step 4.6.8)* CUE: (As D009B Control Knob is rotated clockwise) Indicated flow on FI-46-1R019 has risen to 55 gpm.	D009B control knob has been rotated clockwise until flow increases on FI-46-1R019			
* 13. Alternately **AND** slowly **OPEN** on-coming D009B "CRD Flow Controller" by rotating control knob in clockwise (INCREASE) direction **AND** slowly **CLOSE** off-going D009A "CRD Flow Controller" by rotating control knob in counterclockwise direction *(Step 4.6.9)* CUE: After several manipulations the red indicating arrow for D009B rises to 20% open and the red indicating arrow for D009A drops to 0% open. FI-46-1R019 indicates 55 gpm.	The on-coming D009B control knob is slowly rotated clockwise while alternately the off-going D009A control knob is slowly rotated counter-clockwise. System flow is maintained between 50 to 63 gpm on FI-46-1R019 during the transition.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 14. **WHEN** off-going D009A "CRD Flow Controller" "MANUAL" (red) indicating arrow is at 0% open, **THEN STOP** rotating both control knobs. *(Step 4.6.10)* CUE: The red indicating arrow for D009A is at 0% and the red indicating arrow for D009B is at 20%. FI-46-1R019 indicates 55 gpm.	D009A "CRD Flow Controller" "MANUAL" (red) indicating arrow is at 0% open.			
15. **MATCH** on-coming D009B "CRD Flow Controller" "AUTO" (black) indicating arrow with "MANUAL" (red) indicating arrow *(Step 4.6.11)* CUE: The red indicating arrow indicates 20% open and the black indicating arrow indicates 20% open.(They are already matched)	D009B red arrow is set to the same position as the black arrow			
16. **IF** indicating arrows cannot be matched at 10C213, **THEN PERFORM** the following: *(Step 4.6.12)* (They are already matched)	N/A			
* 17. **PLACE** on-coming D009B, "CRD Flow Controller" in "AUTO" at 10C213. *(Step 4.6.13)* CUE: D009B is in AUTO.	Local MANUAL/AUTO switch for controller D009B at 10C213 verified in AUTO			
18. **IF** step 4.16.12 was performed... (Step 4.6.12 was **not** performed) *(Step 4.6.14)*	N/A			
* 19. **CLOSE** 46-1F046A Inlet Isolation Valve for off-going FV-C-46-1F002A(B), Flow Control Valve." *(Step 4.6.15)* CUE: Valve handwheel is rotated clockwise until it stops	Handwheel for valve 46-1F046A is rotated clockwise until the valve is full closed.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 20. **CLOSE** 46-1F047A Outlet Isolation Valve for off-going FV-C-46-1F002A, Flow Control Valve." *(Step 4.6.16)* CUE: Valve handwheel is rotated clockwise until it stops	Handwheel for valve 46-1F047A is rotated clockwise until the valve is full closed.			
21. **INFORM** Reactor Operator on-coming FV-C-46-1F002B, Flow Control Valve," is in-service. *(Step 4.7)* CUE: The RO responds, "I understand the 1B CRD Flow Control Valve has been placed in service."	The RO has been informed that the 1B CRD FCV is in service and the 1A CRD FCV has been removed from service.			
22. **VERIFY** the following at 10C603: • 50 to 63 gpm on FI-46-1R606. • 255 to 265 psi on PDI-46-1R602, DELTA PX. *(Step 4.8)* CUE: The RO reports he has 55 gpm and 260 psi at 10C603. CUE: You have met the termination criteria for this JPM	System flow and drive water ΔP have been verified to be within at acceptable limits at 10C603.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. 1A CRD flow control valve is in service.
2. A startup of Unit 1 is in progress per GP-2.
3. Unit 1 RPV pressure was recently increased to 920 psig.
4. All prerequisites to perform task are satisfied.

INITIATING CUES:

Shift supervision directs you to place the "1B" CRD flow control valve in service and remove the "1A" CRD flow control valve from service per S46.6.B.

Limerick Generating Station

Job Performance Measure

MSIV/PCIG LOW LOW LOW LEVEL BYPASS
(MSIV'S OPEN)

JPM Number: LLOJPM0212

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 through 11 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, or simulator)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating and terminating cues 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. Verify the procedure referenced by this JPM matches the most current revision of that procedure:
Procedure Rev. _____ Date _____

_____ 9. Pilot test the JPM:
a. verify cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

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

_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

Revision 8, revised format

SIMULATOR SETUP INSTRUCTIONS:

N/A

TASK STANDARD:

Isolation bypassed in accordance with T-221, section 4.2.

INITIAL CONDITIONS:

1. An ATWS is in progress and the appropriate Trip procedures have been entered
2. The MSIV's are open and Instrument Gas system is not isolated.
3. No indication of a Main Steam line break or gross fuel failure.
4. 2BY160 is not known to be inoperative

INITIATING CUES:

You are directed by shift supervision to perform T-221 (MSIV's open) on Unit 2

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes CRITICAL steps.

Number any comments in the "Comment Number" column. 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 and to document unsatisfactory performance relating to management expectations.

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

Operator's Name: _____

Job Title: ☐ NLO ☐ RO ☐ SRO ☐ STA ☐ SRO Cert

JPM Title: MSIV/PCIG LOW LOW LOW LEVEL BYPASS (MSIV'S OPEN)

JPM Number: LLOJPM0212 **Revision Number:** 007

K/A Number and Importance: 295037 EA1.11 3.5/3.6

Suggested Testing Environment: Plant

Actual Testing Environment: Plant

Testing Method: Simulate **Faulted:** No

Alternate Path: No

Time Critical: No

Estimated Time to Complete: 20 minutes **Actual Time Used:** _____minutes

References: T-221, MSIV/PCIG LOW LOW LOW LEVEL BYPASS (MSIV'S OPEN)

EVALUATION SUMMARY:

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

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

Comments:_____

_____

_____

_____

_____

_____

Note: Any grade of UNSAT requires a comment.

Evaluator's Name: _____(Print)

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

JOB PERFORMANCE MEASURE (JPM)

NOTE: Critical Element(s) indicated by * in Performance Checklist.

PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1. Obtain current revision of (Unit 2) T-221	Current revision of (Unit 2) T-221 obtained.			
EVALUATOR NOTE: The performer should go to the Unit 2, T-200 locker and select the T-221 box and indicate that the tools and procedure are in the box. At that point, provide the performer with a Unit 2 T-221 procedure and give the cue below regarding the equipment. If the performer goes to the Unit 1 T-221, then provide them with a Unit 1 T-221 procedure and cue. The performer may catch the error and go back and start over, up to the point of simulating installing the first jumper. If they select the wrong box, provide no procedures or cues.				
* 2. Obtain tools/equipment from Unit 2 T-200 cabinet: -(1) 4" screwdriver -(1) screwholding screwdriver -(1) roll of electrical tape -(1) flashlight -(10) electrical jumpers CUE: You have obtained the equipment.	Operator obtains equipment from T-221 box in T-200 cabinet.			
3. **PERFORM** the following at 20C611 (Aux Equip Room): *(Section 4.2.1)*	N/A			
* 3a. **INSTALL** jumper from T1 at relay B21H-K13B/FL to M1 at relay B21H-K16B/FH (BAY B Attachment 1). *(Step 4.2.1.1)* CUE: Jumper is installed.	Jumper installed between T1 on relay B21H-K13B/FL to M1 at relay B21H-K16B/FH in 20C611, BAY "B".			
* 3b. **INSTALL** jumper from T1 at relay B21H-K13D/BL to M1 at relay B21H-K16D/BH (BAY D - Attachment 2). *(Step 4.2.1.2)* CUE: Jumper is installed.	Jumper installed between T1 on relay B21H-K13D/BL to M1 at relay B21H-K16D/BH in 20C611 BAY "D".			
4. **IF** PCIG isolated, **THEN PERFORM** the following at 20C601 (Main Control Room): *(Section 4.2.2)* (PCIG did **not** isolate)	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
5. **IF** PCIG did **not** isolate due to high Drywell pressure, **THEN PERFORM** the following: *(Section 4.2.3)*	N/A			
* 5a. **INSTALL** jumper T2 to M2 at relay B21H-K105A/CK (Attachment 3), at 20C622 (Aux Equip Room). *(Step 4.2.3.1)* CUE: Jumper is installed.	Jumper installed between T2 and M2 on relay B21H-K105A/CK in 20C622.			
* 5b. **INSTALL** jumper BBB4-1 to BBB4-4 (Attachment 3) at 20C622 (Aux Equip Room). *(Step 4.2.3.2)* CUE: Jumper is installed.	Jumper installed between BBB4-1 and BB4-4 in 20C622.			
* 5c. **INSTALL** jumper T2 to M2 at relay B21H-K105D/CK (Attachment 4), at 20C623 (Aux Equip Room). *(Step 4.2.3.3)* CUE: Jumper is installed.	Jumper installed between T2 and M2 on relay B21H-K105D/CK in 20C623.			
* 5d. **INSTALL** jumper EEE9-1 to EEE9-3 (Attachment 4) at 20C623 (Aux Equip Room). *(Step 4.2.3.4)* CUE: Jumper is installed. CUE: You have met the termination criteria for this JPM	Jumper installed between EEE9-1 and EEE9-3 in 20C623.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. An ATWS is in progress and the appropriate Trip procedures have been entered
2. The MSIV's are open and Instrument Gas system is not isolated.
3. No indication of a Main Steam line break or gross fuel failure.
4. 2BY160 is not known to be inoperative

INITIATING CUES:

You are directed by shift supervision to perform T-221 (MSIV's open) on Unit 2