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.

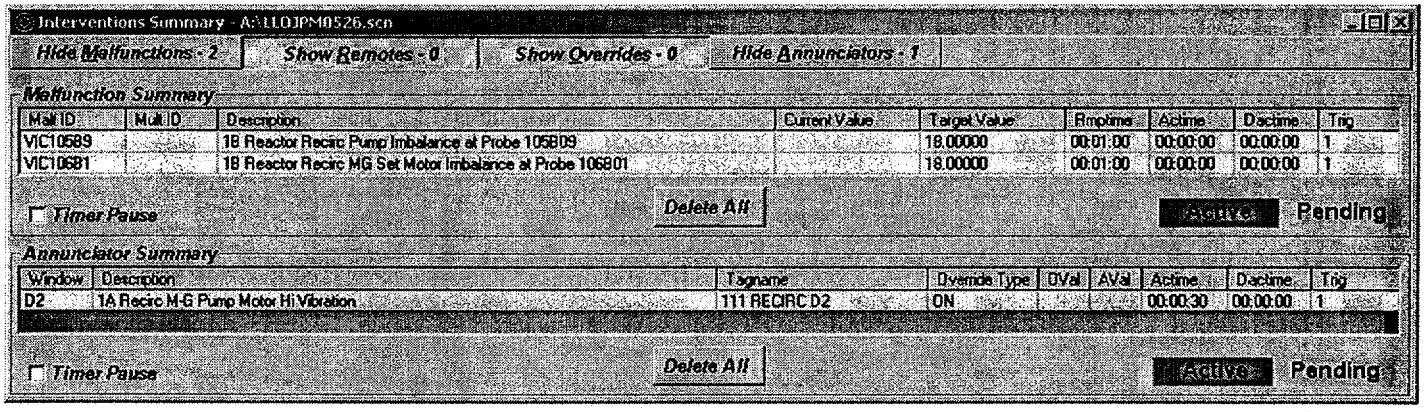
_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary)

Revision 2, Changed setup instructions.

SIMULATOR SETUP INSTRUCTIONS:

1. Reset to Single Loop IC (36% 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 36% 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:** 002

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

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: 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 at 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. B 32-*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	FI-42-*R611A(B), "Total Jet Pump Loop Flow" (FL), is approximately 15 lbs/hr X10E6			
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 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				
*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			
NOTE TO Evaluator: The following actions are from S43.2.A				

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
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) Tripped			
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 36% 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

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.

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: This task is time critical

1. 1AY160 is de-energized
2. "1B" DW Chiller was running.

INITIATING CUE:

You are directed by Shift Supervision to perform the initial actions of E-1AY160 to restore RECW, 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"	HV-87-120A and 121A OPEN			
*7b.	*2) Handswitch #: HSS-87-121B (Loop B) Valve Number -- Description HV-87-120B "Chld Wtr In" HV-87-121B "Chld Wtr Out"	HV-87-120B and 121B 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".	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: **This task is time critical**

1. 1AY160 is de-energized
2. "1B" DW Chiller was running.

INITIATING CUE:

You are directed by Shift Supervision to perform the initial actions of E-1AY160 to restore RECW, DWCW, and Instrument Gas.

Limerick Generating Station

Job Performance Measure

CONTROL ROOM VENTILATION HIGH RADIATION ISOLATION RESET

JPM Number: LLOJPM0074

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 to new format.

SIMULATOR SETUP INSTRUCTIONS:

1. Place the HS-78-017A,B,C, and D keylock switches to RESET.
2. Rotate the arming collars for HSS-78-017A,B,C, and D to RAD.
3. Place the HS-78-017A,B,C, and D keylock switches to AUTO.
4. Depress the pushbutton on HSS-78-017A,B,C, and D.
5. Place the arming collars for HSS-78-017A,B,C,D back to NOR.
6. Ensure the HI RAD ISLN light lit and the CHLOR ISLN **NOT** lit for all four isolation channels.
7. Remove the four PA2235 keys from HS-78-017A,B,C,D.
8. Reset any annunciators that will reset.

TASK STANDARD:

Control Room HVAC High Radiation isolation reset with CREFAS aligned for normal automatic operation.

TASK CONDITIONS:

1. A Control Room HVAC High Radiation Level isolation occurred
2. The High Radiation isolation condition is cleared.
3. The system was operating per S78.1.A before the isolation occurred.
4. The High Radiation condition has been acknowledged on the RM-11 in the MCR.

INITIATING CUES:

You are directed by Shift Supervision to reset the Control Room HVAC High Radiation isolation per S78.7.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: CONTROL ROOM VENTILATION HIGH RADIATION ISOLATION RESET

JPM Number: LLOJPM0074 **Revision Number:** 012

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

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Simulate **Faulted:** No

Alternate Path: No

Time Critical: No

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

References: S78.7.A, CONTROL ROOM HVAC SYSTEM RESTORATION FROM AN 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:** _____

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.	**IF** required, **THEN** manually **ACKNOWLEDGE** chlorine detectors locally at detector by depressing the RESET BUTTOM (625-08-350).	N/A			
2.	**IF** required, **THEN RESET** toxic chemical alarms per S78.1.F, Alignment of Toxic Chemical Detection System for Normal Operation.	N/A			
3.	**IF** required, **THEN ACKNOWLEDGE** radiation condition by depressing ACK-GRID on RM-11 console, MCR.	N/A			
4.	**PLACE** the following Control Room Isolation Valve Reset Keylock Switches to "RESET":	N/A			
*4a.	HS-78-017C, RESET C	HS-78-017C is in RESET			
*4b.	HS-78-017A, RESET A	HS-78-017A is in RESET			
*4c.	HS-78-017B, RESET B	HS-78-017B is in RESET			
*4d.	HS-78-017D, RESET D	HS-78-017D is in RESET			
5.	**ENSURE** the following Control Room Isolation Valve Trip Switches to "NOR":	N/A			
5a.	HSS-78-017C, TRIP C	HSS-78-017C is in NOR			
5b.	HSS-78-017A, TRIP A	HSS-78-017A is in NOR			
5c.	HSS-78-017B, TRIP B	HSS-78-017B is in NOR			
5d.	HSS-78-017D, TRIP D	HSS-78-017D is in NOR			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT		STANDARD	SAT	UNSAT	Comment Number
6.	**PLACE** the desired following Control Room Isolation Valve Reset Keylock Switches to "AUTO":	N/A			
*6a.	HS-78-017C, RESET C	HS-78-017C is in AUTO			
*6b.	HS-78-017A, RESET A	HS-78-017A is in AUTO			
*6c.	HS-78-017B, RESET B	HS-78-017B is in AUTO			
*6d.	HS-78-017D, RESET D	HS-78-017D is in AUTO			
7.	**VERIFY** status of 0A(B)V127, EMERGENCY AIR FAN A (B) as follows:	N/A			
7a.	**IF** a single subsystem isolation remains, **THEN VERIFY** 0AV127 **OR** 0BV127 is running as appropriate.	N/A			
7b.	**IF** all subsystems reset, **THEN VERIFY** 0AV127 **AND** 0BV127 are **not** running CUE: You can stop here. You have met the termination criteria for this JPM.	0AV127 and 0BV127 are not running.			

JPM Stop Time _____

TASK CONDITIONS:

1. A Control Room HVAC High Radiation Level isolation occurred
2. The High Radiation isolation condition is cleared.
3. The system was operating per S78.1.A before the isolation occurred.
4. The High Radiation condition has been acknowledged on the RM-11 in the MCR.

INITIATING CUES:

You are directed by Shift Supervision to reset the Control Room HVAC High Radiation isolation per S78.7.A

Limerick Generating Station

Job Performance Measure

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

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.

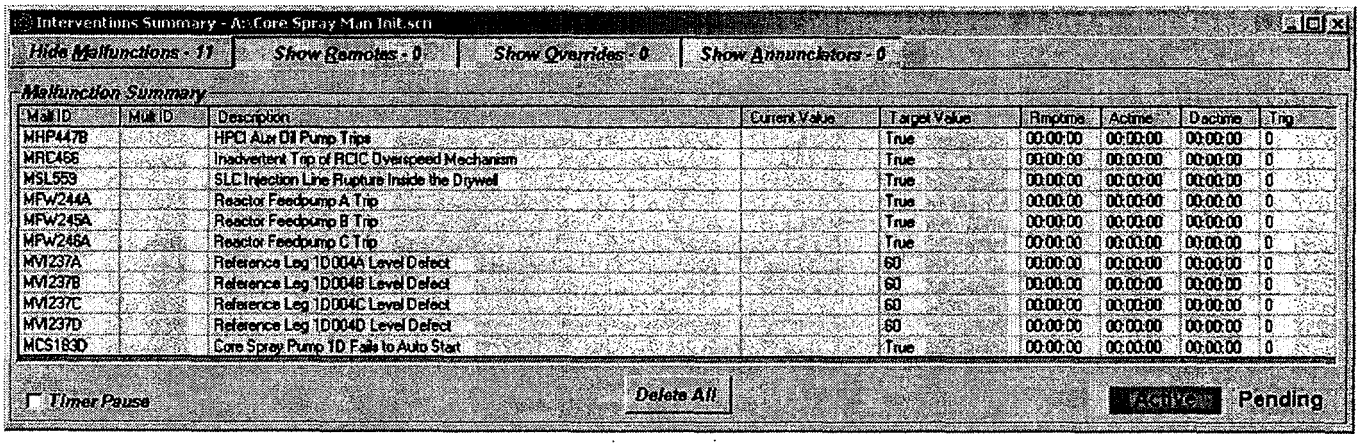
_____ 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

REVISION RECORD (Summary):

Revision 0

SIMULATOR SETUP INSTRUCTIONS:

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



Mal ID	Mult 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
MRC486		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)SCRAM RESET (Alternate Path)

JPM Number: LLOJPM0001 **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:** Yes

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. **ENSURE** the following Core Spray Pump minimum flow bypass valves are open: -HV-52-*F031A, MIN FLOW -HV-52-*F031B, MIN FLOW	HV-52-*F031A, MIN FLOW and HV-52-*F031B, MIN FLOW are verified open.			
6. **WHEN** Reactor Pressure is between 435 to 475 psig, **THEN VERIFY** HV-52-*F005, OUTBOARD, **AND** HV-52-*F037, INBOARD DISCHARGE, open.	N/A			
7. **IF** only one Core Spray Pump in a loop is running **THEN GO TO** S52.7.B, Core Spray Injection with a Single Operable Pump	Recognize "1D" Core Spray Pump failure to start.			
*8. Start the "1D" Core Spray Pump CUE: You have met the termination criteria for this JPM	The "1D" Core Spray Pump is running.			

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

DIESEL GENERATOR FAST START FROM THE CONTROL ROOM – (ALTERNATE PATH – ESW PUMP FAILS TO START)

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.

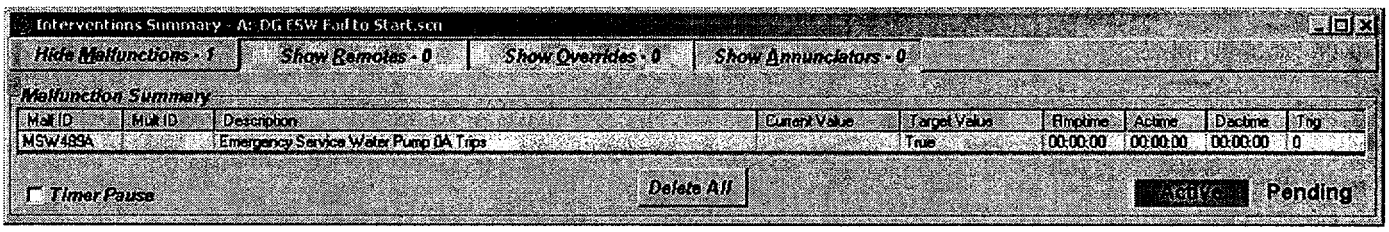
REVISION RECORD (Summary)

Revision 0

SIMULATOR SETUP INSTRUCTIONS:

1. This JPM can be run from any Simulator IC

2. Insert the following malfunction



TASK STANDARD:

EITHER D11 is running and the "C" ESW has been manually started **OR** D11 has been shutdown once it is noted that the "A" ESW pump has failed to start.

INITIAL CONDITIONS:

1. S92.1.O, "Local and Remote Manual Startup Of A Diesel Generator, is complete up to and including step 4.1.
2. An EO is standing by at D11 D/G to support diesel generator operation.

INITIATING CUES:

You are directed by the CRS to perform a Remote Manual Startup of the D11 Diesel Generator per step 4.3 of S92.1.O.

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 – ESW PUMP FAILS TO START)

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

K/A Number and Importance: 295003 AA1.02 4.2/4.3

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: S92.1.O, "Local and Remote Manual Startup Of A Diesel Generator

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 S92.1.0.	N/A			
2. **VERIFY** LOCAL-REMOTE switch in "REMOTE"	LOCAL-REMOTE switch is verified to be in the REMOTE position.			
3. **NOTIFY** MCR **AND** SSV that the next step makes the D/G INOPERABLE **AND** unavailable.	Shift Supervisor notified that DII will be INOPERABLE and unavailable.			
4. **RECORD** in OPS logs that the applicable D/G is INOP **AND** unavailable **WHEN** EXCITER SHUTDOWN RESET switch to "STOP".	Recorded in Ops logs that DII is INOPERABLE and unavailable.			
5. **DIRECT** the EO to perform steps 4.3.4 through 4.3.7 CUE: The EO reports that steps 4.3.4 through 4.3.7 are complete.	N/A			
*6. **PLACE** selected 101-A(B, C, D)G501/CS, Diesel Generator Control," to "START".	101-AG501/CS, Diesel Generator Control," in "START".			
7. **WHEN** 3 minute time delay for prelube pump operation is completed, **THEN OBSERVE** diesel generator starts.	Diesel Generator start is observed.			
8. **DIRECT** the EO to perform steps 4.3.10 through 4.3.14 CUE: The EO reports that steps 4.3.10 through 4.3.14 are complete.	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
9. **RECORD** in the OPS log that applicable D/G is now considered available.	Recorded in Ops logs that DII is available.			
10. **VERIFY** frequency meter reads from 59 to 61 Hz.	Frequency verified from 59 to 61 Hz			
*11. **IF** ESW pump is **not** already running, **THEN VERIFY** ESW pump starts 50 to 60 seconds after diesel start. CUE: You have met the termination criteria for the JPM.	Either start the "C" ESW Pump or shutdown D11.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. S92.1.O, "Local and Remote Manual Startup Of A Diesel Generator, is complete up to and including step 4.1.
2. An EO is standing by at D11 D/G to support diesel generator operation.

INITIATING CUES:

You are directed by the CRS to perform a Remote Manual Startup of the D11 Diesel Generator per step 4.3 of S92.1.O.

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 TECW PUMP IN SERVICE

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:

This JPM can be run in any Simulator IC

TASK STANDARD:

The "1B" TECW Pump is in "RUN", the "1A" TECW Pump is in "AUTO"

INITIAL CONDITIONS:

1. Service Water System in operation supplying cooling water to both TECW Heat Exchangers.
2. The Turbine Building EO reports that the "1A" TECW Pump Outboard Bearing is running hot.
3. The EO is standing by to support swapping TECW Pumps

INITIATING CUES:

Shift Supervision directs you to start the "1B" TECW pump and place the "1A" TECW pump in AUTO per S14.6.A, "Placing Alternate TECW 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 TECW PUMP IN SERVICE

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

K/A Number and Importance: 2.1.23 3.9/4.0

Suggested Testing Environment: Simulator

Actual Testing Environment: Simulator

Testing Method: Perform **Faulted:** No

Alternate Path: No

Time Critical: No

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

References: S14.6.A, PLACING ALTERNATE TECW 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 S14.6.A	Current revision of S14.6.A obtained			
2. **VERIFY** standby 14-*001B, "TECW Pump Suction Valve," open. CUE: The EO reports that the 14-*001B is open.	The 14-*001B is verified open.			
3. **VERIFY** standby 14-*005B, "TECW Pump Discharge Valve," open. CUE: The EO reports that the 14-*005B is open.	The 14-*005B is verified open			
4. **VERIFY** 14-*048B, "TECW Pump Minimum Flow Recirc Valve," throttled. CUE: The EO reports that the 14-*048B is throttled.	The14-*048B is verified throttled.			
5. **VENT** TECW Pump using 14-*003B, "TECW Pump Vent," until a steady stream is observed. CUE: The EO reports that "1B" TECW Pump has been vented.	The "1B" TECW Pump is vented.			
*6. **START** standby *BP103, "TECW Pump" (PUMP)	HS-14-101B is taken to START			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6a....**AND PERFORM** the following: -**VERIFY** PI-14-*03B, "TECW Pump Disch," is 60 to 80 psig. -**VERIFY** no excessive vibration **OR** noise at pump/motor. CUE: The EO reports that discharge pressure is 76 psig and no excessive vibration or noise are noted.	"1B" TECW pump discharge pressure verified, "1B" TECW pump is verified to **not** have excessive vibration or noise.			
*7. **STOP** desired *AP103, "TECW Pump" (Pump).	HS-14-101A is taken to STOP			
8. **VERIFY** TECW Pump is **not** spinning backwards. CUE: The EO reports that the "1A" TECW Pump is not rotating backwards.	The "1A" TECW Pump is verified **not** rotating backwards.			
*9. **IF** pump is to remain in standby **THEN PLACE** HS-14-*01A, "TECW Pump Control Switch" (PUMP), in "AUTO"...	HS-14-101A is taken to AUTO			
9a. **AND ENSURE** suction/discharge valves are **not** closed. CUE: The EO reports that "1A" TECW suction and discharge valves are not closed. CUE: You have met the termination criteria for this JPM")	"1A" TECW Pump Suction and Discharge valves are verified **not** closed.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. Service Water System in operation supplying cooling water to both TECW Heat Exchangers.
2. The Turbine Building EO reports that the "1A" TECW Pump Outboard Bearing is running hot.
3. The EO is standing by to support swapping TECW Pumps

INITIATING CUES:

Shift Supervision directs you to start the "1B" TECW pump and place the "1A" TECW pump in AUTO per S14.6.A, "Placing Alternate TECW Pump In Service".

Limerick Generating Station

Job Performance Measure

REMOVING THE "1C" REACTOR FEED PUMP
FROM SERVICE TO A STANDBY CONDITION

JPM Number: LLOJPM0114

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 to new format

SIMULATOR SETUP INSTRUCTIONS:

1. Reset simulator to 60% power IC
2. Toggle Remote Function RFW003 to "Close" to remove Hydrogen (H_2) injection path for "1C" RFP

TASK STANDARD:

The "1C" Reactor Feed Pump is in STANDBY

TASK CONDITIONS:

1. Hydrogen Water Chemistry (HWC) Hydrogen (H_2) injection path for "1C" RFP is removed from service
2. An additional operator is briefed **AND** assigned responsibility to immediately reduce Rx power in the event OT-100, Reactor Low Level, is entered

INITIATING CUE:

You are directed by Shift Supervision to remove the "1C" RFP from service to standby condition using the FWLC Semi-Automatic Sequences per S06.2.C U/1, Section 4.3

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

JPM Number: LLOJPM0114 **Revision Number:** 001

K/A Number and Importance: 259002 A4.02 3.7/3.6

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.C U/1, REMOVING RFP'S FROM SERVICE TO A 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:_____
_____
_____
_____
_____
_____

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. **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 CUE: Provided in initial conditions	N/A			
2. **ACCESS** screen FWLC_07, Automatic Sequences, at FWLCS Operator Station	Screen FWLC_07, Automatic Sequences is accessed			
3. **ENSURE** "READY" box to left of "Stop Of C RFP" sequence is solid green	"READY" box to left of "Stop Of "C" RFP" sequence is solid green			
*4. **SELECT** blue bordered box next to "Stop Of C RFP" sequence until it is outlined in white **AND** then release	Blue bordered box next to "Stop Of C RFP" sequence is selected until it is outlined in white			
*5. **SELECT** "Start" (D4) Dialog Key (at bottom of screen).	"Start" (D4) Dialog Key is selected			
6. **VERIFY** the following on screen FWLC_07, Automatic Sequences, at FWLCS Operator Station:	N/A			
6a. Box next to "Stop Of C RFP" sequence turns solid blue	Box next to "Stop Of C RFP" sequence is solid blue			
6b. Step Number **AND** Title appear next to blue box of "Stop Of C RFP" sequence	Step Number AND Title are next to blue box of "Stop Of C RFP"			
7. **VERIFY** the following automatic actions:	N/A			
7a. Speed of offgoing RFPT slowly lowers to a nominal 2300 RPM	Speed of C RFPT is a nominal 2300 RPM			
7b. Remaining IN SERVICE RFP(s) automatically maintain RPV level.	RPV level remains constant			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
7c. HV-006-108C "1C RFP Disch Vlv" (DISCH C), closes for offgoing RFP	HV-006-108C "1C RFP Disch Vlv" (DISCH C) is closed			
8. **VERIFY** HV-006-105C, "1C RFP Disch Chk Vlv" (FEED, CHECK C), for offgoing RFP is closed at panel 10C651.	HV-006-105C, "1C RFP Disch Chk Vlv" (FEED, CHECK C) is closed			
CUE: You can stop here you have met the termination criteria for this JPM	N/A			

JPM Stop Time _____

TASK CONDITIONS:

1. Hydrogen Water Chemistry (HWC) Hydrogen (H_2) injection path for "1C" RFP is removed from service
2. An additional operator is briefed **AND** assigned responsibility to immediately reduce Rx power in the event OT-100, Reactor Low Level, is entered

INITIATING CUE:

You are directed by Shift Supervision to remove the "1C" RFP from service to standby condition using the FWLC Semi-Automatic Sequences per S06.2.C U/1 section 4.3

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: 15 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 Section 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:	N/A			
*2. **PLACE** 152-11608/CST, "0B Emerg Service Water Pump (0BP548)," to "PULL-TO-LOCK". 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" 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, and then the Transfer Switch is placed in EMERGENCY.			
*4 **PLACE** 152-11608/CST to "CLOSE". CUE: 152-11608/CST is taken to close. Red lamp is lit, green lamp is out. Instructor should use pen to indicate starting current initially, then decaying to running value 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 Section 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:

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

INITIAL CONDITIONS:

1. *A CRD flow control valve is in service.
2. A startup of Unit * is in progress per GP-2.
3. Unit * 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 "*B" CRD flow control valve in service and remove the "*A" 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 A4.14 3.7/3.4

Suggested Testing Environment: Plant

Actual Testing Environment: Plant

Testing Method: Simulate **Faulted:** No

Alternate Path: No

Time Critical: No

Estimated Time to Complete: 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** *OC213, CRD Hydraulic Master Control Area Panel CUE: (Via simulated radio communication) Unit * Reactor Operator standing by for the performance of S46.6.B.	Communication established with Unit Reactor Operator			
3. **VERIFY** FC-046--*R600 "Rod Drive Flow Controller" (FL) is in "AUTO" at *0C603. CUE: Reactor Operator reports, "The CRD Flow Controller is in AUTO.	CRD Flow Controller verified in AUTO at *0C603 from the Reactor Operator			
4. **VERIFY** in-service D009A(B) CRD Flow Controller" is in "AUTO" at *0C213 CUE: CRD Flow Controller D009A is in AUTO.	Local MANUAL/AUTO switch for controller D009A at *0C213 verified in AUTO			
5. **ENSURE** the on-coming D009B(A) "CRD Flow Controller" in "MANUAL" **AND**... CUE: CRD Flow Controller D009A is in AUTO.	Local MANUAL/AUTO switch for controller D009B at *0C213 verified in MANUAL			
5a. ...0% open as indicated by the red arrow at *0C213 CUE: The red arrow for D009B indicates 0% open.	The red arrow for D009B is verified at 0% at *0C213.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6. **PLACE** on-coming FV-C-46-*F002B(A), "CRD Flow Control Valve" in-service:	N/A			
* 6a. **OPEN** 46-*F046B Inlet Isolation Valve CUE: Valve handwheel is rotated counter-clockwise until it stops.	Handwheel for valve 46-*F046B is rotated counter-clockwise until the valve is full open			
* 6b. **OPEN** 46-*F047B Outlet Isolation Valve CUE: Valve handwheel is rotated counter-clockwise until it stops.	Handwheel for valve 46-*F047B is rotated counter-clockwise until the valve is full open			
7. Using FC-046-*R600, "Rod Drive Flow Controller" at *OC603, **ENSURE** FI-46-*R019, CRD Hydraulic Flow Controller," indicates 50-55 gpm at *0C213 CUE: FI-46-*R019 indicates 52 gpm.	System flow is verified to be 50-55 gpm on FI-46-*R019			
10. **IF** 50 to 55 gpm cannot be achieved **THEN** slowly **THROTTLE** closed the off-going 46-*F047A(B), "Outlet Isolation Valve," until FI-46-*R019 indicates 50 to 55 gpm.	N/A			
* 11. **MATCH** off-going D009A(B), "CRD Flow Controller", "MANUAL" (red) indicating arrow to the same position as "AUTO" (black) indicating arrow. CUE: **(Before Adjustment)** The red arrow for D009A is indicating 70%; the black arrow for D009A is indicating 90%. CUE: **(After Adjustment)** The red and black arrow for D009A are indicating 90%.	The control knob for D009A is adjusted so that the red arrow is set to the same position as the black arrow			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 12. **PLACE** off-going D009A(B), "CRD Flow Controller", in "MANUAL" at *OC213 CUE: D009A in MANUAL	Local MANUAL/AUTO switch for controller D009A at *0C213 verified in MANUAL			
13. **MONITOR** system flow at FI-46-*R019 **AND MAINTAIN** 50 to 63 gpm while performing transition.	N/A			
* 14. 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-*R019 CUE: (As D009B Control Knob is rotated clockwise) Indicated flow on FI-46-*R019 has risen to 55 gpm.	D009B control knob has been rotated clockwise until flow increases on FI-46-*R019			
* 15. Alternately **AND** slowly **OPEN** on-coming D009B(A) "CRD Flow Controller" by rotating control knob in clockwise (INCREASE) direction **AND** slowly **CLOSE** off-going D009A(B) "CRD Flow Controller" by rotating control knob in counterclockwise direction CUE: The red indicating arrow for D009B is increasing to 90% open and the red indicating arrow for D009A is decreasing to 0% open. FI-46-*R019 indicates 55 gpm.	The on-coming D009B control knob is slowly rotated clockwise while the off-going D009A control knob is slowly rotated counter-clockwise. System flow is maintained between 50 to 63 gpm on FI-46-*R019 during the transition.			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 16. **WHEN** off-going D009A(B) "CRD Flow Controller" "MANUAL" (red) indicating arrow is at 0% open, **THEN STOP** rotating both control knobs. CUE: The red indicating arrow for D009A is at 0% and the red indicating arrow for D009B is at 90%. FI-46-*R019 indicates 55 gpm.	D009A(B) "CRD Flow Controller" "MANUAL" (red) indicating arrow is at 0% open.			
* 17. **MATCH** on-coming D009B "CRD Flow Controller" "AUTO" (black) indicating arrow with "MANUAL" (red) indicating arrow CUE: The red indicating arrow indicates 90% open and the black indicating arrow indicates 90% open.	**EITHER** the D009B control knob has been adjusted so that the (red) indicating arrow at *0C213 matches the AUTO (black) indicating arrow **OR** the RO has been requested to adjust FC-46-*R600 "CRD Flow Controller" AUTO setpoint at *0C603 until the AUTO (black) indicating arrow matches the MANUAL (red) indicating arrow on D009B at *0C213.			
18. **IF** indicating arrows cannot be matched at *0C213, **THEN PERFORM** the following: 1. **PLACE** FC-046-*R600 in "MANUAL" 2. **ADJUST** FC-046-*R600 output to match "AUTO" (black) indicating arrow with "MANUAL" (red) indicating arrow at *0C213.	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 19. **PLACE** on-coming D009B(A), "CRD Flow Controller" in "AUTO" at *0C213. CUE: D009B is in AUTO.	Local MANUAL/AUTO switch for controller D009B at *0C213 verified in AUTO			
20. **IF** step 4.16.12 was performed... (Step 4.6.12 was **not** performed)	N/A			
* 21. **CLOSE** 46-*F046A Inlet Isolation Valve for off-going FV-C-46-*F002A(B), Flow Control Valve." CUE: Valve handwheel is rotated clockwise until it stops	Handwheel for valve 46-*F046A is rotated clockwise until the valve is full closed.			
* 22. **CLOSE** 46-*F047A Outlet Isolation Valve for off-going FV-C-46-*F002A(B), Flow Control Valve." CUE: Valve handwheel is rotated clockwise until it stops	Handwheel for valve 46-*F047A is rotated clockwise until the valve is full closed.			
21. **INFORM** Reactor Operator on-coming FV-C-46-*F002B(A), Flow Control Valve," is in-service. CUE: The RO responds, "I understand the *B CRD Flow Control Valve has been placed in service."	The RO has been informed that the *B CRD FCV is in service and the *A CRD FCV has been removed from service.			
22. **VERIFY** the following at *0C603: • 50 to 63 gpm on FI-46-*R606. • 255 to 265 psi on PDI-46-*R602, DELTA PX. CUE: The RO reports he has 55 gpm and 260 psi at *0C603. 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 *0C603.			

JPM Stop Time _____

INITIAL CONDITIONS:

1. *A CRD flow control valve is in service.
2. A startup of Unit * is in progress per GP-2.
3. Unit * 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 "*B" CRD flow control valve in service and remove the "*A" 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. _BY160 is not known to be inoperative

INITIATING CUES:

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

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: LLOJPM0001 **Revision Number:** 012

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 T-221	Current revision of T-221 obtained.			
* 2. Obtain tools/equipment from Unit * T200 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 *0C611 (Aux Equip Room):	N/A			
* 3a. **INSTALL** jumper from T1 at relay B21H-K13B/FL to M1 at relay B21H-K1B/EX. (BAY B Attachment 1). CUE: Jumper is installed.	Jumper installed between T1 on relay B21H-K13B/FL to M1 at relay B21H-K1B/EX in *0C611, BAY "B".			
* 3b. **INSTALL** jumper from T1 at relay B21H-K13D/BL to M1 at relay B21H-K16D/BH (BAY D - Attachment 2). CUE: Jumper is installed.	Jumper installed between T1 on relay B21H-K13D/BL to M1 at relay B21H-K16D/BH in *0C611 BAY "D".			
4. **IF** PCIG isolated, **THEN PERFORM** the following at 10C601 (Main Control Room):... (PCIG did **not** isolate)	N/A			
5. **IF** PCIG did **not** isolate due to high Drywell pressure, **THEN PERFORM** the following:	N/A			

JOB PERFORMANCE MEASURE (JPM)

ELEMENT	STANDARD	SAT	UNSAT	Comment Number
* 5a. **INSTALL** jumper T2 to M2 at relay B21H-K105A/CK (Attachment 3), at *0C622 (Aux Equip Room). CUE: Jumper is installed.	Jumper installed between T2 and M2 on relay B21H-K105A/CK.in *0C622.			
* 5b. **INSTALL** jumper BBB4-1 to BBB4-4 (Attachment 3) at *0C622 (Aux Equip Room). CUE: Jumper is installed.	Jumper installed between BBB4-1 and BB4-4 in *0C622.			
* 5c. **INSTALL** jumper T2 to M2 at relay B21H-K105D/CK (Attachment 4), at *0C623 (Aux Equip Room). CUE: Jumper is installed.	Jumper installed between T2 and M2 on relay B21H-K105D/CK in *0C623.			
* 5d. **INSTALL** jumper EEE9-1 to EEE9-3 (Attachment 4) at *0C623 (Aux Equip Room). CUE: Jumper is installed. CUE: You have met the termination criteria for this JPM	Jumper installed between EEE9-1 and EEE9-3 in *0C623.			

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. _BY160 is not known to be inoperative

INITIATING CUES:

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